Customer Training Catalog Course Descriptions

Access Network

HUAWEI Learning Service

2015

CONTENTS

1.1 Training Course Descriptions

Access Network Training Courses are designed as follows:

Code	Training Courses	Level	Duration (working days)	Training Location	Class Size
Principle Training Courses					
OBA00	IP Network Technologies Fundamental	II	0.5		6 ~ 12
OBA01	PON and SDH/MSTP/PTN Product Interconnection	II	1		6 ~ 12
OBA02	Broadband Service Protocols	II	1		6 ~ 12
OBA03	MPLS/PWE3 Fundamental	II	0.5		6 ~ 12
OBA04	IP Multicast Technologies	II	1		6 ~ 12
OBA05	Voice Service Protocols	II	1		6 ~ 12
OBA21	VDSL2 Fundamental	I	0.5		6 ~ 12
OBA20	xDSL Technology Fundamental	I	1		6 ~ 12
OBA20	Ethernet Protection Fundamental Overview	II	1		6 ~ 12
OBA13	Vectoring Overview (WBT)	II	1		6 ~ 12
Evolution and Trends Training Courses					
OBA10	FTTx Network Overview	II	1		6 ~ 12
OBA07	FTTO Solution Overview	II	0.5		6 ~ 12
OBA08	FTTM Solution Overview	II	0.5		6 ~ 12
OBA11	ODN Overview	II	0.5		6 ~ 12
OBA12	NGPON Overview	II	0.5		6 ~ 12
OBA13	Vectoring Overview	II	0.5		6 ~ 12
OBA14	G.fast Overview	II	0.5		6 ~ 12
OBA13	xDSL Network Overview	II	0.5		6 ~ 12
OBA14	FTTx PON+EoC Solution Overview	III	0.5		6 ~ 12
OBA14	MSO CMTS Solution Overview	I	0.5		6 ~ 12
Planning Training Courses					
OBG10	GPON Planning	IV	3		6 ~ 12

OBL10	SmartAX MA5600T (DSLAM) Planning	Ⅳ	3		6 ~ 12
OBM10	SmartAX MA5600T (VoIP) Series Planning	Ⅳ	2		6 ~ 12
OBU10	MSAN UA5000 Planning	Ⅳ	3		6 ~ 12
FTTx PON Products Training Courses					
OBA06	H.248 or SIP Protocol	Ⅱ	0.5		6 ~ 12
OBA22	GPON Fundamental	Ⅰ	0.5		6 ~ 12
OBA23	GPON Fundamentals (WBT)	Ⅰ	1 h		No limit
OBA23	FTTx System Overview (WBT)	Ⅰ	1 h		No limit
OBA80	xDSL Technology In-depth	Ⅲ	0.5		6 ~ 12
OBG00	GPON FTTx System Overview	Ⅰ	0.5		6 ~ 12
OBG00	MA5800 System Overview	Ⅰ	0.5		6 ~ 12
OBG31	GPON FTTx Field Maintenance	Ⅰ	1		6 ~ 12
OBG20	MA5600T Hardware Installation	Ⅰ	1.5		6 ~ 12
OBG30	GPON FTTx Basic Operation and Maintenance	Ⅰ	1		6 ~ 12
OBG33	MA5600T Stand-alone Commisioning	Ⅱ	1		6 ~ 12
OBG33	MA5600T Interconnection Commisioning	Ⅱ	2		6 ~ 12
OBG50	GPON FTTH Triple-play Service Operation and Maintenance	Ⅱ	3		6 ~ 12
OBG51	GPON FTTB/C Triple-play Service Operation and Maintenance	Ⅱ	3		6 ~ 12
OBG51	GPON FTTO Data/Voice Service Operation and Maintenance	Ⅱ	1		6 ~ 12
OBG51	GPON FTTM Base station access Service Operation and Maintenance	Ⅱ	1		6 ~ 12
OBG51	FTTx P2P Service Operation and Maintenance	Ⅱ	1.5		6 ~ 12
OBG60	GPON FTTx Troubleshooting	Ⅱ	1.5		6 ~ 12
OBG81	GPON Theory In-depth	Ⅲ	0.5		6 ~ 12
OBG70	GPON Advanced Operation and Maintenance	Ⅲ	5		6 ~ 12
OBG90	GPON Advanced Troubleshooting	Ⅲ	5		6 ~ 12
OBG90	MA5600T Network Protection	Ⅲ	1		6 ~ 12

OBG90	S93 Series Switches Ethernet Protection	III	1		6 ~ 12
OBG90	MA5600T Security Solution	III	1		6 ~ 12
OBG90	BRAS Security Solution	III	0.5		6 ~ 12
OBG90	Integrated Security Solution Practice with MA5600T and BRAS	III	1.5		6 ~ 12
OBG56	PON+EOC Principle	II	1		6 ~ 12
OBG57	D-CMTS Principle	II	0.5		6 ~ 12
OBG58	FTTx EOC System Overview	II	0.5		6 ~ 12
OBG59	iManager U2000 Service Provision (EOC)	II	1		6 ~ 12
OBG60	iManager U2000 Service Provision (D-CMTS)	II	1		6 ~ 12
OBG61	FTTx EOC Troubleshooting	II	0.5		6 ~ 12
OBG62	FTTx D-CMTS Troubleshooting	II	0.5		6 ~ 12
OBG63	FTTx EOC Operation and Maintenance	II	2		6 ~ 12
OBG64	FTTx D-CMTS Operation and Maintenance	II	2		6 ~ 12
OBG35	iODN Operation and Maintenance	III	1.5		6 ~ 12
OBG36	iODN System Introduction	III	0.5		6 ~ 12
OBG37	iODN Solution Overview	II	0.5		6 ~ 12
OBG38	PON Fundamental	I	1		6 ~ 12
OBG39	ODN Overview and Components	II	0.5		6 ~ 12
OBG40	ODN Planning	III	2.5		6 ~ 12
OBG41	iODN Components	II	0.5		6 ~ 12
OBG42	iODN Planning	III	2.5		6 ~ 12
OBG43	U2000 FTTx Troubleshooting	III	1		6 ~ 12
OBG44	ODN Installation and Commissioning	II	1		6 ~ 12
OBG45	ODN Operation and Maintenance	II	2		6 ~ 12
OBG46	iODN NMS Administrator Operation and Maintenance	II	1.17		6 ~ 12
OBO60	ODN and iODN Solution Overview (WBT)	II	1		6 ~ 12
OBF60	FTTX GPON ONU basic operation	II	6		6 ~ 12
OBF61	FTTB/C VDSL2 service principle and configuration	II	12		6 ~ 12

OBF62	FTTB/C Vectoring service system principle and configuration	II	18		6 ~ 12
DSLAM Products Training Courses					
OBL20	MA5600T (DSLAM) Installation	I	1.5		6 ~ 12
OBL33	MA5600T (DSLAM) Service Commissioning	II	2		6 ~ 12
OBL00	MA5600T (DSLAM) Overview	I	0.5		6 ~ 12
OBL00	MA5600T System Overview	I	1.67		6 ~ 12
OBL00	MA5616 (DSLAM) Overview	II	0.5		6 ~ 12
OBL30	MA5600T (DSLAM) Basic Operation and Maintenance	I	1		6 ~ 12
OBL31	MA5600T (DSLAM) Field Maintenance	I	0.5		6 ~ 12
OBL50	MA5600T (DSLAM) Service Configuration	II	3		6 ~ 12
OBL50	MA5616 (DSLAM) Service Configuration	II	2		6 ~ 12
OBL50	DSLAM VDSL Vectoring Service Configuration	II	1.5		6 ~ 12
OBL60	MA5600T (DSLAM) Troubleshooting	II	1		6 ~ 12
OBL60	MA5616 (DSLAM) Troubleshooting	III	0.5		6 ~ 12
OBL60	DSLAM VDSL Vectoring Troubleshooting	III	0.5		6 ~ 12
OBL70	MA5600T (DSLAM) Advanced Operation and Maintenance	III	7		6 ~ 12
OBL90	MA5600T (DSLAM) Advanced Troubleshooting	III	1.5		6 ~ 12
OBC22	SmartAX MA5100 Series Commissioning	II	3.5		6 ~ 12
OBC20	SmartAX MA5100 Series Operation and Maintenance	II	3.5		6 ~ 12
OBC21	SmartAX MA5100 Series Troubleshooting	II	1		6 ~ 12
OBJ22	SmartAX MA5300 Series Commissioning	II	3.5		6 ~ 12
OBJ20	SmartAX MA5300 Series Operation and Maintenance	II	3.5		6 ~ 12
OBJ21	SmartAX MA5300 Series Troubleshooting	II	1		6 ~ 12
OBK22	SmartAX MA5600 Series Commissioning	II	4.5		6 ~ 12
OBK20	SmartAX MA5600 Series Operation and Maintenance	II	5.5		6 ~ 12
OBK21	SmartAX MA5600 Series Troubleshooting	II	1		6 ~ 12
OBK70	SmartAX MA5600 Series Advanced Operation and Maintenance	III	7.5		6 ~ 12

OBK61	SmartAX MA5600 Series Advanced Troubleshooting	III	1		6 ~ 12
OBL70	Vectoring service planning and reforming	II	3		6 ~ 12
OBL71	Vectoring service troubleshooting	II	6		6 ~ 12
OBL72	DSLAM MA5683T basic operation	II	3		6 ~ 12
OBL73	DSLAM MA5683T VDSL2 service configuration	II	6		6 ~ 12
OBL74	DSLAM MA5683T Vectoring service principle and configuration	II	12		6 ~ 12
MSAN Products Training Courses					
OBM00	SmartAX MA5600T (VoIP) Series System Overview	I	0.5		6 ~ 12
OBM30	SmartAX MA5600T (VoIP) Series Basic Operation and Maintenance	II	1		6 ~ 12
OBM33	SmartAX MA5600T (VoIP) Service Commissioning	II	1.5		6 ~ 12
OBM50	SmartAX MA5600T (VoIP) Series Service Configuration	II	0.5		6 ~ 12
OBM60	SmartAX MA5600T (VoIP) Series Troubleshooting	II	0.5		6 ~ 12
OBU00	MSAN UA5000 System Overview	I	0.5		6 ~ 12
OBU30	MSAN UA5000 Basic Operation and Maintenance	I	1		6 ~ 12
OBU33	MSAN UA5000 Field Maintenance	I	0.5		6 ~ 12
OBU20	MSAN UA5000 Hardware Installation	I	1.5		6 ~ 12
OBU31	MSAN UA5000 Broadband Service Commissioning	II	2		6 ~ 12
OBU32	MSAN UA5000 Narrowband Service Commissioning	II	2.5		6 ~ 12
OBU50	MSAN UA5000 Broadband Service Configuration	II	3		6 ~ 12
OBU51	MSAN UA5000 Narrowband Service Configuration	II	3		6 ~ 12
OBU60	MSAN UA5000 Broadband Troubleshooting	II	2		6 ~ 12
OBU61	MSAN UA5000 Narrowband Troubleshooting	II	0.5		6 ~ 12
OBU70	MSAN UA5000 Advanced Operation	III	5		6 ~ 12
OBU62	MSAN UA5000 Advanced Troubleshooting	III	2.5		6 ~ 12
OBU54	HONET V6 Operation and Maintenance	II	6.5		6 ~ 12
BITS Training Courses					
OSU01	SYNLOCK V3 Operation and Maintenance	II	3		6 ~ 12

OSU02	SYNLOCK V5 Operation and Maintenance	II	2		6 ~ 12
OSU03	SYNLOCK T6020 Operation and Maintenance	II	3		6 ~ 12
OSS Training Courses					
ONU01	U2000 System Introduction	II	0.5		6 ~ 12
ONU02	U2000 Alarm and Performance Management	II	0.5		6 ~ 12
ONU08	Access Network Device Introduction	II	1		6 ~ 12
OBN51	iManager N2000 BMS Operation (DSLAM)	II	1.5		6 ~ 12
OBH51	iManager U2000 DSALM MA5600T Series Operation and Maintenance	II	2		6 ~ 12
OBN52	iManager N2000 BMS Operation (MSAN)	II	1.5		6 ~ 12
OBH52	iManager U2000 MSAN UA5000 Operation and Maintenance	II	2		6 ~ 12
OBH53	iManager U2000 MSAN MA5600T (VoIP) Operation and Maintenance	II	1		6 ~ 12
OBN56	iManager N2000 BMS Administration	II	3		6 ~ 12
OBN80	iManager N2000 BMS Advanced Features	III	4		6 ~ 12
OBN20	iManager N2000 BMS Installation	II	1		6 ~ 12
OBS01	iManager N2510 Software Test System Overview	II	0.5		6 ~ 12
OBS32	iManager N2510 Software Test System Operation and Maintenance	II	2.5		6 ~ 12
OBS02	iManager N2510 Hardware Test System Overview	II	1		6 ~ 12
OBS33	iManager N2510 Hardware Test System Operation and Maintenance	II	2		6 ~ 12
OBS03	iManager N2510 OLS System Overview	II	1		6 ~ 12
OBS34	iManager N2510 OLS System Operation and Maintenance	II	2		6 ~ 12
OBS04	iManager N2510 Test System Overview	II	0.5		6 ~ 12
OBS40	iManager N2510 Test System Administration	II	2.5		6 ~ 12
OBN00	iManager N2000 BMS Introduction	II	0.5		6 ~ 12
OBN30	iManager N2000 BMS Basic Operation and Maintenance	II	1		6 ~ 12
OBN50	iManager N2000 BMS Operation and Maintenance	II	1.5		6 ~ 12

	(GPON)				
OBH30	U2000 Basic Operation and Maintenance (Access)	II	0.5		6 ~ 12
OBH50	U2000 GPON Service Provisioning	II	3		6 ~ 12
OBH60	U2000 GPON Maintenance	II	2		6 ~ 12
OBH50	U2000 P2P Service Provisioning	II	1		6 ~ 12

1.2 Principle Training Course Descriptions

1.2.1 OBA00 IP Network Technologies Fundamental

Objectives

On completion of this course, the participants will be able to:

- Describe the functions of TCP/IP
- Describe routing process
- Describe the function and process of ARP
- Describe VLAN forwarding process

Target Audience

Technical Support Engineers

Operation and Maintenance Engineers

Prerequisites

- A basic understanding of telecommunication

Content

- Architecture of TCP/IP
- Function of TCP/IP each layer
- Process of TCP/IP data encapsulation
- Different types of Ethernet media
- Ethernet capabilities and limitations
- Layer 2 and 3 switching principles

Training Methods

Lectures

Duration

0.5 working day

Class Size

Min 6, max 12

1.2.2 OBA01 PON and SDH/MSTP/PTN Product Interconnection

Objectives

On completion of this course, the participants will be able to:

- Describe the structure of optical fiber
- Calculation of the optical fiber optical power attenuation
- Calculation of the sub-optical power attenuation
- Describe a variety of fiber optic connectors and passive optical devices
- Description of the fiber optic cable related knowledge
- Description of SDH features and functions
- List SDH network protection
- Describe WDM principle and OTN frame structure

Target Audience

Technical Support Engineers

Operation and Maintenance Engineers

Prerequisites

- A basic understanding of telecommunication

Content

- Fiber fundamental
- Relevant knowledge of the optical power
- Common optical devices introduction
- Fiber-related operation and maintenance
- Fiber optic cable introduction
- SDH principle introduction
- SDH equipment and network applications
- PTN principle introduction
- PTN equipment and network applications
- Access network connect to transmission network introduction
- Interconnection between PON and SDH/MSTP
- Interconnection between PON and PTN

Training Methods

Lectures

Duration

1 working day

Class Size

Min 6, max 12

1.2.3 OBA02 Broadband Service Protocols

Objectives

On completion of this course, the participants will be able to:

- Describe function and message of PPP and PPPoE protocol
- Describe function and message of RADIUS protocol
- Describe function and message of DHCP protocol

Target Audience

Technical Support Engineers
Operation and Maintenance Engineers

Prerequisites

- A basic understanding of telecommunication and data communication

Content

- Basic concept and function of PPP and PPPoE protocol
- Messages and interaction of PPP and PPPoE protocol
- Basic concept and function of RADIUS protocol
- Messages and interaction of RADIUS protocol
- Basic concept and function of DHCP protocol
- Messages and interaction of DHCP protocol

Training Methods

Lectures

Duration

1 working day

Class Size

Min 6, max 12

1.2.4 OBA03 MPLS/PWE3 Fundamental

Objectives

On completion of this course, the participants will be able to:

- Describe MPLS service implementation process
- Describe PWE3 service implementation process

Target Audience

Technical Support Engineers

Operation and Maintenance Engineers

Prerequisites

- A basic understanding of telecommunication and data communication

Content

- MPLS definition and application
- MPLS service implementation process
- PWE3 definition and application
- PWE3 service implementation process

Training Methods

Lectures

Duration

0.5 working day

Class Size

Min 6, max 12

1.2.5 OBA04 IP Multicast Technologies

Objectives

On completion of this course, the participants will be able to:

- Describe multicast definition and application
- Describe multicast network structure
- Describe multicast service implementation process
- Describe function and message of IGMP protocol

Target Audience

Technical Support Engineers

Operation and Maintenance Engineers

Prerequisites

- A basic understanding of telecommunication and data communication

Content

- IPTV network structure and application
- IPTV service implementation process
- Multicast fundamental basic
- IGMP message and interaction process
- IGMP snooping principle
- IGMP proxy principle

Training Methods

Lectures

Duration

1 working day

Class Size

Min 6, max 12

1.2.6 OBA05 Voice Service Protocols

Objectives

On completion of this course, the participants will be able to:

- Describe SIP function and position in network
- Describe SIP typical call flow
- Describe H.248 function and position in network
- Describe H.248 message structure and typical call flow

Target Audience

Technical Support Engineers

Operation and Maintenance Engineers

Prerequisites

- A basic understanding of telecommunication and data communication

Content

- H.248 function and position in network
- H.248 message structure and typical call flow
- SIP function and position in network
- SIP message and typical call flow

Training Methods

Lectures

Duration

1 working day

Class Size

Min 6, max 12

1.2.7 OBA21 VDSL2 Fundamental

Objectives

On completion of this course, the participants will be able to:

- Describe VDSL2 orientation and networking
- Describe VDSL2 modulation mode
- Describe VDSL2 band plans and profiles
- Describe VDSL2 noise dealing principle
- Describe VDSL2 packet transfer mode

Target Audience

Technical Support Engineers

Operation and Maintenance Engineers

Prerequisites

- A basic understanding of telecommunication and data communication

Content

- VDSL2 definition and performance
- VDSL2 modulation
- VDSL2 band plans and profiles
- VDSL2 noise dealing principle
- VDSL2 packet transfer mode
- VDSL2 QoS

Training Methods

Lectures

Duration

0.5 working day

Class Size

Min 6, max 12

1.2.8 OBA20 xDSL Technology Fundamental

Objectives

On completion of this course, the participants will be able to:

- Describe xDSL network solution
- Describe xDSL service solution
- Describe xDSL service process

Target Audience

Technical Support Engineers

Operation and Maintenance Engineers

Prerequisites

- A basic understanding of telecommunication and data communication

Content

- VDSL2 definition and performance
- VDSL2 modulation
- VDSL2 band plans and profiles
- VDSL2 noise dealing principle
- VDSL2 packet transfer mode
- VDSL2 QoS
- G.SHDSL.bis system structure and component
- G.SHDSL.bis theory and key technology
- G.SHDSL.bis service implementation process
- ADSL2+ system structure and component
- ADSL2+ theory and key technology
- ADSL2+ service implementation process

Training Methods

Lectures

Duration

1 working day

Class Size

Min 6, max 12

1.2.9 OBA20 Ethernet Protection Fundamental Overview

Objectives

On completion of this course, the participants will be able to:

- Describe MSTP feature
- Describe Smart Link and Monitor Link feature
- Describe Ethernet link aggregation feature
- Describe BFD feature

Target Audience

Technical Manager

Prerequisites

- A basic understanding of telecommunication and data communication

Content

- MSTP feature Introduction
- Smart Link and Monitor Link feature Introduction
- Ethernet link aggregation feature Introduction
- BFD feature Introduction
- Network protection provisioning Introduction

Training Methods

Lectures

Duration

1 working day

Class Size

Min 6, max 12

1.2.10 OBA13 Vectoring Overview (WBT)

Objectives

On completion of this course, the participants will be able to:

- Describe vectoring technology features
- Describe vectoring key technology
- Describe vectoring network solution

Target Audience

Technical Support Engineers

Operation and Maintenance Engineers

Prerequisites

- A basic understanding of data communications
- A general knowledge of telecom networks

Content

- Describe the xDSL technologies principle
- Describe the working principle of Vectoring
- Describe Vectoring system architecture
- Describe Vectoring hardware
- Describe Vectoring solution

Training Methods

Lectures

Duration

1 working day

Class Size

Min 6, max 12

1.3 Evolution and Trends Training Course Descriptions

1.3.1 OBA10 FTTx Network Overview

Objectives

On completion of this course, the participants will be able to:

- Describe FTTx features and orientation
- Describe FTTx network solution for FTTH/B/C/O/M scenarios
- Describe FTTx service solution, such as high speed Internet service, NGN/IMS services, enterprise private line services, mobile back haul services, etc.
- Describe FTTx OAM solution

Target Audience

Technical Manager

Prerequisites

- A basic understanding of telecommunication and data communication

Content

- Access network evolution
- FTTx typical networking
- FTTx FTTH/H+/B/C/D/P scenarios
- FTTx FTTO/M scenarios
- FTTx service implementation process overview
- FTTx operation and maintenance solution

Training Methods

Lectures

Duration

1 working day

Class Size

Min 6, max 12

1.3.2 OBA07 FTTO Solution Overview

Objectives

On completion of this course, the participants will be able to:

- Describe FTTx features and orientation
- Describe FTTx network solution for FTTO scenario
- Describe FTTO service solution, such as high speed Internet service, NGN/IMS services, enterprise private line services, etc.
- Describe FTTO OAM solution

Target Audience

Technical Manager

Prerequisites

- A basic understanding of telecommunication and data communication

Content

- Access network evolution
- FTTx typical networking
- FTTO scenarios (GPON enterprise products and FTTO networking)
- FTTO service implementation process overview
- FTTO operation and maintenance solution

Training Methods

Lectures

Duration

0.5 working day

Class Size

Min 6, max 12

1.3.3 OBA08 FTTM Solution Overview

Objectives

On completion of this course, the participants will be able to:

- Describe FTTx features and orientation
- Describe FTTx network solution for FTTM scenario
- Describe FTTM service solution, such as enterprise private line services, mobile back haul services, etc.
- Describe FTTM OAM solution

Target Audience

Technical Manager

Prerequisites

- A basic understanding of telecommunication and data communication

Content

- Access network evolution
- FTTx typical networking
- FTTM scenarios (GPON mobile back haul products and networking)
- FTTM service implementation process overview
- FTTM operation and maintenance solution

Training Methods

Lectures

Duration

0.5 working day

Class Size

Min 6, max 12

1.3.4 OBA11 ODN Overview

Objectives

On completion of this course, the participants will be able to:

- Describe ODN network solution
- Describe ODN typical equipment
- Describe ODN maintenance instrument

Target Audience

Technical Manager

Prerequisites

- A basic understanding of telecommunication and data communication

Content

- ODN network structure
- ODN network typical application
- ODN typical equipment
- ODN test instrument introduction

Training Methods

Lectures

Duration

0.5 working day

Class Size

Min 6, max 12

1.3.5 OBA12 NGPON Overview

Objectives

On completion of this course, the participants will be able to:

- Describe NGPON features
- Describe NGPON implementation principle
- Describe NGPON network solution

Target Audience

Technical Manager

Prerequisites

- A basic understanding of telecommunication and data communication
- Completion of GPON Fundamental Training or have equivalent knowledge

Content

- 10G GPON introduction
- 10G GPON key technology
- 10G GPON network solution
- 10G GPON and 10G EPON
- 40G GPON introduction

Training Methods

Lectures

Duration

0.5 working day

Class Size

Min 6, max 12

1.3.6 OBA13 Vectoring Overview

Objectives

On completion of this course, the participants will be able to:

- Describe vectoring technology features
- Describe vectoring key technology
- Describe vectoring network solution

Target Audience

Technical Manager

Prerequisites

- A basic understanding of telecommunication and data communication

Content

- Vectoring technology basic
- Vectoring key technology
- FTTx vectoring network solution
- Vectoring service maintenance

Training Methods

Lectures

Duration

0.5 working day

Class Size

Min 6, max 12

1.3.7 OBA14 G.fast Overview

Objectives

On completion of this course, the participants will be able to:

- Describe G.fast technology features
- Describe G.fast key technology
- Describe G.fast network solution

Target Audience

Technical Manager

Prerequisites

- A basic understanding of telecommunication and data communication

Content

- G.fast technology introduction
- G.fast key technology
- DSLAM G.fast network solution

Training Methods

Lectures

Duration

0.5 working day

Class Size

Min 6, max 12

1.3.8 OBA13 xDSL Network Overview

Objectives

On completion of this course, the participants will be able to:

- Describe xDSL network solution
- Describe xDSL service solution
- Describe function of components in xDSL network
- Describe xDSL modulation mode
- Describe xDSL band plans and profiles
- Describe xDSL service encapsulation process

Target Audience

Technical Manager

Prerequisites

- A basic understanding of telecommunication and data communication

Content

- xDSL network solution
- xDSL service solution
- xDSL network components functions
- xDSL modulation mode
- xDSL band plans and profiles
- xDSL service solution

Training Methods

Lectures

Duration

0.5 working day

Class Size

Min 6, max 12

1.3.9 OBA14 FTTx PON+EoC Solution Overview

Objectives

On completion of this course, the participants will be able to:

- Describe traditional cable network Introduction
- Describe CMTS introduction and CMTS network
- Describe PON+EOC solution overview
- Outline the difference between CMTS and xPON

Target Audience

Technical Manager

Prerequisites

- A basic understanding of telecommunication and data communication

Content

- Traditional Cable network Introduction
- CMTS Introduction and CMTS network
- PON+EOC solution overview
- CMTS and xPON comparison

Training Methods

Lectures

Duration

0.5 working day

Class Size

Min 6, max 12

1.3.10 OBA14 MSO CMTS Solution Overview

Objectives

On completion of this course, the participants will be able to:

- Describe traditional cable network Introduction
- Describe CMTS introduction
- Describe MSO CMTS solution

Target Audience

Technical Manager

Prerequisites

- A basic understanding of telecommunication and data communication

Content

- Traditional cable network Introduction
- D-CMTS introduction
- MSO D-CMTS solution overview

Training Methods

Lectures

Duration

0.5 working day

Class Size

Min 6, max 12

1.4 Planning Training Course Descriptions

1.4.1 OBG10 GPON Planning

Objectives

On completion of this course, the participants will be able to:

- Describe GPON network architecture
- Describe GPON network design background
- Outline OLT/ONU product functions and specification
- Outline OLT/ONU hardware architecture and specification
- Design GPON network for multiple services
- Design hardware system
- Plan bandwidth for internet service
- Plan bandwidth for leased line service
- Plan bandwidth for VoIP service
- Plan bandwidth for IPTV service
- Plan VLAN, IP and site name
- Plan QoS
- Design security and protection solution
- Design OAM solution

Target Audience

Design Engineers

Planning Engineers

Prerequisites

- Be familiar with basic knowledge about telecommunications and data communications
- Be familiar with GPON technology
- At least 1 years experience in telecommunication network planning

Content

- GPON network architecture
- GPON service implementation process
- GPON network design background
- GPON network design procedure
- OLT/ONU hardware and software architecture and specification
- GPON capacity
- Internet bandwidth calculation
- Leased line bandwidth calculation
- VoIP and video bandwidth calculation
- GPON VLAN solution
- GPON VLAN planning
- GPON QoS solution
- GPON QoS planning
- GPON security solution
- GPON security planning
- GPON protection solution
- GPON protection planning
- GPON OAM solution
- GPON OAM planning

Training Methods

Lectures

Duration

3 working days

Class Size

Min 6, max 12

1.4.2 OBL10 SmartAX MA5600T (DSLAM) Planning

Objectives

On completion of this course, the participants will be able to:

- Design DSLAM MA5600T network to carry multiple service
- Plan DSLAM MA5600T hardware system
- Plan DSLAM MA5600T service bandwidth
- Plan VLAN, IP and site name
- Plan DSLAM MA5600T QoS and security
- Plan OAM solution for DSLAM MA5600T

Target Audience

Design Engineers

Planning Engineers

Prerequisites

- Having a general knowledge of xDSL technology and IP technology

Content

- Huawei DSLAM solution and application
- List DSL technology features, performance and specification, such as ADSL2+ , G.SHDSL.bis and VDSL2
- DSLAM MA5600T system architecture and specification
- DSLAM MA5600T hardware specification and configuration
- DSLAM MA5600T layer2/layer3 specification and solution
- DSLAM MA5600T DHCP Relay features
- DSLAM MA5600T security characteristics
- DSLAM MA5600T resilience features
- DSLAM MA5600T DHCP Relay planning
- DSLAM MA5600T security planning
- DSLAM MA5600T resilience planning
- DSLAM MA5600T triple-play service solution
- DSLAM MA5600T wholesale service planning
- DSLAM MA5600T leased line service solution
- DSLAM MA5600T leased line service planning
- DSLAM MA5600T internet service bandwidth calculation
- DSLAM MA5600T IPTV bandwidth calculation
- DSLAM MA5600T triple-play bandwidth calculation
- DSLAM MA5600T QoS and ACL solution
- DSLAM MA5600T QoS and ACL planning
- DSLAM MA5600T NMS hardware and software solution
- DSLAM MA5600T NMS hardware, software and license planning

Training Methods

Lectures

Duration

3 working days

Class Size

Min 6, max 12

1.4.3 OBM10 SmartAX MA5600T (VoIP) Series Planning

Objectives

On completion of this course, the participants will be able to:

- Design MA5600T(VoIP) network to carry VoIP service
- Plan MA5600T(VoIP) hardware system
- Plan MA5600T(VoIP) service bandwidth
- Plan VLAN, IP and site name
- Plan VoIP interface parameters
- Plan MA5600T(VoIP) QoS and security
- Plan OAM solution for MA5600T(VoIP)

Target Audience

Design Engineers

Planning Engineers

Prerequisites

- Be familiar with basic knowledge about telecommunications and data communications
- Be familiar with VoIP technology
- At least 1 years experience in telecommunication network planning

Content

- NGN architecture and every layer’s functions
- NGN signaling and voice path
- MA5600T product function in NGN
- NGN solution and network applications
- Describe MA5600T product positioning
- MA5600T product functions
- MA5600T system features
- MA5600T product networking
- MA5600T device management
- MA5600T hardware introduction
- MA5600T hardware planning
- Function of ETAM test system
- Solution of ETAM
- Hardware structure of ETAM
- ETAM planning
- Functions and concept of H.248 protocol
- H.248 data planning
- Functions and concept of SIP protocol
- SIP data planning
- VoIP service traffic calculation
- VoIP signaling traffic calculation
- NMS traffic calculation
- VoIP QoS features
- VoIP QoS planning
- Conception of dual homing, hairpin connection and self-switching
- Network uplink protection solutions
- Network reliability planning
- NMS networking
- NMS nodes calculation
- NMS application cases
- NMS hardware and software planning

Training Methods

Lectures

Duration

2 working days

Class Size

Min 6, max 12

1.4.4 OBU10 MSAN UA5000 Planning

Objectives

On completion of this course, the participants will be able to:

- Describe system structure
- Describe service implementation and solution
- Plan hardware system
- Plan bandwidth for internet service, VoIP service, and multicast service
- Plan VLAN, PVC,IP and site name
- Plan V5 or MG Interface

Target Audience

Design Engineers

Planning Engineers

Prerequisites

- Completion of MSAN UA5000 2nd Line Maintenance Training or having equivalent knowledge

Content

- System structure
- Service implementation
- UA5000 hardware introduction
- UA5000 hardware planning
- Internet service solution
- Wholesale and leased line service solution
- Voice service solution
- Video service solution
- Triple Play end-to-end solution
- Traffic calculation
- Voice quality
- Internet bandwidth analysis
- Leased line bandwidth analysis
- Video service bandwidth analysis
- User traffic limitation
- VLAN and PVC Planning
- IP address planning
- V5 and MG interface Planning
- Name planning
- NMS hardware and software planning
- NMS application cases

Training Methods

Lectures

Duration

3 working days

Class Size

Min 6, max 12

1.5 FTTx PON Products Training Course Descriptions

1.5.1 OBA06 H.248 or SIP Protocol

Objectives

On completion of this course, the participants will be able to:

- Describe SIP function and position in network
- Describe SIP message and message flow
- Describe H.248 function and position in network
- Describe H.248 message structure and call flow

Target Audience

Technical Support Engineers

Operation and Maintenance Engineers

Prerequisites

- A basic understanding of telecommunication and data communication

Content

- SIP function and position in network
- SIP message and typical call flow
- H.248 function and position in network
- H.248 message structure and typical call flow

Training Methods

Lectures

Duration

0.5 working day

Class Size

Min 6, max 12

1.5.2 OBA22 GPON Fundamental

Objectives

On completion of this course, the participants will be able to:

- Describe GPON typical application scenarios
- Describe the functions and specifications of GPON components
- Describe the upstream and downstream technology
- Describe the key performance parameters on distance, bandwidth, optical launched power, received sensitive power, attenuation, etc.
- Describe important concepts about GEM port and T-CONT
- Describe service encapsulation and multiplexing measures
- Describe the QoS and security solution in GPON
- Describe ONT management measures

Target Audience

Technical Support Engineers

Operation and Maintenance Engineers

Prerequisites

- A basic understanding of telecommunication and data communication

Content

- GPON networking
- GPON component
- GPON upstream and downstream implementation
- GPON key performance
- GPON service implementation process
- GPON QoS and security
- GPON protection
- GPON OAM

Training Methods

Lectures

Duration

0.5 working day

Class Size

Min 6, max 12

1.5.3 OBA23 GPON Fundamentals (WBT)

Objectives

On completion of this course, the participants will be able to:

- Describe GPON typical application scenarios
- Describe the functions and specifications of GPON components
- Describe the upstream and downstream technology
- Describe the key performance parameters on distance, bandwidth, optical launched power, received sensitive power, attenuation, etc.
- Describe important concepts about GEM port and T-CONT
- Describe service encapsulation and multiplexing measures
- Describe the QoS and security solution in GPON
- Describe ONT management measures

Target Audience

Technical Support Engineers

Operation and Maintenance Engineers

Prerequisites

- A basic understanding of telecommunication and data communication

Content

- GPON networking
- GPON component
- GPON upstream and downstream implementation
- GPON key performance
- GPON service implementation process
- GPON QoS and security
- GPON protection
- GPON OAM

Training Methods

Multi-media

Duration

1 hour

Class Size

No limit

1.5.4 OBA23 FTTx System Overview (WBT)

Objectives

On completion of this course, the participants will be able to:

- Describe FTTx network architecture
- Describe OLT appearance, typical configuration, parameter and connections
- Describe MxU appearance, typical configuration, parameters
- Describe ONT appearance, typical configuration, parameters
- Describe FTTx cable
- Describe FTTH/B/C/O/M solutions

Target Audience

Technical Support Engineers

Operation and Maintenance Engineers

Prerequisites

- A basic understanding of telecommunication and data communication

Content

- FTTx network introduction
- FTTx cabinet appearance, typical configuration, parameter and connections
- FTTx frame appearance, typical configuration, parameters and principles
- FTTx board appearance, function, front panel and interfaces
- FTTx cable introduction
- FTTH/B/C/O/M solutions

Training Methods

Multi-media

Duration

1 hour

Class Size

No limit

1.5.5 OBA80 xDSL Technology In-depth

Objectives

On completion of this course, the participants will be able to:

- Describe xDSL modulation mode
- Describe xDSL band plans and profiles
- Deal with noise of xDSL line
- Describe xDSL packet transfer mode

Target Audience

Technical Support Engineers

Operation and Maintenance Engineers

Prerequisites

- A basic understanding of telecommunication and data communication

Content

- VDSL2 modulation
- VDSL2 band plans and profiles
- Upstream power back-off (UPBO)
- Downstream power back-off (DPBO)
- PSD Notching
- MIB control PSD
- Virtual Noise and SOS (Emergency Rate Reduction)
- VDSL2 QoS
- VDSL2 packet transfer mode
- Enhanced DSL

Training Methods

Lectures

Duration

0.5 working day

Class Size

Min 6, max 12

1.5.6 OBG00 GPON FTTx System Overview

Objectives

On completion of this course, the participants will be able to:

- Introduce FTTx network
- Describe the function and structure of cabinet, frames, boards and cables
- Describe FTTH/B/C/O/M solutions

Target Audience

Technical Support Engineers

Operation and Maintenance Engineers

Prerequisites

- A basic understanding of telecommunication and data communication

Content

- FTTx network introduction
- FTTx cabinet appearance, typical configuration, parameter and connections
- FTTx frame appearance, typical configuration, parameters and principles
- FTTx board appearance, function, front panel and interfaces
- FTTx cable introduction
- FTTH/B/C/O/M solutions

Training Methods

Lectures

Duration

0.5 working day

Class Size

Min 6, max 12

1.5.7 OBG00 MA5800 System Overview

Objectives

On completion of this course, the participants will be able to:

- Introduce FTTx network
- Describe the function and structure of cabinet, frames, boards and cables of MA5800
- Describe MA5800 application solutions

Target Audience

Technical Support Engineers

Operation and Maintenance Engineers

Prerequisites

- A basic understanding of telecommunication and data communication

Content

- FTTx network introduction
- FTTx cabinet appearance, typical configuration, parameter and connections
- MA5800 frame appearance, typical configuration, parameters and principles
- MA5800 board appearance, function, front panel and interfaces
- MA5800 application solutions

Training Methods

Lectures

Duration

0.5 working day

Class Size

Min 6, max 12

1.5.8 OBG31 GPON FTTx Field Maintenance

Objectives

On completion of this course, the participants will be able to:

- Describe the general methods of field maintenance
- Perform the alarm query and running status query by indications of the LED
- Perform simple OLT/ONT diagnose according to field situation and daily maintenance
- Perform component replacement

Target Audience

Field Technicians

Prerequisites

- A basic knowledge on telecommunication and GPON technology

Content

- General methods of field maintenance
- Alarm query and running status query by indications of the LED
- Simple OLT/ONT diagnose according to field situation and daily maintenance
- Component replacement

Training Methods

Lectures, Hands-on Exercise

Duration

1 working day

Class Size

Min 6, max 12

1.5.9 OBG20 MA5600T Hardware Installation

Objectives

On completion of this course, the participants will be able to:

- Install MA5600T devices cabinet, frame and board properly
- Perform MA5600T devices cable routing and termination properly
- Identify the cautions and facts which may affect MA5600T system running due to improperly installation

Target Audience

Installation technician

Prerequisites

- A basic understanding of telecommunication and data communication

Content

- MA5600T installation tools
- MA5600T installation precautions
- MA5600T cables routing and terminating
- MA5600T cabinet, frame and board installation
- GPON ONT Hardware Installation
- MA562x/MA5612 installation tools
- MA562x/MA5612 installation precautions
- MA562x/MA5612 cables routing and terminating
- MA562x/MA5612 cabinet, frame and board installation

Training Methods

Lectures

Duration

1.5 working days

Class Size

Min 6, max 12

1.5.10 OBG30 GPON FTTx Basic Operation and Maintenance

Objectives

On completion of this course, the participants will be able to:

- Establish the connection and login to the system
- Perform the common basic operation, such as query status of hardware and software, backup and restore data, system name change and alarm query etc.

Target Audience

Technical Support Engineers

Operation and Maintenance Engineers

Prerequisites

- A basic understanding of telecommunication and data communication
- At least 1 year operation and maintenance experience of the telecommunication equipment

Content

- Establish the connection and login to the system
- Query status of hardware and software
- Backup, save and restore data
- SNMP parameter configuration
- Other basic operation, such as system name change and alarm query etc.
- Establish the connection and login to the system
- Query status of hardware and software
- Backup, save and restore data
- SNMP parameter configuration
- Other basic operation, such as system name change and alarm query, etc.

Training Methods

Lectures, Hands-on Exercise

Duration

1 working day

Class Size

Min 6, max 12

1.5.11 OBG33 MA5600T Stand-alone Commisioning

Objectives

On completion of this course, the participants will be able to:

- Perform the hardware commissioning, stand-alone commissioning,
- Perform the commissioning verification

Target Audience

System and service Commissioning Technicians

Prerequisites

- A basic knowledge on GPON technology
- At least 1 year operation and maintenance experience of the telecommunication equipment

Content

- General commissioning procedures of GPON
- Preparations for commissioning
- Stand-alone commissioning

Training Methods

Lectures, Hands-on Exercise

Duration

1 working day

Class Size

Min 6, max 12

1.5.12 OBG33 MA5600T Interconnection Commisioning

Objectives

On completion of this course, the participants will be able to:

- Perform the network commissioning and service commissioning
- Perform the commissioning verification

Target Audience

System and service Commissioning Technicians

Prerequisites

- A basic knowledge on GPON technology
- At least 1 year operation and maintenance experience of the telecommunication equipment

Content

- General commissioning procedures of GPON
- Preparations for commissioning
- NNI Interconnection commissioning
- General commissioning procedures of GPON
- Preparations for commissioning
- UNI Interconnection commissioning

Training Methods

Lectures, Hands-on Exercise

Duration

2 working days

Class Size

Min 6, max 12

1.5.13 OBG50 GPON FTTH Triple-play Service Operation and Maintenance

Objectives

On completion of this course, the participants will be able to:

- Describe GPON FTTH service implementation process
- Perform GPON FTTH HSI service configuration, maintenance and verification.
- Perform GPON FTTH VoIP service configuration, maintenance and verification
- Perform GPON FTTH IPTV service configuration, maintenance and verification

Target Audience

Technical Support Engineers

Operation and Maintenance Engineers

Prerequisites

- A basic knowledge on GPON technology
- At least 1 year operation and maintenance experience of the telecommunication equipment

Content

- GPON FTTH HSI service implementation process
- ONT service and line profiles configuration and management
- GPON FTTH HSI service configuration and maintenance
- GPON FTTH VoIP service implementation process
- GPON FTTH VoIP service configuration, maintenance and verification
- GPON FTTH IPTV service implementation process
- GPON FTTH IPTV service configuration, maintenance and verification

Training Methods

Lectures, Hands-on Exercise

Duration

3 working days

Class Size

Min 6, max 12

1.5.14 OBG51 GPON FTTB/C Triple-play Service Operation and Maintenance

Objectives

On completion of this course, the participants will be able to:

- Describe GPON FTTB/C networking
- Perform GPON FTTB/C HSI service configuration, maintenance and verification
- Perform GPON FTTB/C VoIP service configuration, maintenance and verification
- Perform GPON FTTB/C IPTV service configuration, maintenance and verification

Target Audience

Technical Support Engineers

Operation and Maintenance Engineers

Prerequisites

- Having basic knowledge on GPON technology
- At least 1 year operation and maintenance experience of the telecommunication equipment

Content

- GPON FTTB/C HSI service implementation process
- GPON FTTB/C HSI service configuration, maintenance and verification
- GPON FTTB/C VoIP service implementation process
- GPON FTTB/C VoIP service configuration, maintenance and verification
- GPON FTTB/C IPTV service implementation process
- GPON FTTB/C IPTV service configuration, maintenance and verification

Training Methods

Lectures, Hands-on Exercise

Duration

3 working days

Class Size

Min 6, max 12

1.5.15 OBG51 GPON FTTO Data/Voice Service Operation and Maintenance

Objectives

On completion of this course, the participants will be able to:

- Describe GPON FTTO networking
- Perform GPON FTTO data service configuration, maintenance and verification
- Perform GPON FTTO VoIP service configuration, maintenance and verification
- Troubleshooting GPON FTTO data/voice service

Target Audience

Technical Support Engineers

Operation and Maintenance Engineers

Prerequisites

- Having basic knowledge on GPON technology
- At least 1 year operation and maintenance experience of the telecommunication equipment

Content

- GPON FTTO data service implementation process
- GPON FTTO data service configuration, maintenance and verification
- GPON FTTO HSI service troubleshooting
- GPON FTTO VPN service troubleshooting
- GPON FTTO voice service implementation process
- GPON FTTO voice service configuration, maintenance and verification
- GPON FTTO voice service troubleshooting

Training Methods

Lectures, Hands-on Exercise

Duration

1 working day

Class Size

Min 6, max 12

1.5.16 OBG51 GPON FTTM Base station access Service Operation and Maintenance

Objectives

On completion of this course, the participants will be able to:

- Describe GPON FTTM networking
- Perform GPON FTTM base station access service configuration, maintenance and verification
- Troubleshooting GPON FTTM base station service

Target Audience

Technical Support Engineers

Operation and Maintenance Engineers

Prerequisites

- Having basic knowledge on GPON technology
- At least 1 year operation and maintenance experience of the telecommunication equipment

Content

- GPON FTTM base station access service implementation process
- GPON FTTM base station access service configuration, maintenance and verification
- GPON FTTM base station access service troubleshooting

Training Methods

Lectures, Hands-on Exercise

Duration

1 working day

Class Size

Min 6, max 12

1.5.17 OBG51 FTTx P2P Service Operation and Maintenance

Objectives

On completion of this course, the participants will be able to:

- Describe FTTx P2P networking
- Perform FTTx P2P Triple-play service configuration, maintenance and verification

Target Audience

Technical Support Engineers

Operation and Maintenance Engineers

Prerequisites

- Having basic knowledge on GPON technology
- At least 1 year operation and maintenance experience of the telecommunication equipment

Content

- FTTH P2P triple-play service implementation process
- FTTH P2P HSI service configuration and verification
- FTTH P2P VoIP service configuration and verification
- FTTH P2P IPTV service configuration and verification
- Configuring FTTH P2P HSI service in the lab
- Configuring FTTH P2P VoIP service in the lab
- Configuring FTTH P2P IPTV service in the lab
- FTTH P2P Triple-play service daily maintenance
- FTTH P2P Triple-play service troubleshooting

Training Methods

Lectures, Hands-on Exercise

Duration

1.5 working days

Class Size

Min 6, max 12

1.5.18 OBG60 GPON FTTx Troubleshooting

Objectives

On completion of this course, the participants will be able to:

- Troubleshooting hardware and software system
- Troubleshooting ONU
- Troubleshooting internet access service
- Troubleshooting multicast service
- Troubleshooting voice service

Target Audience

Technical Support Engineers

Operation and Maintenance Engineers

Prerequisites

- Having basic knowledge on GPON technology
- At least 1 year operation and maintenance experience of the telecommunication equipment

Content

- Troubleshoot common faults in GPON system, such as NMS fails to manage a device, service board is in the failed state, control board resets caused by abnormalities, and fan is in the fault state
- Troubleshoot common faults in ONU abnormal state, such as fail to register an ONU, fail to automatically find an ONU and ONU frequently get offline
- Troubleshoot common faults in the Internet access service, such as PPPoE dialup failure, DHCP dialup failure, failure to access the Internet after successful dialup, Internet access service interruption, and low Internet access rate
- Troubleshoot common faults in the voice service, such as no tone after offhook, busy tone after offhook, one-way audio in communication, noise in communication, poor voice service in communication, and failure to dial certain phone numbers
- Troubleshoot common faults in the multicast service. such as multicast user failing to go online, dark screen after going online and demanding a program, erratic display (mosaic) in a multicast program, abnormal interruption of a multicast program, and long time in switching programs

Training Methods

Lectures, Hands-on Exercise

Duration

1.5 working days

Class Size

Min 6, max 12

1.5.19 OBG81 GPON Theory In-depth

Objectives

On completion of this course, the participants will be able to:

- Describe VLAN and QoS solution for FTTH and FTTB
- Describe OAM solution
- Describe VPN solution for FTTO and FTTM

Target Audience

Technical Support Engineers

Operation and Maintenance Engineers

Prerequisites

- Completion of GPON 2nd Line Maintenance Training or having equivalent knowledge

Content

- Explain deep and detailed theoretical GPON technology, focus on: GPON framing, ranging procedure, principle of dynamic bandwidth allocation DBA, timing synchronization and type of T-CONTs

Training Methods

Lectures

Duration

0.5 working day

Class Size

Min 6, max 12

1.5.20 OBG70 GPON Advanced Operation and Maintenance

Objectives

On completion of this course, the participants will be able to:

- Describe Layer2 features
- Outline QoS features
- Explain multicast features
- Describe network protection features
- Describe security features

Target Audience

Technical Support Engineers

Operation and Maintenance Engineers

Prerequisites

- Completion of GPON 2nd Line Maintenance Training or having equivalent knowledge

Content

- MA5600T MAC address management
- MA5600T VLAN type and VLAN switch
- MA5600T layer2 forwarding
- MA5600T flow classification
- MA5600T layer2 mutual communication
- MA5600T priority process
- MA5600T traffic monitoring feature
- MA5600T ACL feature
- MA5600T congestion management
- MA5600T traffic overload management
- MA5600T HQoS principle and networking
- MA5600T multicast traffic forwarding principle
- MA5600T multicast control principle
- MA5600T multicast forwarding flow
- MA5600T multicast service provisioning principle
- MA5600T multicast network interface, user interface
- MA5600T multicast bandwidth control
- Type B port 1+1 backup
- Type B dual-homing protection
- Type C protection
- MA5600T MSTP feature and Configuration
- MA5600T Smart Link and Monitor Link feature and Configuration
- MA5600T Ethernet link aggregation feature and Configuration
- MA5600T BFD feature and Configuration
- MA5600T STM-1 protection feature and Configuration
-

Training Methods

Lectures, Hands-on Exercise

Duration

5 working days

Class Size

Min 6, max 12

1.5.21 OBG90 GPON Advanced Troubleshooting

Objectives

On completion of this course, the participants will be able to:

- Troubleshooting OLT hardware and software System
- Troubleshooting ONU
- Troubleshooting internet access service
- Troubleshooting multicast service
- Troubleshooting voice service

Target Audience

Technical Support Engineers

Operation and Maintenance Engineers

Prerequisites

- Completion of GPON 2nd Line Maintenance Training or having equivalent knowledge

Content

- MA5600T Product Overview
- MA5600T System Architecture
- MA5600T Network Applications In-Depth
- MA5600T Equipment Management In-Depth
- MA5600T Technical Specifications In-Depth
- GPON FTTx HSI service implementation process
- GPON FTTx HSI service configuration, maintenance and verification
- GPON FTTx VoIP service implementation process
- GPON FTTx VoIP service configuration, maintenance and verification
- GPON FTTx IPTV service implementation process
- GPON FTTx IPTV service configuration, maintenance and verification
- Troubleshoot common faults in GPON system, such as NMS fails to manage a device, service board is in the failed state, control board resets caused by abnormalities, and fan is in the fault state
- Troubleshoot common faults in ONU abnormal state, such as fail to register an ONU, fail to automatically find an ONU and ONU frequently get offline
- Troubleshoot common faults in the Internet access service, such as PPPoE dialup failure, DHCP dialup failure, failure to access the Internet after successful dialup, Internet access service interruption, and low Internet access rate
- Troubleshoot common faults in the voice service, such as no tone after offhook, busy tone after offhook, one-way audio in communication, noise in communication, poor voice service in communication, and failure to dial certain phone numbers
- Troubleshoot common faults in the multicast service. such as multicast user failing to go online, dark screen after going online and demanding a program, erratic display (mosaic) in a multicast program, abnormal interruption of a multicast program, and long time in switching programs
- Troubleshoot hardware and software system
- Troubleshoot faults in ONU abnormal state
- Troubleshoot faults in the Internet access service
- Troubleshoot faults in the voice service
- Troubleshoot faults in the multicast service

Training Methods

Lectures, Hands-on Exercise

Duration

5 working days

Class Size

Min 6, max 12

1.5.22 OBG90 MA5600T Network Protection

Objectives

On completion of this course, the participants will be able to:

- Perform MSTP Configuration on MA5600T
- Perform Smart Link and Monitor Link Configuration on MA5600T
- Perform Ethernet link aggregation Configuration on MA5600T
- Perform BFD Configuration on MA5600T

Target Audience

Technical Support Engineers

Operation and Maintenance Engineers

Prerequisites

- A basic understanding of telecommunication and data communication

Content

- MA5600T MSTP feature and Configuration
- MA5600T Smart Link and Monitor Link feature and Configuration
- MA5600T Ethernet link aggregation feature and Configuration
- MA5600T BFD feature and Configuration
- MA5600T STM-1 protection feature and Configuration
-

Training Methods

Lectures, Hands-on Exercise

Duration

1 working day

Class Size

Min 6, max 12

1.5.23 OBG90 S93 Series Switches Ethernet Protection

Objectives

On completion of this course, the participants will be able to:

- Perform MSTP Configuration on S93 to interconnect with MA5600T
- Perform Smart Link and Monitor Link Configuration on S93 to interconnect with MA5600T
- Perform Ethernet link aggregation Configurationon on S93 to interconnect with MA5600T
- Perform BFD Configuration on S93 to interconnect with MA5600T

Target Audience

Technical Support Engineers

Operation and Maintenance Engineers

Prerequisites

- A basic understanding of telecommunication and data communication

Content

- S9300 MSTP feature and Configuration
- S9300 Smart Link and Monitor Link feature and Configuration
- S9300 Ethernet link aggregation feature and Configuration
- S9300 BFD feature and Configuration
- S9300 STM-1 protection feature and Configuration
-

Training Methods

Lectures, Hands-on Exercise

Duration

1 working day

Class Size

Min 6, max 12

1.5.24 OBG90 MA5600T Security Solution

Objectives

On completion of this course, the participants will be able to:

- Describe PITP Configuration on MA5600T
- Describe 802.1x Configuration on MA5600T
- Describe Anti-MAC Spoofing and anti-IP Spoofing Configuration on MA5600T
- Describe User isolation and line security Configuration on MA5600T

Target Audience

Technical Support Engineers

Operation and Maintenance Engineers

Prerequisites

- A basic understanding of telecommunication and data communication

Content

- PITP feature
- DHCP option82 feature
- 802.1x feature
- Anti-MAC Spoofing and anti-IP Spoofing feature
- User isolation and line security feature

Training Methods

Lectures

Duration

1 working day

Class Size

Min 6, max 12

1.5.25 OBG90 BRAS Security Solution

Objectives

On completion of this course, the participants will be able to:

- Describe PITP Configuration on BRAS
- Describe 802.1x Configuration with BRAS
- Describe Anti-MAC Spoofing and anti-IP Spoofing Configuration on BRAS
- Describe User isolation and line security Configuration on BRAS

Target Audience

Technical Support Engineers

Operation and Maintenance Engineers

Prerequisites

- A basic understanding of telecommunication and data communication

Content

- PITP feature with BRAS
- 802.1x feature with BRAS
- Anti-MAC Spoofing and anti-IP Spoofing feature
- User isolation and line security feature with BRAS

Training Methods

Lectures

Duration

0.5 working day

Class Size

Min 6, max 12

1.5.26 OBG90 Integrated Security Solution Practice with MA5600T and BRAS

Objectives

On completion of this course, the participants will be able to:

- Perform PITP Configuration with BRAS and MA5600T
- Perform 802.1x Configuration with BRAS and MA5600T
- Perform Anti-MAC Spoofing and anti-IP Spoofing Configuration with BRAS and MA5600T
- Perform User isolation and line security Configuration with BRAS and MA5600T

Target Audience

Technical Support Engineers

Operation and Maintenance Engineers

Prerequisites

- A basic understanding of telecommunication and data communication

Content

- PITP Configuration with BRAS and MA5600T
- 802.1x Configuration with BRAS and MA5600T
- Anti-MAC Spoofing and anti-IP Spoofing Configuration and MA5600T
- User isolation and line security Configuration with BRAS and MA5600T

Training Methods

Hands-on Exercise

Duration

1.5 working days

Class Size

Min 6, max 12

1.5.27 OBG56 PON+EOC Principle

Objectives

On completion of this course, the participants will be able to:

- Describe EOC concepts
- Describe EOC technologies

Target Audience

Technical Support Engineers

Operation and Maintenance Engineers

Prerequisites

- A basic understanding of telecommunication and data communication
- At least 1 year operation and maintenance experience of the telecommunication equipment

Content

- GPON networking
- GPON component
- GPON upstream and downstream implementation
- GPON key performance
- GPON service implementation process
- GPON QoS and security
- GPON protection
- GPON OAM
- HFC technology basic
- HFC network introduction
- EOC concepts
- EOC technologies overview

Training Methods

Lectures

Duration

1 working day

Class Size

Min 6, max 12

1.5.28 OBG57 D-CMTS Principle

Objectives

On completion of this course, the participants will be able to:

- Describe EOC concepts
- Describe EOC technologies

Target Audience

Technical Support Engineers

Operation and Maintenance Engineers

Prerequisites

- A basic understanding of telecommunication and data communication
- At least 1 year operation and maintenance experience of the telecommunication equipment

Content

- HFC technology basic
- HFC network introduction
- CMTS concepts
- D-CMTS technologies overview

Training Methods

Lectures

Duration

0.5 working day

Class Size

Min 6, max 12

1.5.29 OBG58 FTTx EOC System Overview

Objectives

On completion of this course, the participants will be able to:

- Describe FTTx basic concepts and applications
- Describe FTTx EOC product architecture
- Describe FTTx EOC MA563x features
- Describe how to integrate EOC product in CATV network

Target Audience

Technical Support Engineers

Operation and Maintenance Engineers

Prerequisites

- A basic understanding of telecommunication and data communication
- At least 1 year operation and maintenance experience of the telecommunication equipment

Content

- FTTx MA5600T product architecture
- FTTx MA5600T product functions
- FTTx MA5631/MA5632 product architecture
- FTTx MA5631/MA5632 product functions
- FTTx HG7022/HG7042 product architecture
- FTTx HG7022/HG7042 product functions and features
- FTTx EOC network overview

Training Methods

Lectures

Duration

0.5 working day

Class Size

Min 6, max 12

1.5.30 OBG59 iManager U2000 Service Provision (EOC)

Objectives

On completion of this course, the participants will be able to:

- Perform the FTTx EOC service provisioning on U2000

Target Audience

Technical Support Engineers

Operation and Maintenance Engineers

Prerequisites

- Completion of FTTx EOC Operation and Maintenance course or having basic knowledge on GPON and EOC technology
- At least 1 year operation and maintenance experience of the telecommunication equipment

Content

- iManager U2000 service Provisioning（EOC）

Training Methods

Lectures, Hands-on Exercise

Duration

1 working day

Class Size

Min 6, max 12

1.5.31 OBG60 iManager U2000 Service Provision (D-CMTS)

Objectives

On completion of this course, the participants will be able to:

- Perform the FTTx D-CMTS service provisioning on U2000

Target Audience

Technical Support Engineers

Operation and Maintenance Engineers

Prerequisites

- Completion of FTTx EOC Operation and Maintenance course or having basic knowledge on GPON and EOC technology
- At least 1 year operation and maintenance experience of the telecommunication equipment

Content

- iManager U2000 service Provisioning (D-CMTS)

Training Methods

Lectures, Hands-on Exercise

Duration

1 working day

Class Size

Min 6, max 12

1.5.32 OBG61 FTTx EOC Troubleshooting

Objectives

On completion of this course, the participants will be able to:

- Describes how to troubleshoot FTTx EOC common faults and deal with emergencies in services and functions

Target Audience

Technical Support Engineers

Operation and Maintenance Engineers

Prerequisites

- Completion of FTTx EOC Operation and Maintenance course or having basic knowledge on GPON and EOC technology
- At least 1 year operation and maintenance experience of the telecommunication equipment

Content

- Commonly used methods and tools for FTTx service
- Troubleshooting the MA5600T system
- Troubleshooting the FTTx EOC ONU devices
- Troubleshooting the FTTx EOC service

Training Methods

Lectures

Duration

0.5 working day

Class Size

Min 6, max 12

1.5.33 OBG62 FTTx D-CMTS Troubleshooting

Objectives

On completion of this course, the participants will be able to:

- Describes how to troubleshoot FTTx D-CMTS common faults and deal with emergencies in services and functions

Target Audience

Technical Support Engineers

Operation and Maintenance Engineers

Prerequisites

- Completion of FTTx EOC Operation and Maintenance course or having basic knowledge on GPON and EOC technology
- At least 1 year operation and maintenance experience of the telecommunication equipment

Content

- Commonly used methods and tools for FTTx service
- Troubleshooting the MA5600T system
- Troubleshooting the FTTx D-CMTS devices
- Troubleshooting the FTTx D-CMTS triple-play service

Training Methods

Lectures

Duration

0.5 working day

Class Size

Min 6, max 12

1.5.34 OBG63 FTTx EOC Operation and Maintenance

Objectives

On completion of this course, the participants will be able to:

- Perform the ONU adding and check the ONU status
- Describe FTTx EOC HSI service configuration procedure
- Perform FTTx EOC HSI service configuration correctly based on data planning

Target Audience

Technical Support Engineers

Operation and Maintenance Engineers

Prerequisites

- Completion of PON+EOC Principle course and FTTx EOC System Overview course or having basic knowledge on GPON and EOC technology
- At least 1 year operation and maintenance experience of the telecommunication equipment

Content

- FTTx EOC ONU line profile and service profile configuration
- FTTx EOC ONU adding
- FTTx EOC ONU status and configuration maintenance
- FTTx EOC ONU operation and maintenance provisioning
- FTTx EOC HSI service network
- FTTx EOC HSI service configuration procedure
- FTTx EOC HSI service data plan and configuration and certification
- FTTx ECO HSI service query and modify commands
- FTTx EOC broadband configuration Provisioning

Training Methods

Lectures, Hands-on Exercise

Duration

2 working days

Class Size

Min 6, max 12

1.5.35 OBG64 FTTx D-CMTS Operation and Maintenance

Objectives

On completion of this course, the participants will be able to:

- Describe FTTx D-CMTS Triple-play service configuration procedure
- Perform FTTx D-CMTS Triple-play service configuration correctly based on data planning

Target Audience

Technical Support Engineers

Operation and Maintenance Engineers

Prerequisites

- Completion of PON+EOC Principle course and FTTx EOC System Overview course or having basic knowledge on GPON and EOC technology
- At least 1 year operation and maintenance experience of the telecommunication equipment

Content

- FTTx D-CMTS Triple-play service network
- FTTx D-CMTS Triple-play service configuration procedure
- FTTx D-CMTS Triple-play service data plan and configuration and certification
- FTTx D-CMTS Triple-play service query and modify commands
- FTTx D-CMTS Triple-play service configuration practice
- FTTx D-CMTS Triple-play service certification

Training Methods

Lectures, Hands-on Exercise

Duration

2 working days

Class Size

Min 6, max 12

1.5.36 OBG35 iODN Operation and Maintenance

Objectives

On completion of this course, the participants will be able to:

- Describe iODN networking and hardware
- Describe iODN solution
- Outline the benefits of iODN solution
- Describe U2000 ODN NMS position and function
- Describe U2000 ODN NMS basic operation in web client
- Add resource through U2000 ODN NMS web client
- Configure iODN and services through U2000 ODN NMS web client
- Implement troubleshooting in U2000 ODN NMS web client
- Describe iFiled basic operation in onsite construction
- Describe the fiber jump process in and among the cabinet
- Outline remove fiber operation steps
- Outline cancel order operation steps

Target Audience

Technical Support Engineers

Operation and Maintenance Engineers

Prerequisites

- Be familiar with basic knowledge about ODN

Content

- U2000 ODN NMS position and function introduction
- U2000 ODN NMS basic operation in web client introduction
- Resource adding through U2000 ODN NMS web client
- iODN and services configuration through U2000 ODN NMS web client
- Troubleshooting in U2000 ODN NMS web client
- iField basic operation in onsite construction
- Perform the fiber jump process in and among the cabinet
- Perform remove fiber operation steps
- Perform cancel order operation steps

Training Methods

Lectures, Hands-on Exercise

Duration

1.5 working days

Class Size

Min 6, max 12

1.5.37 OBG36 iODN System Introduction

Objectives

On completion of this course, the participants will be able to:

- Describe ODN Network Composing
- Describe ODN Network Maintenance Challenge
- Describe iODN Network Structure
- Describe iODN Solution Module
- Outline iODN advantage
- Describe iODF function and application
- Describe iFDT function and application
- Describe iField component

Target Audience

Technical Support Engineers

Operation and Maintenance Engineers

Prerequisites

- Be familiar with basic knowledge about ODN

Content

- ODN network composing
- ODN network maintenance Challenge
- iODN network structure
- iODN solution module
- iODN advantage
- iODF function and application introduction
- iFDT function and application introduction
- iField component introduction

Training Methods

Lectures, Hands-on Exercise

Duration

0.5 working day

Class Size

Min 6, max 12

1.5.38 OBG37 iODN Solution Overview

Objectives

On completion of this course, the participants will be able to:

- Describe ODN Network Composing
- Describe ODN Network Maintenance Challenge
- Describe iODN Network Structure
- Describe iODN Solution Module
- Outline iODN advantage

Target Audience

Technical Support Engineers

Operation and Maintenance Engineers

Prerequisites

- Be familiar with basic knowledge about ODN

Content

- ODN operation and maintenance challenge
- iODN solution
- iODN product

Training Methods

Lectures, Hands-on Exercise

Duration

0.5 working day

Class Size

Min 6, max 12

1.5.39 OBG38 PON Fundamental

Objectives

On completion of this course, the participants will be able to:

- Describe PON network scenarios
- Describe PON active components

Target Audience

Technical Support Engineers

Operation and Maintenance Engineers

Prerequisites

- Be familiar with basic knowledge about access network

Content

- FTTx network introduction
- FTTx cabinet appearance, typical configuration, parameter and connections
- FTTx frame appearance, typical configuration, parameters and principles
- FTTx board appearance, function, front panel and interfaces
- FTTx cable introduction
- FTTH/B/C/O/M solutions
- GPON networking
- GPON component
- GPON upstream and downstream implementation
- GPON key performance
- GPON service implementation process
- GPON QoS and security
- GPON protection
- GPON OAM

Training Methods

Lectures, Hands-on Exercise

Duration

1 working day

Class Size

Min 6, max 12

1.5.40 OBG39 ODN Overview and Components

Objectives

On completion of this course, the participants will be able to:

- Describe ODN architecture
- Describe ODF function and application
- Describe FDT function and application
- Describe FAT function and application
- Describe Closure function and application
- Describe Splitter function and application
- Describe TB/ATB/CTB function and application

Target Audience

Technical Support Engineers

Operation and Maintenance Engineers

Prerequisites

- Be familiar with basic knowledge about ODN

Content

- ODN architecture
- ODF function, specification and application
- FDT function, specification and application
- FAT function, specification and application
- Closure function, specification and application
- Splitter function, specification and application
- TB function, specification and application
- ATB function, specification and application
- CTB function, specification and application

Training Methods

Lectures, Hands-on Exercise

Duration

0.5 working day

Class Size

Min 6, max 12

1.5.41 OBG40 ODN Planning

Objectives

On completion of this course, the participants will be able to:

- Describe ODN project lifecycle
- Outline ODN planning process
- Outline ODN planning considerations
- Outline ODN topology design
- Describe ODN splitting strategy
- Describe ODN protection design
- Describe ODN design scenario models
- Describe ODN Cable Plan Considerations
- Perform ODN Cable Route Design
- Perform ODN Cable Core Design
- Perform ODN Cable Type Selection
- Describe ODN civil work methodology
- Outline ODN duct type
- Outline ODN manhole and handhole
- Describe ISP typical scenarios and solutions
- Outline ISP modules and workflow
- Describe ODN Case

Target Audience

Technical Support Engineers

Operation and Maintenance Engineers

Prerequisites

- Be familiar with basic knowledge about ODN

Content

- ODN project lifecycle
- ODN planning considerations
- ODN planning methodology and process
- ODN topology solutions
- ODN protection solutions
- ODN splitting strategies
- ODN equipment location selection
- ODN link loss budget
- ODN cable plan considerations
- ODN cable route design
- ODN cable core design
- ODN cable type selection
- ODN civil work methodology
- ODN duct type
- ODN manhole and handhole
- ISP typical scenarios and solutions
- ISP modules and workflow
- ODN case for existing ducting
- ODN case for low population density

Training Methods

Lectures, Hands-on Exercise

Duration

2.5 working days

Class Size

Min 6, max 12

1.5.42 OBG41 iODN Components

Objectives

On completion of this course, the participants will be able to:

- Describe ODN architecture
- Describe iODF function and application
- Describe iFDT function and application
- Describe iField component

Target Audience

Technical Support Engineers

Operation and Maintenance Engineers

Prerequisites

- Be familiar with basic knowledge about ODN

Content

- iODN architecture
- iODF function, specification and application
- iFDT function, specification and application
- iField function, specification and application

Training Methods

Lectures, Hands-on Exercise

Duration

0.5 working day

Class Size

Min 6, max 12

1.5.43 OBG42 iODN Planning

Objectives

On completion of this course, the participants will be able to:

- Describe iODN planning process
- Outline iODN topology design
- Describe iODN splitting strategy
- Describe iODN protection design
- Describe iODN design scenario models

Target Audience

Technical Support Engineers

Operation and Maintenance Engineers

Prerequisites

- Be familiar with basic knowledge about ODN

Content

- iODN project lifecycle
- iODN planning considerations
- iODN planning methodology and process
- Topology solutions
- Protection solutions
- Splitting strategies
- Equipment location selection
- Link loss budget
- Cable plan considerations
- Cable route design
- Cable core design
- Cable type selection
- Civil work methodology
- Duct type
- Manhole and handhole
- ISP typical scenarios and solutions
- ISP modules and workflow
- iODN case 1
- iODN case 2

Training Methods

Lectures, Hands-on Exercise

Duration

2.5 working days

Class Size

Min 6, max 12

1.5.44 OBG43 U2000 FTTx Troubleshooting

Objectives

On completion of this course, the participants will be able to:

- Analysis FTTx common faults troubleshooting on U2000
- Describe FTTx faults diagnose through U2000
- Describe FTTx faults information collection through U2000
- Describe FTTx case study on U2000

Target Audience

Technical Support Engineers

Operation and Maintenance Engineers

Prerequisites

- Be familiar with basic knowledge about ODN

Content

- FTTx common faults troubleshooting on U2000
- FTTx faults diagnose through U2000
- FTTx faults information collection through U2000
- FTTx troubleshooting case study on U2000

Training Methods

Lectures, Hands-on Exercise

Duration

1 working day

Class Size

Min 6, max 12

1.5.45 OBG44 ODN Installation and Commissioning

Objectives

On completion of this course, the participants will be able to:

- Describe ODN deployment method
- Describe ODN test method

Target Audience

Technical Support Engineers

Operation and Maintenance Engineers

Prerequisites

- Be familiar with basic knowledge about ODN

Content

- ODN civil work
- ODN cable work
- ODN cabinet installation
- ODN testing parameters
- ODN testing preparation
- ODN acceptance testing
- ODN test tool

Training Methods

Lectures, Hands-on Exercise

Duration

1 working day

Class Size

Min 6, max 12

1.5.46 OBG45 ODN Operation and Maintenance

Objectives

On completion of this course, the participants will be able to:

- Describe ODN common operation
- Describe preventive maintenance purpose
- List the maintenance tools
- List of preventive Maintenance items
- List of planed maintenance items
- Complete maintenance tasks
- Outline troubleshooting flow
- Analysis the ODN common fault
- Locate the ODN common fault
- Complete corrective maintenance tasks
- Describe common fault category
- Outline typical fault troubleshooting method
- Complete fault troubleshooting

Target Audience

Technical Support Engineers

Operation and Maintenance Engineers

Prerequisites

- Be familiar with basic knowledge about ODN

Content

- Making an OT terminal
- Connecting optical Fibers
- Replacing components
- Making and writing the Route Label
- Maintenance preparations
- Preventive maintenance
- Planned maintenance
- ODN corrective maintenance overview
- Fault analysis
- Locating fault points
- Fault rectification
- Troubleshooting optical splitter faults
- Troubleshooting optical fiber
- Troubleshooting fiber connection faults
- Troubleshooting optical cable faults
- Troubleshooting other component faults

Training Methods

Lectures, Hands-on Exercise

Duration

2 working days

Class Size

Min 6, max 12

1.5.47 OBG46 iODN NMS Administrator Operation and Maintenance

Objectives

On completion of this course, the participants will be able to:

- Describe U2000 ODN NMS characteristics and software structure
- Describe U2000 ODN NMS ex-interface
- Perform U2000 ODN NMS server and client configuration
- Describe iField function and applications
- Describe alarms and events in U2000 ODN NMS
- Describe monitoring network alarms
- Describe setting and handling alarms
- Outline analyzing alarm correlation
- Describe U2000 ODN NMS security management
- Describe U2000 ODN NMS log management operation
- Outline U2000 ODN NMS time localization management operation
- Adjusting the U2000 ODN NMS
- Managing License
- Managing U2000 ODN NMS database, files and disks
- Describe method of checking resource usage of the server
- Describe how to check running status of processes and services
- Describe method of backing up U2000 ODN NMS data
- Outline normal troubleshooting process and typical cases

Target Audience

Technical Support Engineers

Operation and Maintenance Engineers

Prerequisites

- Be familiar with basic knowledge about ODN

Content

- U2000 ODN NMS introduction
- iField introduction
- iField and U2000 ODN NMS Communication case
- Basic concepts of alarm
- Customizing alarm template
- Monitoring network alarms
- Collecting alarm/event statistics
- Handling alarms
- Setting alarms
- Analyzing alarm correlation
- Security management
- Log management
- Time localization management
- Starting the U2000 ODN NMS system
- Shutting down the U2000 ODN NMS
- Adjusting the U2000 ODN NMS
- Managing license
- Managing U2000 ODN NMS database
- Managing U2000 ODN NMS files and disks
- Routine maintenance
- Troubleshooting

Training Methods

Lectures, Hands-on Exercise

Duration

1.17 working days

Class Size

Min 6, max 12

1.5.48 OBO60 ODN and iODN Solution Overview (WBT)

Objectives

On completion of this course, the participants will be able to:

- Describe ODN Network Composing
- Describe ODN Network Maintenance Challenge
- Describe iODN Network Structure
- Describe iODN Solution Module
- Outline iODN advantage

Target Audience

Technical Support Engineers

Operation and Maintenance Engineers

Prerequisites

- A basic understanding of data communications
- A general knowledge of telecom networks

Content

- ODN architecture overview
- ODN/ iODN solutions
- ODN/ iODN products overview

Training Methods

Lectures

Duration

1 working day

Class Size

Min 6, max 12

1.5.49 OBF60 FTTX GPON ONU basic operation

Objectives

On completion of this course, the participants will be able to:

- Describe MXU features
- Describe MXU basic configuration

Target Audience

Technical Support Engineers

Operation and Maintenance Engineers

Prerequisites

- General understanding of telecommunication network and GPON

Content

- Establish the connection and login to the system
- Query status of hardware and software
- Backup, save and restore data
- SNMP parameter configuration
- Other basic operation, such as system name change and alarm query etc..
- Establish the connection and login to the system
- Query status of hardware and software
- Backup, save and restore data
- SNMP parameter configuration
- Other basic operation, such as system name change and alarm query etc..

Training Methods

Lectures, Hands-on Exercise

Duration

6 working days

Class Size

Min 6, max 12

1.5.50 OBF61 FTTB/C VDSL2 service principle and configuration

Objectives

On completion of this course, the participants will be able to:

- Describe VDSL2 technology features
- Describe VDSL2 key technology
- Describe VDSL2 network solution
- Describe VDSL2 configuration of FTTB/C

Target Audience

Technical Support Engineers

Operation and Maintenance Engineers

Prerequisites

- General understanding of telecommunication network and GPON

Content

- VDSL2 definition and performance
- VDSL2 modulation
- VDSL2 band plans and profiles
- VDSL2 noise dealing principle
- VDSL2 packet transfer mode
- VDSL2 QoS

Training Methods

Lectures, Hands-on Exercise

Duration

12 working days

Class Size

Min 6, max 12

1.5.51 OBF62 FTTB/C Vectoring service system principle and configuration

Objectives

On completion of this course, the participants will be able to:

- Describe vectoring technology features
- Describe vectoring key technology
- Describe vectoring network solution
- Describe vectoring configuration of FTTB/C

Target Audience

Technical Support Engineers

Operation and Maintenance Engineers

Prerequisites

- General understanding of telecommunication network and GPON

Content

- Vectoring technology basic
- Vectoring key technology
- FTTx vectoring network solution
- Vectoring service maintenance
- FTTX Vectoring product positioning and networking
- FTTX Vectoring product functions
- FTTB/C Vectoring service configuration parameter
- FTTB/C Vectoring service configuration profile
- FTTB/C Vectoring service configuration
- FTTB/C Vectoring service configuration practice

Training Methods

Lectures, Hands-on Exercise

Duration

18 working days

Class Size

Min 6, max 12

1.6 DSLAM Products Training Course Descriptions

1.6.1 OBL20 MA5600T (DSLAM) Installation

Objectives

On completion of this course, the participants will be able to:

- Install DSALM MA5600T cabinet, frames and boards properly
- Perform DSALM MA5600T cables routing and termination properly
- Describe the cautions and facts which may affect DSALM MA5600T system running due to improperly installation

Target Audience

Installation technician

Prerequisites

- A basic understanding of telecommunication and data communication

Content

- Cabinet, frame and board installation
- Cable routing and terminating
- Cautions and facts which may affect the system running due to improperly installation

Training Methods

Lectures, Hands-on Exercise

Duration

1.5 working days

Class Size

Min 6, max 12

1.6.2 OBL33 MA5600T (DSLAM) Service Commissioning

Objectives

On completion of this course, the participants will be able to:

- Perform the hardware commissioning, stand-alone commissioning, network commissioning, service commissioning and the commissioning verification

Target Audience

System Commissioning Technicians

Service Commissioning Technicians

Prerequisites

- Having basic knowledge on DSLAM technology
- At least 1 year operation and maintenance experience of the telecommunication equipment

Content

- General commissioning procedures of DSLAM MA5600T
- Preparations for commissioning
- Hardware commissioning, stand-alone commissioning ,network commissioning, service commissioning and the commissioning verification of DSLAM MA5600T

Training Methods

Lectures, Hands-on Exercise

Duration

2 working days

Class Size

Min 6, max 12

1.6.3 OBL00 MA5600T (DSLAM) Overview

Objectives

On completion of this course, the participants will be able to:

- Describe MA5600T product positioning and networking
- Outline MA5600T product functions
- Describe MA5600T system features
- List device management method
- Describe MA5600T cabinet
- Outline MA5600T shelf
- Describe MA5600T functions of boards
- Outline MA5600T cables and interconnection

Target Audience

Technical Support Engineers

Operation and Maintenance Engineers

Prerequisites

- A basic understanding of telecommunication and data communication

Content

- DSLAM MA5600T product positioning and networking
- DSLAM MA5600T product functions
- DSLAM MA5600T system features
- DSLAM MA5600T device management
- DSLAM MA5600T cabinet
- DSLAM MA5600T shelf
- DSLAM MA5600T board function
- DSLAM MA5600T cable and interconnection

Training Methods

Lectures

Duration

0.5 working day

Class Size

Min 6, max 12

1.6.4 OBL00 MA5600T System Overview

Objectives

On completion of this course, the participants will be able to:

- Describe MA5600T product positioning and networking
- Outline MA5600T product functions
- Describe MA5600T system features
- List device management method
- Describe MA5600T cabinet
- Outline MA5600T shelf
- Describe MA5600T functions of boards
- Outline MA5600T cables and interconnection

Target Audience

Technical Support Engineers

Operation and Maintenance Engineers

Prerequisites

- A basic understanding of telecommunication and data communication

Content

- DSLAM MA5600T product positioning and networking
- DSLAM MA5600T product functions
- Cabinet, frame and board installation
- Cable routing and terminating
- Cautions and facts which may affect the system running due to improperly installation

Training Methods

Lectures

Duration

1.67 working days

Class Size

Min 6, max 12

1.6.5 OBL00 MA5616 (DSLAM) Overview

Objectives

On completion of this course, the participants will be able to:

- Describe MA5616 product positioning and networking
- Outline MA5616 product functions
- Describe MA5616 system features
- Describe MA5616 functions of boards
- Outline MA5616 cables and interconnection

Target Audience

Technical Support Engineers

Operation and Maintenance Engineers

Prerequisites

- A basic understanding of telecommunication and data communication

Content

- MA5616 System Overview
- MA5616 Boards Description
- MA5616 Networking Applications
- MA5616 System Overview
- MA5616 System Networking
- MA5616 Narrowband Features
- MA5616 Narrowband Service Reliability
- MA5616 Line Test and Maintenance

Training Methods

Lectures

Duration

0.5 working day

Class Size

Min 6, max 12

1.6.6 OBL30 MA5600T (DSLAM) Basic Operation and Maintenance

Objectives

On completion of this course, the participants will be able to:

- Establish the connection and login to the system
- Perform the common basic operation, such as query status of hardware and software, backup and restore data, system name change, alarm query, etc.

Target Audience

Technical Support Engineers

Operation and Maintenance Engineers

Prerequisites

- Having basic knowledge on DSLAM technology
- At least 1 year operation and maintenance experience of the telecommunication equipment

Content

- Establish the connection and login to the system
- Query status of hardware and software
- Backup, save and restore data
- Other basic operation, such as system name change, alarm query, etc.

Training Methods

Lectures, Hands-on Exercise

Duration

1 working day

Class Size

Min 6, max 12

1.6.7 OBL31 MA5600T (DSLAM) Field Maintenance

Objectives

On completion of this course, the participants will be able to:

- Describe the general methods of field maintenance
- Perform the alarm query and running status query by indications of the LED
- Perform simple diagnose according to field situation and daily maintenance
- Perform component replacement

Target Audience

Field Technicians

Prerequisites

- Having basic knowledge on DSLAM technology
- At least 1 year operation and maintenance experience of the telecommunication equipment

Content

- General methods of field maintenance
- Alarm query and running status query by indications of the LED
- Simple diagnose according to field situation and daily maintenance
- Component replacement

Training Methods

Lectures

Duration

0.5 working day

Class Size

Min 6, max 12

1.6.8 OBL50 MA5600T (DSLAM) Service Configuration

Objectives

On completion of this course, the participants will be able to:

- Describe ADSL2+/VDSL2 service implementation in MA5600T
- Describe multicast service implementation MA5600T
- Manage ADSL2+/VDSL2 line profile
- Complete ADSL2+/VDSL2 service configuration
- Perform ADSL2+/VDSL2 service operation and maintenance
- Complete multicast service configuration
- Perform multicast service operation and maintenance

Target Audience

Technical Support Engineers

Operation and Maintenance Engineers

Prerequisites

- Having basic knowledge on DSLAM technology
- At least 1 year operation and maintenance experience of the telecommunication equipment

Content

- Uplink port configuration
- ADSL2+ line profile configuration
- ADSL2+ port configuration
- ADSL2+ service configuration, query and change
- MAC-address query
- VDSL2 line profile configuration
- VDSL2 port configuration
- VDSL2 service configuration, query and change
- BTV service implementation process
- BTV service configuration, maintenance and verification

Training Methods

Lectures, Hands-on Exercise

Duration

3 working days

Class Size

Min 6, max 12

1.6.9 OBL50 MA5616 (DSLAM) Service Configuration

Objectives

On completion of this course, the participants will be able to:

- Describe ADSL2+/VDSL2 service implementation in MA5616
- Describe multicast service implementation in MA5616
- Manage ADSL2+/VDSL2 line profile
- Complete ADSL2+/VDSL2 service configuration
- Perform ADSL2+/VDSL2 service operation and maintenance
- Complete multicast service configuration
- Perform multicast service operation and maintenance

Target Audience

Technical Support Engineers

Operation and Maintenance Engineers

Prerequisites

- Having basic knowledge on DSLAM technology
- At least 1 year operation and maintenance experience of the telecommunication equipment

Content

- MA5616 CLI Management Overview
- MA5616 Initial Setup
- MA5616 Operation Security Management
- MA5616 Alarm Management
- MA5616 Log Management
- MA5616 Database Management
- MA5616 Hardware Management
- MA5616 Multi-service Principle
- MA5616 Physical Layer Provisioning
- MA5616 Data Link Layer Provisioning
- MA5616 HSI Service Provisioning
- MA5616 Debugging and Mirroring
- MA5616 VoIP Service Implementation Principle
- MA5616 VoIP Service Configuration Basics
- MA5616 VoIP Service Configuration Example
- MA5616 VoIP Service Maintenance

Training Methods

Lectures, Hands-on Exercise

Duration

2 working days

Class Size

Min 6, max 12

1.6.10 OBL50 DSLAM VDSL Vectoring Service Configuration

Objectives

On completion of this course, the participants will be able to:

- Describe VDSL2 service implementation
- Describe multicast service implementation
- Complete VDSL2 service configuration
- Perform VDSL2 service operation and maintenance
- Complete multicast service configuration
- Perform multicast service operation and maintenance

Target Audience

Technical Support Engineers

Operation and Maintenance Engineers

Prerequisites

- Having basic knowledge on DSLAM technology
- At least 1 year operation and maintenance experience of the telecommunication equipment

Content

- DSLAM MA5603T/MA5616/MxU VDSL Vectoring HSI Service Provisioning
- DSLAM MA5603T/MA5616/MxU VDSL Vectoring Multi-service Service Provisioning

Training Methods

Lectures, Hands-on Exercise

Duration

1.5 working days

Class Size

Min 6, max 12

1.6.11 OBL60 MA5600T (DSLAM) Troubleshooting

Objectives

On completion of this course, the participants will be able to:

- Troubleshooting hardware and software system
- Troubleshooting internet access service
- Troubleshooting multicast service

Target Audience

Technical Support Engineers

Operation and Maintenance Engineers

Prerequisites

- Having basic knowledge on DSLAM technology
- At least 1 year operation and maintenance experience of the telecommunication equipment

Content

- Troubleshoot common faults in the MA5600T/MA5603T system, such as NMS fails to manage a device, service board is in the failed state, service board resets repeatedly, control board resets caused by abnormalities, and fan is in the fault state
- Troubleshoot the faults in the internet access service, such as failure to access the Internet after successfully obtaining an IP address, low Internet access rate, frequent offline in accessing the Internet, failure to obtain an IP address in PPPoE dialup, failure to obtain an IP address in the DHCP mode, failure to obtain an IP address in PPPoA dialup, and failure to obtain an IP address in IPoA dialup
- Troubleshoot the faults in the multicast service, such as failure to go online for a multicast user, dark screen after going online and demanding a program, erratic display (mosaic) in a multicast program, abnormal program interruption in watching a program, and long time in switching programs

Training Methods

Lectures

Duration

1 working day

Class Size

Min 6, max 12

1.6.12 OBL60 MA5616 (DSLAM) Troubleshooting

Objectives

On completion of this course, the participants will be able to:

- Troubleshooting hardware and software system
- Troubleshooting internet access service
- Troubleshooting multicast service

Target Audience

Technical Support Engineers

Operation and Maintenance Engineers

Prerequisites

- Having basic knowledge on DSLAM technology
- At least 1 year operation and maintenance experience of the telecommunication equipment

Content

- Troubleshooting Basics
- Gathering Information
- Troubleshooting MA5616 ADSL service
- MA5616 VoIP Fault Analysis and Locating
- Categorized VoIP Fault Troubleshooting
- Case Study

Training Methods

Lectures

Duration

0.5 working day

Class Size

Min 6, max 12

1.6.13 OBL60 DSLAM VDSL Vectoring Troubleshooting

Objectives

On completion of this course, the participants will be able to:

- Troubleshooting vectoring hardware and software system
- Troubleshooting internet/multicast service based on vectoring technology

Target Audience

Technical Support Engineers

Operation and Maintenance Engineers

Prerequisites

- Having basic knowledge on DSLAM technology
- At least 1 year operation and maintenance experience of the telecommunication equipment

Content

- Troubleshooting Basics
- Gathering Information
- Troubleshooting DSLAM MA5603T/MA5616/MxU VDSL Vectoring devices
- Troubleshooting DSLAM MA5603T/MA5616/MxU VDSL Vectoring services

Training Methods

Lectures

Duration

0.5 working day

Class Size

Min 6, max 12

1.6.14 OBL70 MA5600T (DSLAM) Advanced Operation and Maintenance

Objectives

On completion of this course, the participants will be able to:

- Describe triple-play solution introduction
- Complete triple-play service configuration
- Describe and provision xDSL features
- Describe and provision layer2 features
- Describe and provision QoS features
- Describe and provision network protection features
- Describe and provision user security features
- Describe and provision multicast features

Target Audience

Technical Support Engineers

Operation and Maintenance Engineers

Prerequisites

- Completion of DSLAM SmartAX MA5600T Series 2nd Line Maintenance Training or having equivalent knowledge

Content

- MA5600T multicast traffic forwarding principle
- MA5600T multicast control principle
- MA5600T multicast forwarding flow
- MA5600T multicast service provisioning principle
- MA5600T multicast network interface, user interface
- MA5600T multicast bandwidth control
- MA5600T multicast features provisioning
- Triple-play solution introduction
- Triple-play service implementation process
- Triple-play service configuration, maintenance and verification
- DSLAM MA5600T xDSL features
- DSLAM MA5600T xDSL boards introduction
- MA5600T MAC address management
- MA5600T VLAN type and VLAN switch
- MA5600T layer2 forwarding
- MA5600T flow classification
- MA5600T layer2 mutual communication
- MA5600T priority process
- MA5600T traffic monitoring feature
- MA5600T ACL feature
- MA5600T congestion management
- MA5600 QoS provisioning
- MSTP feature
- Smart Link and Monitor Link feature
- Ethernet link aggregation feature
- BFD feature
- Network protection provisioning
- PITP feature
- DHCP option82 feature
- Anti-MAC Spoofing and anti-IP Spoofing feature
- User isolation and line security feature
- User security provisioning

Training Methods

Lectures, Hands-on Exercise

Duration

7 working days

Class Size

Min 6, max 12

1.6.15 OBL90 MA5600T (DSLAM) Advanced Troubleshooting

Objectives

On completion of this course, the participants will be able to:

- Troubleshoot complex faults in hardware and software system
- Troubleshoot complex faults in the Internet access service
- Troubleshoot complex faults in the multicast service

Target Audience

Technical Support Engineers

Operation and Maintenance Engineers

Prerequisites

- Completion of DSLAM SmartAX MA5600T Series 2nd Line Maintenance Training or having equivalent knowledge

Content

- Hardware and software system troubleshooting
- Internet service troubleshooting
- Multicast service troubleshooting

Training Methods

Lectures, Hands-on Exercise

Duration

1.5 working days

Class Size

Min 6, max 12

1.6.16 OBC22 SmartAX MA5100 Series Commissioning

Objectives

On completion of this course, the participants will be able to:

- Perform the hardware commissioning, stand-alone commissioning, network commissioning, service commissioning and the commissioning verification

Target Audience

System Commissioning Technicians

Service Commissioning Technicians

Prerequisites

- A basic understanding of telecommunication and data communication

Content

- System Overview
- Hardware Architecture
- Functional Features
- Networking Applications
- Establish the connection and login to the system
- Query status of hardware and software
- Backup, save and restore data
- SNMP parameter configuration
- Other basic operation, such as system name change, alarm query, etc.
- Uplink port and ADSL2+ configuration
- ATM-DSLAM service configuration
- IP-DSLAM service configuration
- Exercise guide for MA5100 service configuration
- Multicast service provisioning

Training Methods

Lectures, Hands-on Exercise

Duration

3.5 working days

Class Size

Min 6, max 12

1.6.17 OBC20 SmartAX MA5100 Series Operation and Maintenance

Objectives

On completion of this course, the participants will be able to:

- Describe System Overview
- Describe Hardware Architecture
- Describe Functional Features
- Describe Networking Applications
- Introduce CLI
- Perform System Maintenance
- Perform ATM-DSLAM Service Configuration
- Perform IP-DSLAM Service Configuration

Target Audience

Technical Support Engineers

Operation and Maintenance Engineers

Prerequisites

- A basic understanding of telecommunication and data communication

Content

- System Overview
- Hardware Architecture
- Functional Features
- Networking Applications
- Establish the connection and login to the system
- Query status of hardware and software
- Backup, save and restore data
- SNMP parameter configuration
- Other basic operation, such as system name change, alarm query, etc.
- Uplink port and ADSL2+ configuration
- ATM-DSLAM service configuration
- IP-DSLAM service configuration
- Exercise guide for MA5100 service configuration
- Multicast service provisioning

Training Methods

Lectures, Hands-on Exercise

Duration

3.5 working days

Class Size

Min 6, max 12

1.6.18 OBC21 SmartAX MA5100 Series Troubleshooting

Objectives

On completion of this course, the participants will be able to:

- Troubleshooting ADSL service
- Troubleshooting LAN service

Target Audience

Technical Support Engineers

Operation and Maintenance Engineers

Prerequisites

- Completion of SmartAX MA5100 Series Operation and Maintenance course or having basic knowledge on DSLAM technology
- At least 1 year operation and maintenance experience of the telecommunication equipment

Content

- Basics troubleshooting method and procedure
- Faulty information gathering
- ADSL service Troubleshooting
- LAN service Troubleshooting

Training Methods

Lectures, Hands-on Exercise

Duration

1 working day

Class Size

Min 6, max 12

1.6.19 OBJ22 SmartAX MA5300 Series Commissioning

Objectives

On completion of this course, the participants will be able to:

- Perform the hardware commissioning, stand-alone commissioning, network commissioning, service commissioning and the commissioning verification

Target Audience

System Commissioning Technicians

Service Commissioning Technicians

Prerequisites

- A basic understanding of telecommunication and data communication

Content

- System overview
- Hardware architecture
- Functional features
- Networking applications
- Establish the connection and login to the system
- Query status of hardware and software
- Backup, save and restore data
- SNMP parameter configuration
- Other basic operation, such as system name change, alarm query, etc.
- Exercise guide for MA5300 basic configuration
- VLAN description
- Line profile and parameter
- Service configuration example
- BTV Service Introduction
- Basic knowledge of multicast
- Multicast service configuration
- Exercise guide for MA5300 service configuration

Training Methods

Lectures, Hands-on Exercise

Duration

3.5 working days

Class Size

Min 6, max 12

1.6.20 OBJ20 SmartAX MA5300 Series Operation and Maintenance

Objectives

On completion of this course, the participants will be able to:

- Describe product positioning and networking
- Describe hardware architecture
- Describe functional features
- Describe networking applications
- Perform service configuration and maintenance
- Perform system maintenance

Target Audience

Technical Support Engineers

Operation and Maintenance Engineers

Prerequisites

- A basic understanding of telecommunication and data communication

Content

- System overview
- Hardware architecture
- Functional features
- Networking applications
- Establish the connection and login to the system
- Query status of hardware and software
- Backup, save and restore data
- SNMP parameter configuration
- Other basic operation, such as system name change, alarm query, etc.
- Exercise guide for MA5300 basic configuration
- VLAN description
- Line profile and parameter
- Service configuration example
- BTV Service Introduction
- Basic knowledge of multicast
- Multicast service configuration
- Exercise guide for MA5300 service configuration

Training Methods

Lectures, Hands-on Exercise

Duration

3.5 working days

Class Size

Min 6, max 12

1.6.21 OBJ21 SmartAX MA5300 Series Troubleshooting

Objectives

On completion of this course, the participants will be able to:

- Troubleshooting hardware and software system
- Troubleshooting ADSL service
- Troubleshooting LAN service

Target Audience

Technical Support Engineers

Operation and Maintenance Engineers

Prerequisites

- Completion of SmartAX MA5300 Series Operation and Maintenance course or having basic knowledge on DSLAM technology
- At least 1 year operation and maintenance experience of the telecommunication equipment

Content

- Basics troubleshooting method and procedure
- Faulty information gathering
- ADSL service Troubleshooting
- LAN service Troubleshooting

Training Methods

Lectures, Hands-on Exercise

Duration

1 working day

Class Size

Min 6, max 12

1.6.22 OBK22 SmartAX MA5600 Series Commissioning

Objectives

On completion of this course, the participants will be able to:

- Perform the hardware commissioning, stand-alone commissioning, network commissioning, service commissioning and the commissioning verification

Target Audience

System Commissioning Technicians

Service Commissioning Technicians

Prerequisites

- A basic understanding of telecommunication and data communication

Content

- General commissioning procedures of DSLAM MA5600
- Preparations for commissioning
- Hardware commissioning, stand-alone commissioning ,network commissioning, service commissioning and the commissioning verification of DSLAM MA5600

Training Methods

Lectures, Hands-on Exercise

Duration

4.5 working days

Class Size

Min 6, max 12

1.6.23 OBK20 SmartAX MA5600 Series Operation and Maintenance

Objectives

On completion of this course, the participants will be able to:

- Describe system networking and positioning
- Describe hardware architecture
- Describe functional features
- Describe networking applications
- Perform system daily maintenance
- Perform service configuration and maintenance

Target Audience

Technical Support Engineers

Operation and Maintenance Engineers

Prerequisites

- A basic understanding of telecommunication and data communication

Content

- System overview
- Hardware architecture
- Functional features
- Networking applications
- Establish the connection and login to the system
- Query status of hardware and software
- Backup, save and restore data
- SNMP parameter configuration
- Other basic operation, such as system name change, alarm query, etc.
- Exercise guide for MA5600 basic configuration
- VLAN configuration
- ADSL2+ line profile and traffic table
- ADSL2+ port and uplink port configuration
- ADSL2+ configuration example
- Exercise guide for MA5600 ADSL2+ service configuration
- VDSL2 line profile and traffic Table
- VDSL2 port and uplink port configuration
- VDSL2 configuration example
- Exercise guide for MA5600 VDSL2 service configuration
- BTV service introduction
- Basic knowledge of IP Multicast
- BTV service general configuration and maintenance
- BTV service configuration example
- Exercise guide for MA5600 BTV service configuration

Training Methods

Lectures, Hands-on Exercise

Duration

5.5 working days

Class Size

Min 6, max 12

1.6.24 OBK21 SmartAX MA5600 Series Troubleshooting

Objectives

On completion of this course, the participants will be able to:

- Troubleshooting hardware and software
- Troubleshooting ADSL service
- Troubleshooting LAN service
- Troubleshooting Multicast service

Target Audience

Technical Support Engineers

Operation and Maintenance Engineers

Prerequisites

- Completion of SmartAX MA5600 Series Operation and Maintenance course or having basic knowledge on DSLAM technology
- At least 1 year operation and maintenance experience of the telecommunication equipment

Content

- Basics troubleshooting method and procedure
- Faulty information gathering
- ADSL service Troubleshooting
- LAN service Troubleshooting
- Multicast service Troubleshooting

Training Methods

Lectures, Hands-on Exercise

Duration

1 working day

Class Size

Min 6, max 12

1.6.25 OBK70 SmartAX MA5600 Series Advanced Operation and Maintenance

Objectives

On completion of this course, the participants will be able to:

- Describe and provision QinQ VLAN features
- Describe and provision VLAN Stacking features
- Describe and provision PITP features
- Describe and provision DHCP Relay features
- Describe and provision IPoA to IPoE features
- Describe and provision PPPoA to PPPoE features
- Describe and provision Triple-play service

Target Audience

Technical Support Engineers

Operation and Maintenance Engineers

Prerequisites

- Completion of DSLAM SmartAX MA5600 Series 2nd Line Maintenance Training or having equivalent knowledge

Content

- QinQ VLAN features description and provisioning
- VLAN Stacking description and provisioning
- PITP VMODE features description and provisioning
- PITP PMODE features description and provisioning
- DHCP Relay Option 82 features description and provisioning
- DHCP Relay Option 60 features description and provisioning
- IPoA to IPoE features description and provisioning
- PPPoA to PPPoE features description and provisioning
- Triple-play solution introduction
- Triple-play service implementation process
- Triple-play service configuration and maintenance
- DSLAM Line Test Networking and Device Requirement
- DSLAM Line Test Principle
- DSLAM Line Test Items
- DSLAM Line Test Configuration and Example

Training Methods

Lectures, Hands-on Exercise

Duration

7.5 working days

Class Size

Min 6, max 12

1.6.26 OBK61 SmartAX MA5600 Series Advanced Troubleshooting

Objectives

On completion of this course, the participants will be able to:

- Troubleshooting complex faults in MA5600 system
- Troubleshooting complex faults in ADSL service
- Troubleshooting complex faults in internet access service
- Troubleshooting complex faults in multicast service

Target Audience

Technical Support Engineers

Operation and Maintenance Engineers

Prerequisites

- Completion of DSLAM SmartAX MA5600 Series 2nd Line Maintenance Training or having equivalent knowledge

Content

- Hardware system troubleshooting
- Software system troubleshooting
- Internet service troubleshooting
- Multicast service troubleshooting

Training Methods

Lectures, Hands-on Exercise

Duration

1 working day

Class Size

Min 6, max 12

1.6.27 OBL70 Vectoring service planning and reforming

Objectives

On completion of this course, the participants will be able to:

- Describe vectoring planning mothed
- Describe vectoring planning cases

Target Audience

Technical Support Engineers

Operation and Maintenance Engineers

Prerequisites

- A basic understanding of data communications
- A general knowledge of telecom networks

Content

- Vectoring service planning and reforming

Training Methods

Lectures

Duration

3 working days

Class Size

Min 6, max 12

1.6.28 OBL71 Vectoring service troubleshooting

Objectives

On completion of this course, the participants will be able to:

- Describe vectoring troubleshooting mothed

Target Audience

Technical Support Engineers

Operation and Maintenance Engineers

Prerequisites

- A basic understanding of data communications
- A general knowledge of telecom networks

Content

- Vectoring service troubleshooting mothed
- Vectoring service troubleshooting cases
- Vectoring service troubleshooting practice

Training Methods

Lectures, Hands-on Exercise

Duration

6 working days

Class Size

Min 6, max 12

1.6.29 OBL72 DSLAM MA5683T basic operation

Objectives

On completion of this course, the participants will be able to:

- Describe DSLAM MA5603T features
- Describe DSLAM MA5603T basic configuration

Target Audience

Technical Support Engineers

Operation and Maintenance Engineers

Prerequisites

- A basic understanding of data communications
- A general knowledge of telecom networks

Content

- DSLAM MA5683T hardware system
- DSLAM MA5683T service board, control board
- Establish the connection and login to the system
- Query status of hardware and software
- Backup, save and restore data
- SNMP parameter configuration
- Other basic operation, such as system name change, alarm query, etc.

Training Methods

Lectures, Hands-on Exercise

Duration

3 working days

Class Size

Min 6, max 12

1.6.30 OBL73 DSLAM MA5683T VDSL2 service configuration

Objectives

On completion of this course, the participants will be able to:

- Describe VDSL2 technology features
- Describe VDSL2 key technology
- Describe VDSL2 network solution
- Describe VDSL2 configuration on MA5603T

Target Audience

Technical Support Engineers

Operation and Maintenance Engineers

Prerequisites

- A basic understanding of data communications
- A general knowledge of telecom networks

Content

- configure DSLAM MA5683T VDSL2 profile
- configure DSLAM MA5683T VDSL2 parameter
- configure DSLAM MA5683T VDSL2 service
- DSLAM MA5683T VDSL2 service configuration practice

Training Methods

Lectures, Hands-on Exercise

Duration

6 working days

Class Size

Min 6, max 12

1.6.31 OBL74 DSLAM MA5683T Vectoring service principle and configuration

Objectives

On completion of this course, the participants will be able to:

- Describe VDSL2 network solution
- Describe VDSL2 configuration on MA5603T

Target Audience

Technical Support Engineers

Operation and Maintenance Engineers

Prerequisites

- A basic understanding of data communications
- A general knowledge of telecom networks

Content

- Vectoring technology basic
- Vectoring key technology
- FTTx vectoring network solution
- Vectoring service maintenance

Training Methods

Lectures, Hands-on Exercise

Duration

12 working days

Class Size

Min 6, max 12

1.7 MSAN Products Training Course Descriptions

1.7.1 OBM00 SmartAX MA5600T (VoIP) Series System Overview

Objectives

On completion of this course, the participants will be able to:

- Describe MA5600T(VoIP) Product orientation, function and networking application
- Describe MA5600T(VoIP) features
- Describe MA5600T(VoIP) hardware, including cabinet, shelves, boards and cables

Target Audience

Technical Support Engineers

Operation and Maintenance Engineers

Prerequisites

- A basic understanding of telecommunication and data communication

Content

- MA5600T(VoIP) Product orientation, function and networking application
- MA5600T(VoIP) features
- MA5600T(VoIP) cabinet
- MA5600T(VoIP) shelves
- MA5600T(VoIP) boards
- MA5600T(VoIP) boards cables

Training Methods

Lectures

Duration

0.5 working day

Class Size

Min 6, max 12

1.7.2 OBM30 SmartAX MA5600T (VoIP) Series Basic Operation and Maintenance

Objectives

On completion of this course, the participants will be able to:

- Establish the connection and login to the system
- Perform the common basic operation, such as query status of hardware and software, backup and restore data, system name change, alarm query, etc.

Target Audience

Technical Support Engineers

Operation and Maintenance Engineers

Prerequisites

- Having basic knowledge of VoIP
- At least 1 year operation and maintenance experience of the telecommunication equipment

Content

- Establish the connection and login to the system
- Query status of hardware and software
- Backup, save and restore data
- SNMP parameter configuration
- Other basic operation, such as system name change, alarm query, etc.

Training Methods

Lectures, Hands-on Exercise

Duration

1 working day

Class Size

Min 6, max 12

1.7.3 OBM33 SmartAX MA5600T (VoIP) Service Commissioning

Objectives

On completion of this course, the participants will be able to:

- Perform the hardware commissioning, stand-alone commissioning, network commissioning, service commissioning and the commissioning verification

Target Audience

System Commissioning Technicians

Service Commissioning Technicians

Prerequisites

- Having basic knowledge on DSLAM technology
- At least 1 year operation and maintenance experience of the telecommunication equipment

Content

- General commissioning procedures of MSAN MA5600T
- Hardware commissioning, stand-alone commissioning ,network commissioning, service commissioning and the commissioning verification of MSAN MA5600T

Training Methods

Lectures, Hands-on Exercise

Duration

1.5 working days

Class Size

Min 6, max 12

1.7.4 OBM50 SmartAX MA5600T (VoIP) Series Service Configuration

Objectives

On completion of this course, the participants will be able to:

- Describe VoIP service implementation process
- Complete VoIP service configuration
- Perform VoIP service operation and maintenance

Target Audience

Technical Support Engineers

Operation and Maintenance Engineers

Prerequisites

- Having basic knowledge of VoIP
- At least 1 year operation and maintenance experience of the telecommunication equipment

Content

- MA5600T H.248/SIP service implementation process and configuration steps
- MA5600T H.248/SIP service configuration and verification

Training Methods

Lectures

Duration

0.5 working day

Class Size

Min 6, max 12

1.7.5 OBM60 SmartAX MA5600T (VoIP) Series Troubleshooting

Objectives

On completion of this course, the participants will be able to:

- Troubleshooting hardware
- Troubleshooting software
- Troubleshooting VoIP service

Target Audience

Technical Support Engineers

Operation and Maintenance Engineers

Prerequisites

- Having basic knowledge of VoIP
- At least 1 year operation and maintenance experience of the telecommunication equipment

Content

- Troubleshoot the hardware and software of MA5600T
- Troubleshoot common faults in the voice service, such as no tone after offhook, busy tone after offhook, one-way audio in communication, noise in communication, poor voice service in communication, and failure to dial certain phone numbers

Training Methods

Lectures

Duration

0.5 working day

Class Size

Min 6, max 12

1.7.6 OBU00 MSAN UA5000 System Overview

Objectives

On completion of this course, the participants will be able to:

- Describe MSAN UA5000 product positioning
- Outline MSAN UA5000 product functions
- Describe MSAN UA5000 system features
- Describe MSAN UA5000 product networking
- Describe MSAN UA5000 frame, boards and ports

Target Audience

Technical Support Engineers

Operation and Maintenance Engineers

Prerequisites

- A basic understanding of telecommunication and data communication

Content

- MSAN UA5000 product positioning and networking
- MSAN UA5000 product functions
- MSAN UA5000 system features
- MSAN UA5000 frame, boards and ports introduction

Training Methods

Lectures

Duration

0.5 working day

Class Size

Min 6, max 12

1.7.7 OBU30 MSAN UA5000 Basic Operation and Maintenance

Objectives

On completion of this course, the participants will be able to:

- Establish the connection and login to the system
- Perform the common basic operation, such as query status of hardware and software, backup and restore data, system name change, alarm query, etc.

Target Audience

Technical Support Engineers

Operation and Maintenance Engineers

Prerequisites

- Having basic knowledge of MSAN
- At least 1 year operation and maintenance experience of the telecommunication equipment

Content

- Establish the connection and login to the system
- Query status of hardware and software
- Backup, save and restore data
- SNMP parameter configuration
- Other basic operation, such as system name change, alarm query, etc.
- PVM Basic configuration
- IPM Basic configuration

Training Methods

Lectures, Hands-on Exercise

Duration

1 working day

Class Size

Min 6, max 12

1.7.8 OBU33 MSAN UA5000 Field Maintenance

Objectives

On completion of this course, the participants will be able to:

- Describe the general methods of field maintenance
- Perform the alarm query and running status query by indications of the LED
- Perform simple diagnose according to field situation and daily maintenance
- Perform component replacement

Target Audience

Field Technicians

Prerequisites

- Having basic knowledge of MSAN
- At least 1 year operation and maintenance experience of the telecommunication equipment

Content

- PVMB system alarm query and running status query by indications of the LED
- PVMB system simple faults diagnose
- PVMB system daily maintenance
- Component replacement
- IPMB system alarm query and running status query by indications of the LED
- IPMB system simple faults diagnose
- IPMB system daily maintenance

Training Methods

Lectures, Hands-on Exercise

Duration

0.5 working day

Class Size

Min 6, max 12

1.7.9 OBU20 MSAN UA5000 Hardware Installation

Objectives

On completion of this course, the participants will be able to:

- Install UA5000 cabinet, frame and board properly
- Perform UA5000 cable routing and termination properly
- Identify the cautions and facts which may affect UA5000 system running due to improperly installation

Target Audience

Installation technician

Prerequisites

- A basic understanding of telecommunication and data communication

Content

- MSAN UA5000 installation procedure
- MSAN UA5000 cabinet, frame and board installation
- MSAN UA5000 cable routing and termination

Training Methods

Lectures, Hands-on Exercise

Duration

1.5 working days

Class Size

Min 6, max 12

1.7.10 OBU31 MSAN UA5000 Broadband Service Commissioning

Objectives

On completion of this course, the participants will be able to:

- Check the equipment running conditions, such as power connections, fiber connections, mounted boards, etc.
- Perform the broadband system commissioning, network commissioning, xDSL service commissioning
- Eliminate the fault during the commissioning process

Target Audience

Technical Support Engineers

Operation and Maintenance Engineers

Prerequisites

- Having basic knowledge of MSAN
- At least 1 year operation and maintenance experience of the telecommunication equipment

Content

- General commissioning procedures of UA5000 IPM
- Preparations for commissioning
- Hardware commissioning, stand-alone commissioning ,network commissioning, service commissioning and the commissioning verification of UA5000 IPM

Training Methods

Lectures, Hands-on Exercise

Duration

2 working days

Class Size

Min 6, max 12

1.7.11 OBU32 MSAN UA5000 Narrowband Service Commissioning

Objectives

On completion of this course, the participants will be able to:

- Perform the narrowband system commissioning, stand-alone commissioning, network commissioning, voice service commissioning
- Eliminate the fault during the commissioning process

Target Audience

Technical Support Engineers

Operation and Maintenance Engineers

Prerequisites

- Having basic knowledge of MSAN
- At least 1 year operation and maintenance experience of the telecommunication equipment

Content

- General commissioning procedures of UA5000 PVM
- Preparations for commissioning
- Hardware commissioning, stand-alone commissioning ,network commissioning, service commissioning and the commissioning verification of UA5000 PVM

Training Methods

Lectures, Hands-on Exercise

Duration

2.5 working days

Class Size

Min 6, max 12

1.7.12 OBU50 MSAN UA5000 Broadband Service Configuration

Objectives

On completion of this course, the participants will be able to:

- Describe ADSL2+/VDSL2 service implementation process
- Describe multicast service implementation process
- Manage ADSL2+/VDSL2 line profile
- Complete ADSL2+/VDSL2 service configuration
- Perform ADSL2+/VDSL2 service operation and maintenance
- Complete multicast service configuration
- Perform multicast service operation and maintenance

Target Audience

Technical Support Engineers

Operation and Maintenance Engineers

Prerequisites

- Having basic knowledge of MSAN
- At least 1 year operation and maintenance experience of the telecommunication equipment

Content

- ADSL service implementation process
- ADSL service configuration
- ADSL line profile and ADSL port configuration
- ADSL service configuration
- Multicast service implementation process
- Multicast configuration procedure
- Multicast service configuration example
- Configure the ADSL service
- Configure the BTV service

Training Methods

Lectures, Hands-on Exercise

Duration

3 working days

Class Size

Min 6, max 12

1.7.13 OBU51 MSAN UA5000 Narrowband Service Configuration

Objectives

On completion of this course, the participants will be able to:

- Describe Voice service implementation process
- Complete Voice service configuration
- Perform Voice service operation and maintenance

Target Audience

Technical Support Engineers

Operation and Maintenance Engineers

Prerequisites

- Having basic knowledge of MSAN
- At least 1 year operation and maintenance experience of the telecommunication equipment

Content

- V5 voice service implementation
- V5 voice service configuration procedures
- V5 voice service configuration Example
- Configure E1 ports attributes
- Configure V5.2 Interface
- Configure Subscriber Data
- Save the data
- Verification
- VoIP voice service implementation
- VoIP voice service configuration procedures
- VoIP voice service configuration Example
- Configure an IP address for the service network port (ETH1)
- Add A32 line cards and confirm the cards. (Optional)
- H248 interface configuration
- Configure the subscriber data
- Verification

Training Methods

Lectures, Hands-on Exercise

Duration

3 working days

Class Size

Min 6, max 12

1.7.14 OBU60 MSAN UA5000 Broadband Troubleshooting

Objectives

On completion of this course, the participants will be able to:

- Troubleshooting IPM System
- Troubleshooting internet access service
- Troubleshooting multicast service
- Troubleshooting Ethernet port

Target Audience

Technical Support Engineers

Operation and Maintenance Engineers

Prerequisites

- Having basic knowledge of MSAN
- At least 1 year operation and maintenance experience of the telecommunication equipment

Content

- Alarm management
- Common troubleshooting operations
- Ethernet port troubleshooting
- Troubleshooting ADSL line
- Troubleshoot common faults in the Internet access service, such as PPPoE dialup failure, DHCP dialup failure, failure to access the Internet after successful dialup, Internet access service interruption, and low Internet access rate
- Troubleshoot common faults in the multicast service. such as multicast user failing to go online, dark screen after going online and demanding a program, erratic display (mosaic) in a multicast program, abnormal interruption of a multicast program, and long time in switching programs

Training Methods

Lectures

Duration

2 working days

Class Size

Min 6, max 12

1.7.15 OBU61 MSAN UA5000 Narrowband Troubleshooting

Objectives

On completion of this course, the participants will be able to:

- Troubleshooting PVM System
- Troubleshooting Voice service
- Troubleshooting E1 port

Target Audience

Technical Support Engineers

Operation and Maintenance Engineers

Prerequisites

- Having basic knowledge of MSAN
- At least 1 year operation and maintenance experience of the telecommunication equipment

Content

- E1 port troubleshooting
- Troubleshoot common faults in the voice service, such as no tone after offhook, busy tone after offhook, one-way audio in communication, noise in communication, poor voice service in communication, and failure to dial certain phone numbers

Training Methods

Lectures

Duration

0.5 working day

Class Size

Min 6, max 12

1.7.16 OBU70 MSAN UA5000 Advanced Operation

Objectives

On completion of this course, the participants will be able to:

- Describe and provision IPoA to IPoE features
- Describe and provision PPPoA to PPPoE features
- Describe and provision VLAN features
- Describe and provision DHCP Relay features
- Describe and provision DHCP multicast features
- Describe triple play service solution
- Complete Triple-play service configuration
- Describe and provision hairpin connection and self-switching
- Describe line test networking and device requirement

Target Audience

Technical Support Engineers

Operation and Maintenance Engineers

Prerequisites

- Completion of MSAN UA5000 2nd Line Maintenance Training or having equivalent knowledge

Content

- IPoA to IPoE Principles and Configuration
- PPPoA to PPPoE Principles and Configuration
- DSL service configuration
- Configure a MAC address pool
- Enable the switch for IPoA protocol conversion
- Configure a default gateway for IPoA subscribers
- Configure the encapsulation type for IPoA access services
- DSL Service configuration
- Configure a MAC address pool
- Enable the switch for PPPoA protocol conversion
- Configure the encapsulation type for PPPoA access services
- VLAN types and attributes
- QinQ VLAN and Stacking VLAN application and configuration
- Configure Private Circuit Service(QinQ VLAN)
- Configure Multi-ISP Wholesale Service (VLAN Stacking)
- DHCP Relay Conception
- DHCP Relay Configuration
- Configure DHCP Relay for UA5000
- Multicast service implementation
- Multicast Service Configuration, operation and maintenance
- Triple Play service solution
- Triple play service implementation
- Triple Play service configuration, operation and maintenance
- Configure Triple Play Service for UA5000
- Dual homing
- Hairpin connection and self-switching
- Configure IPM System Feature for UA5000
- Line test networking and device Requirement
- Line test principle
- Line test items
- Line test configuration

Training Methods

Lectures, Hands-on Exercise

Duration

5 working days

Class Size

Min 6, max 12

1.7.17 OBU62 MSAN UA5000 Advanced Troubleshooting

Objectives

On completion of this course, the participants will be able to:

- Troubleshooting system
- Troubleshooting Internet Access Service
- Troubleshooting Multicast Service
- Troubleshooting VoIP service

Target Audience

Technical Support Engineers

Operation and Maintenance Engineers

Prerequisites

- Completion of MSAN UA5000 2nd Line Maintenance Training or having equivalent knowledge

Content

- Hardware and software system troubleshooting
- Internet access service troubleshooting
- Multicast service troubleshooting
- VoIP service troubleshooting

Training Methods

Lectures, Hands-on Exercise

Duration

2.5 working days

Class Size

Min 6, max 12

1.7.18 OBU54 HONET V6 Operation and Maintenance

Objectives

On completion of this course, the participants will be able to:

- Describe provision xDSL service
- Describe provision IMA service
- Describe provision Ethernet service
- Describe provision CES service
- Perform V5 interface configuration
- Perform PV8/RSP frame configuration
- Perform user configuration
- Perform POTS service configuration
- Perform ISDN service configuration
- Perform daily operation and maintenance

Target Audience

Technical Support Engineers

Operation and Maintenance Engineers

Prerequisites

- A basic understanding of telecommunication and data communication

Content

- ADSL Service Application
- IMA Service Application
- Ethernet Service Application
- CES application
- Establish the connection and login to the system
- Query status of hardware and software
- Backup, save and restore data
- SNMP parameter configuration
- Other basic operation, such as system name change and alarm query etc.
- ADSL service configuration
- IMA service configuration
- Ethernet service configuration
- CES service configuration
- V5 interface configuration
- PV8/RSP frame configuration
- User configuration
- MD5500 test and alarm function
- EMU introduction
- EMU configuration
- MD5500 ISDN service configuration
- ADSL service configuration
- IMA service configuration
- Ethernet service configuration
- CES service configuration

Training Methods

Lectures, Hands-on Exercise

Duration

6.5 working days

Class Size

Min 6, max 12

1.8 BITS Training Course Descriptions

1.8.1 OSU01 SYNLOCK V3 Operation and Maintenance

Objectives

On completion of this course, the participants will be able to:

- Understand basic concepts of synchronization network
- Describe the composition of synchronization network
- Describe the applications of synchronization network
- Describe the applications of synchronization network
- Describe system structure and features of SYNLOCK V3
- Outline main functions of boards
- Configure different levels of clock source
- Configure SYNLOCK V3 hardware
- Hand on practice via SYNLOCK V3 network management system
- Perform SYNLOCK V3 network management system maintenance
- Perform the basic maintenance operations of SYNLOCK V3
- Complete the maintenance records of SYNLOCK V3
- Describe the common analysis methods of fault locating
- Analyze the typical faults

Target Audience

Technical Support Engineers

Operation and Maintenance Engineers

Prerequisites

- A basic understanding of telecommunication and data communication

Content

- Basic concepts of synchronization network
- Composition of synchronization network
- Applications of synchronization network
- SYNLOCK V3R2 System Overview
- Cabinet and Sub-rack
- Boards and Interfaces
- System Configuration
- SYNLOCK V3 System Overview
- Data Configuration
- Monitoring and Maintenance
- Alarm, Log and Performance Management
- Database Maintenance
- SYNLOCK V3 hardware structure review
- Running environment of equipment
- Precautions of maintenance operations
- Equipment maintenance records
- Troubleshooting ideas and methods
- Troubleshooting cases

Training Methods

Lectures, Hands-on Exercise

Duration

3 working days

Class Size

Min 6, max 12

1.8.2 OSU02 SYNLOCK V5 Operation and Maintenance

Objectives

On completion of this course, the participants will be able to:

- Understand basic concepts of synchronization network
- Describe the composition of synchronization network
- Describe the applications of synchronization network
- Describe the applications of synchronization network
- Describe system structure and features of SYNLOCK V5
- Outline main functions of boards
- Configure different levels of clock source
- Configure SYNLOCK V5hardware
- Hand on practice via SYNLOCK V5 network management system
- Perform SYNLOCK V5 network management system maintenance
- Perform the basic maintenance operations of SYNLOCK V5
- Complete the maintenance records of SYNLOCK V5
- Describe the common analysis methods of fault locating
- Analyze the typical faults

Target Audience

Technical Support Engineers

Operation and Maintenance Engineers

Prerequisites

- A basic understanding of telecommunication and data communication

Content

- Basic concepts of synchronization network
- Composition of synchronization network
- Applications of synchronization network
- SYNLOCK V5 system overview
- Installation and sub-rack
- Boards and interfaces
- System configuration
- SYNLOCK V5 system overview
- Data configuration
- Monitoring and maintenance
- Alarm, log and performance management
- Database maintenance
- Hardware structure review
- Running environment of equipment
- Precautions of maintenance operations
- Equipment maintenance records
- Troubleshooting ideas and methods
- Troubleshooting cases

Training Methods

Lectures, Hands-on Exercise

Duration

2 working days

Class Size

Min 6, max 12

1.8.3 OSU03 SYNLOCK T6020 Operation and Maintenance

Objectives

On completion of this course, the participants will be able to:

- Outline product positioning of SYNLOCK T6020
- Describe hardware structure of SYNLOCK T6020
- State the functions of boards and interfaces
- List the typical system configuration of SYNLOCK T6020
- Describe the network structure and function of SYNLOCK V3
- Complete SYNLOCK T6020 system configuration data via SYNLOCK V3
- Query the device status and alarm via SYNLOCK V3
- Describe the network structure and function of SYNLOCK V3
- Complete SYNLOCK T6020 system configuration data via SYNLOCK V3
- Query the device status and alarm via SYNLOCK V3
- Explain the meaning of network synchronization
- Differentiate between clock synchronization and time synchronization
- List common technologies for network synchronization
- Describe common synchronization modes for SDH networks
- Describe clock levels and quality requirements of clock at different levels
- Explain the functions of IEEE 1588v2 clock and its advantages/disadvantages

Target Audience

Technical Support Engineers

Operation and Maintenance Engineers

Prerequisites

- A basic understanding of telecommunication and data communication

Content

- SYNLOCK T6020 system overview
- Installation and sub-rack
- Boards and interfaces
- System configuration
- Network management system overview
- Adding or deleting board
- Configuring board data
- Configuring the reference source
- Setting system parameters
- Setting the leap second
- Checking NE state
- Configuring PTP(1588V2)
- Checking alarms
- Routine maintenance
- Basic rules and methods for troubleshooting faults
- Common troubleshooting cases
- Overview of network synchronization
- Architecture and mode of SDH network frequency synchronization
- Introduction to IEEE 1588v2

Training Methods

Lectures, Hands-on Exercise

Duration

3 working days

Class Size

Min 6, max 12

1.9 OSS Training Course Descriptions

1.9.1 ONU01 U2000 System Introduction

Objectives

On completion of this course, the participants will be able to:

- Describe the architecture and main features of U2000
- List the main functions of U2000

Target Audience

U2000 Operator and Maintainer

Prerequisites

- Having the basic knowledge of NMS

Content

- The architecture and main features of U2000
- The directory structure of U2000
- The main functions of U2000

Training Methods

Lectures

Duration

0.5 working day

Class Size

Min 6, max 12

1.9.2 ONU02 U2000 Alarm and Performance Management

Objectives

On completion of this course, the participants will be able to:

- Describe the basic concepts in alarm and performance management of U2000
- Perform the browse and setting operation for alarm
- Perform the basic response operation for common alarm events
- Perform the browse and setting operation for performance events
- Locate the alarm in the network

Target Audience

IP/Access/Transmission network routine monitor and maintainer

Prerequisites

- Having the basic knowledge of IP/Access/Transmission equipment and principle

Content

- The basic concepts in alarm and performance management of U2000
- Alarm settings and operations
- The basic response operation for common alarm events
- Performance events settings and operations

Training Methods

Lectures, Hands-on Exercise

Duration

0.5 working day

Class Size

Min 6, max 12

1.9.3 ONU08 Access Network Device Introduction

Objectives

On completion of this course, the participants will be able to:

- Explain the networking and application of Huawei Access network equipment
- Describe the functions of Huawei network products
- Describe the capacity and features of Huawei network products

Target Audience

Access network routine monitor and maintainer

Prerequisites

- Having the basic knowledge of Access equipment and principle

Content

- The main functions, features and hardware introduction of GPON equipment
- The main alarms and response operations of GPON equipment
- The main functions, features and hardware introduction of DSLAM equipment
- The main alarms and response operations of DSLAM equipment
- The main functions, features and hardware introduction of MSAN equipment
- The main alarms and response operations of MSAN equipment

Training Methods

Lectures

Duration

1 working day

Class Size

Min 6, max 12

1.9.4 OBN51 iManager N2000 BMS Operation (DSLAM)

Objectives

On completion of this course, the participants will be able to:

- Perform ADSL2+ service configuration via iManager N2000 BMS
- Perform VDSL2 service configuration via iManager N2000 BMS

Target Audience

BMS Operator and Maintainer

Prerequisites

- Having the basic knowledge of DSLAM and BMS

Content

- ADSL2+ service configuration via iManager N2000 BMS
- VDSL2 service configuration via iManager N2000 BMS

Training Methods

Hands-on Exercise

Duration

1.5 working days

Class Size

Min 6, max 12

1.9.5 OBH51 iManager U2000 DSALM MA5600T Series Operation and Maintenance

Objectives

On completion of this course, the participants will be able to:

- Perform ADSL2+ service configuration via U2000
- Perform VDSL2 service configuration via U2000

Target Audience

U2000 Operator and Maintainer

Prerequisites

- Having the basic knowledge of DSLAM and BMS

Content

- Perform ADSL2+ service configuration via U2000
- Perform VDSL2 service configuration via U2000

Training Methods

Hands-on Exercise

Duration

2 working days

Class Size

Min 6, max 12

1.9.6 OBN52 iManager N2000 BMS Operation (MSAN)

Objectives

On completion of this course, the participants will be able to:

- Perform MSAN ADSL2+ service configuration via N2000 BMS
- Perform MSAN VoIP service configuration via N2000 BMS
- Perform MSAN V5 service configuration via N2000 BMS
- Perform MSAN multicast service configuration via N2000 BMS

Target Audience

BMS Operator and Maintainer

Prerequisites

- Having the basic knowledge of MSAN and BMS

Content

- Configuration flow
- VLAN description
- Line profile and traffic table
- Configuration example
- Multicast Service Overview
- Multicast Configuration Procedure
- IGMP Program and Profile
- Multicast Service Configuration Example
- V5 Voice Service Overview
- V5 Interface Configuration Procedure
- V5 Voice Service Configuration Example
- VoIP Service Overview
- VoIP Configuration Procedure
- VoIP Service Configuration Example

Training Methods

Hands-on Exercise

Duration

1.5 working days

Class Size

Min 6, max 12

1.9.7 OBH52 iManager U2000 MSAN UA5000 Operation and Maintenance

Objectives

On completion of this course, the participants will be able to:

- Perform MSAN ADSL2+ service configuration via U2000
- Perform MSAN VoIP service configuration via U2000
- Perform MSAN multicast service configuration via U2000

Target Audience

U2000 Operator and Maintainer

Prerequisites

- Having the basic knowledge of MSAN and BMS

Content

- Perform MSAN UA5000 ADSL2+ service configuration via U2000
- V5 Voice Service Overview
- V5 Interface Configuration Procedure
- V5 Voice Service Configuration Example
- Perform MSAN UA5000 VoIP service configuration via U2000

Training Methods

Hands-on Exercise

Duration

2 working days

Class Size

Min 6, max 12

1.9.8 OBH53 iManager U2000 MSAN MA5600T (VoIP) Operation and Maintenance

Objectives

On completion of this course, the participants will be able to:

- Perform MSAN ADSL2+ service configuration via U2000
- Perform MSAN VoIP service configuration via U2000
- Perform MSAN multicast service configuration via U2000

Target Audience

U2000 Operator and Maintainer

Prerequisites

- Having the basic knowledge of MSAN and BMS

Content

- Perform MSAN MA5600T VoIP service configuration via U2000

Training Methods

Hands-on Exercise

Duration

1 working day

Class Size

Min 6, max 12

1.9.9 OBN56 iManager N2000 BMS Administration

Objectives

On completion of this course, the participants will be able to:

- Describe system structure, orientation features, network application and functions of the iManager N2000 BMS
- Perform server configuration, server startup and shutdown
- Perform system user management, N2000 user management, NE user Management and so on
- Perform service and process management, Database management and NTP configuration
- Perform database backup and restoration, routine management, emergency management, as well as know how to use management tool

Target Audience

NMS administrator

Prerequisites

- A basic understanding of data communications
- A general knowledge of telecom networks

Content

- Startup and shutdown
- Setting parameters for N2000 BMS server
- Configuring the TFTP service
- User types
- Managing OS users
- Managing database users
- Managing N2000 BMS users
- Managing NE users
- Log management
- Introduction to log
- Managing user logs
- Managing device logs
- Service and process
- System monitor client
- Process operation
- Typical process cases
- N2000 BMS database
- Querying database status
- Backing up and restoring a database
- Expanding a database
- Clearing a database
- N2000 BMS server maintenance
- Routine maintenance
- Emergency maintenance

Training Methods

Lectures, Hands-on Exercise

Duration

3 working days

Class Size

Min 6, max 12

1.9.10 OBN80 iManager N2000 BMS Advanced Features

Objectives

On completion of this course, the participants will be able to:

- Describe HA solution
- Describe Watchman principles
- Perform Watchman maintenance
- Describe NMS northbound interface
- Northbound SNMP/CORBA interface
- Northbound TL1 interface
- Background of TL1 interface
- Describe hardware and software architecture of iManager N2000 BMS
- Describe the functions of each application components
- Describe typical management solution which may cooperate with OSS and third-party application and cases
- Describe fault, provisioning, performance, management and security solution
- Describe the solution and implementation of NBI (North Bound Interface)
- Perform NBI operation and maintenance
- Describe the solution and implementation of dual system

Target Audience

N2000 BMS administrator

Technical support

Prerequisites

- Completion of iManager N2000 BMS Operation or administration Training

Content

- HA solution introduction
- Watchman principles
- Watchman maintenance
- NMS northbound interface overview
- Northbound SNMP/CORBA interface
- Northbound TL1 interface
- Background of TL1 interface
- TL1 system architecture
- TL1 command format connection principle
- Application and maintenance
- Troubleshooting
- Introduction to environment and power monitoring
- Networking of environment and power monitoring
- General model of environment and power monitoring
- Basic operations of environment and power monitoring
- Environment variable monitoring
- Power variable monitoring
- Common fault handling
- Test system overview
- APP protocol
- N2000 BMS test solution
- Test fault location

Training Methods

Lectures

Duration

4 working days

Class Size

Min 6, max 12

1.9.11 OBN20 iManager N2000 BMS Installation

Objectives

On completion of this course, the participants will be able to:

- Describe the installation procedure
- Install iManager N2000 system properly

Target Audience

N2000 BMS administrator

Technical support

Prerequisites

- Completion of iManager N2000 BMS Operation or administration Training

Content

- iManager N2000 BMS installation
- System overview
- Preparations
- Installing software
- iManager N2000 BMS upgrade
- iManager N2000 BMS upgrade
- Preparations for the N2000 BMS upgrade
- Upgrading the N2000 BMS

Training Methods

Lectures, Hands-on Exercise

Duration

1 working day

Class Size

Min 6, max 12

1.9.12 OBS01 iManager N2510 Software Test System Overview

Objectives

On completion of this course, the participants will be able to:

- Describe the function of each functional unit of iManager N2510 AOS test system
- Analyze test item such as SELT, DELT
- Understand the limits of measurements

Target Audience

N2510 Operator and Maintainer

Prerequisites

- A basic understanding of access network and xDSL technology

Content

- N2510 solution overview
- LTS function module
- AOS function module
- OLS function module
- N2510 system hardware platform
- N2510 system software platform
- Interconnection of N2510 system

Training Methods

Lectures

Duration

0.5 working day

Class Size

Min 6, max 12

1.9.13 OBS32 iManager N2510 Software Test System Operation and Maintenance

Objectives

On completion of this course, the participants will be able to:

- Perform the N2510 system login
- Perform the System Configuration
- Carry out the line Testing operation
- Carry out the line analysis operation
- Carry out the line Optimization operation
- Carry out the line Evaluation operation

Target Audience

N2510 Operator and Maintainer

Prerequisites

- A basic understanding of access network and xDSL technology

Content

- The system architecture, the network position, the networking solution and the functional structure of iManager N2510
- The workstation platform solution of iManager N2510 software test system, such as PC solution and ATAE solution
- The interfaces and its function of iManager N2510 software test system
- System management
- Resource configuration
- Testing function
- Network analysis
- Line optimization
- Line evaluation

Training Methods

Lectures, Hands-on Exercise

Duration

2.5 working days

Class Size

Min 6, max 12

1.9.14 OBS02 iManager N2510 Hardware Test System Overview

Objectives

On completion of this course, the participants will be able to:

- Describe LTS system typical networking
- Outline LTS system function features
- List part of testing measurement

Target Audience

N2510 Operator and Maintainer

Prerequisites

- A basic understanding of access network and xDSL technology

Content

- N2510 solution overview
- LTS function module
- AOS function module
- OLS function module
- N2510 system hardware platform
- N2510 system software platform
- Interconnection of N2510 system
- iManager N2510 LTS system introduction
- iManager N2510 LTS hardware introduction
- iManager N2510 LTS typical networking
- iManager N2510 LTS function features
- iManager N2510 LTS testing measurement

Training Methods

Lectures

Duration

1 working day

Class Size

Min 6, max 12

1.9.15 OBS33 iManager N2510 Hardware Test System Operation and Maintenance

Objectives

On completion of this course, the participants will be able to:

- Describe LTS system typical networking
- Complete line resource configuration
- Perform DMM, LB, FR and DMT via iManager N2510
- Complete some of the testing demonstration

Target Audience

N2510 Operator and Maintainer

Prerequisites

- A basic understanding of access network and xDSL technology

Content

- Line resource configuration
- Test Case 1: short-circuiting
- Test Case 2: Locate the fault point
- Test Case 3: Power off the modem
- Test Case 4: pre-evaluation test
- Test Case 5: service quality evaluation

Training Methods

Lectures, Hands-on Exercise

Duration

2 working days

Class Size

Min 6, max 12

1.9.16 OBS03 iManager N2510 OLS System Overview

Objectives

On completion of this course, the participants will be able to:

- Describe iManager N2510 OLS networking
- Outline iManager N2510 OLS solution functions
- List part of ODN common fault

Target Audience

N2510 Operator and Maintainer

Prerequisites

- A basic understanding of PON technology and related parameters

Content

- iManager N2510 OLS System Introduction
- iManager N2510 OLS Solution Overview
- iManager N2510 OLS Function Features
- iManager N2510 OLS Testing Measurement

Training Methods

Lectures

Duration

1 working day

Class Size

Min 6, max 12

1.9.17 OBS34 iManager N2510 OLS System Operation and Maintenance

Objectives

On completion of this course, the participants will be able to:

- Describe iManager N2510 OLS function
- Perform iManager N2510 OLS operation and maintenance

Target Audience

N2510 Operator and Maintainer

Prerequisites

- A basic understanding of of PON technology and related parameters

Content

- Perform iManager N2510 OLS operation and maintenance

Training Methods

Lectures, Hands-on Exercise

Duration

2 working days

Class Size

Min 6, max 12

1.9.18 OBS04 iManager N2510 Test System Overview

Objectives

On completion of this course, the participants will be able to:

- Outline the system architecture, the network position, the networking solution and the functional structure of iManager N2510
- Describe the workstation platform solution of iManager N2510 software test system, such as PC solution and ATAE solution
- Describe the interfaces and its function of iManager N2510 software test system

Target Audience

N2510 Operator and Maintainer

Prerequisites

- A basic understanding of telecommunication and access network

Content

- N2510 solution overview
- LTS function module
- AOS function module
- OLS function module
- N2510 system hardware platform
- N2510 system software platform
- Interconnection of N2510 system

Training Methods

Lectures

Duration

0.5 working day

Class Size

Min 6, max 12

1.9.19 OBS40 iManager N2510 Test System Administration

Objectives

On completion of this course, the participants will be able to:

- Describe iManager N2510 installation procedure
- Describe iManager N2510 administration item
- Perform iManager N2510 administration

Target Audience

N2510 Administrator

Prerequisites

- A basic understanding of access network and OS

Content

- iManager N2510 installation procedure
- iManager N2510 administration item
- Perform iManager N2510 administration
- iManager N2510 routine maintenance
- Perform iManager N2510 routine maintenance
- iManager N2510 faults management
- Perform iManager N2510 faults management

Training Methods

Lectures, Hands-on Exercise

Duration

2.5 working days

Class Size

Min 6, max 12

1.9.20 OBN00 iManager N2000 BMS Introduction

Objectives

On completion of this course, the participants will be able to:

- Describe network management architecture
- Describe the hardware and software architecture of iManager N2000 BMS
- Describe the features of iManager N2000 BMS
- Describe the interfaces Provided by N2000

Target Audience

BMS Operator and Maintainer

Prerequisites

- General understanding of telecommunication network and broadband network

Content

- Network management architecture
- The hardware and software architecture of iManager N2000 BMS
- The features of iManager N2000 BMS
- The interfaces Provided by N2000

Training Methods

Lectures

Duration

0.5 working day

Class Size

Min 6, max 12

1.9.21 OBN30 iManager N2000 BMS Basic Operation and Maintenance

Objectives

On completion of this course, the participants will be able to:

- Login to N2000 Server via Client
- Add a map and device
- Deal with the alarm
- Backup and auto save the configuration
- Add a management user

Target Audience

BMS Operator and Maintainer

Prerequisites

- General understanding of telecommunication network and broadband network

Content

- Login to the BMS server via client
- Add a map and device
- Deal with the alarm
- Backup and auto save the configuration
- Add a management user
- The basic concepts, working theories, structures and operations about Solaris operation system and Sybase
- The features of topology management, security management, configuration management, alarm management and performance management of iManager N2000 BMS
- The operation for service provisioning and maintenance, element management, alarm management and performance statistics

Training Methods

Hands-on Exercise

Duration

1 working day

Class Size

Min 6, max 12

1.9.22 OBN50 iManager N2000 BMS Operation and Maintenance (GPON)

Objectives

On completion of this course, the participants will be able to:

- Perform GPON FTTH service configuration via iManager N2000 BMS
- Perform GPON FTTB/FTTC service configuration via iManager N2000 BMS

Target Audience

BMS Operator and Maintainer

Prerequisites

- General understanding of telecommunication network and GPON

Content

- GPON service pre-deployment via EMS
- GPON FTTB service configuration via iManager N2000 BMS
- GPON FTTH service configuration via iManager N2000 BMS

Training Methods

Lectures, Hands-on Exercise

Duration

1.5 working days

Class Size

Min 6, max 12

1.9.23 OBH30 U2000 Basic Operation and Maintenance (Access)

Objectives

On completion of this course, the participants will be able to:

- Login to U2000 server via client
- Add a map and device
- Deal with the alarm
- Backup and auto save the configuration
- Add a management user

Target Audience

U2000 Operator and Maintainer

Prerequisites

- General understanding of telecommunication network and broadband network

Content

- Login to U2000 Server via Client
- The main functions of U2000 Client
- Add a management user
- Manage the user
- Add a map and device
- Discover the topology, set the communication parameters and synchronize the device data on U2000
- Deal with the alarm
- The main functions of U2000 fault management, monitor the fault alarm, notify the relevant personnel, and process the fault alarm on U2000
- The main function of U2000 performance
- management and monitoring
- The performance statistics of network resources on U2000

Training Methods

Lectures

Duration

0.5 working day

Class Size

Min 6, max 12

1.9.24 OBH50 U2000 GPON Service Provisioning

Objectives

On completion of this course, the participants will be able to:

- Perform GPON service pre-deployment via U2000
- Perform GPON FTTB service configuration via U2000
- Perform GPON FTTH service configuration via U2000

Target Audience

U2000 Operator and Maintainer

Prerequisites

- General understanding of telecommunication network and GPON

Content

- Introduce GPON pre-deployment solution
- Perform GPON service pre-deployment via U2000
- Introduce GPON FTTB/C service configuration process
- Perform GPON FTTB/C service configuration via U2000
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- Introduce GPON FTTH service configuration process
- Perform GPON FTTH service configuration via U2000

Training Methods

Lectures, Hands-on Exercise

Duration

3 working days

Class Size

Min 6, max 12

1.9.25 OBH60 U2000 GPON Maintenance

Objectives

On completion of this course, the participants will be able to:

- Describe FTTx fast operation and maintenance
- Describe upgrading ONTs Automatically
- Describe replacing ONTs
- Outline configuring a Service Level for an ONT
- Describe Remote MDU Acceptance
- Describe Replacing an Ethernet-Upstream Device Quickly
- Describe Replacing a PON MDU Quickly
- Describe FTTx Alarm types
- Perform U2000 FTTx Alarm Analysis
- Perform U2000 FTTx Alarm Management
- perform U2000 FTTx Network Performance Monitoring
- Perform U2000 FTTx Network Performance Management

Target Audience

U2000 Operator and Maintainer

Prerequisites

- General understanding of telecommunication network and GPON

Content

- FTTx Fast Operation and Maintenance
- Bulk configuring command Line script files
- the Script Files to NEs
- Importing files to NEs in batches
- FTTH Maintenance
- Upgrading ONTs Automatically
- Replacing ONTs
- Configuring a Service Level for an ONT
- FTTB Maintenance
- Remote MDU Acceptance
- Replacing an Ethernet-Upstream Device Quickly
- Replacing a PON MDU Quickly
- FTTx alarm introduction
- U2000 FTTx alarm analysis
- U2000 FTTx alarm management
- U2000 FTTx network performance monitoring
- U2000 FTTx network performance management

Training Methods

Lectures

Duration

2 working days

Class Size

Min 6, max 12

1.9.26 OBH50 U2000 P2P Service Provisioning

Objectives

On completion of this course, the participants will be able to:

- Perform GPON service pre-deployment via U2000
- Perform GPON FTTB service configuration via U2000
- Perform GPON FTTH service configuration via U2000

Target Audience

U2000 Operator and Maintainer

Prerequisites

- General understanding of telecommunication network and GPON

Content

- Introduce FTTH P2P service configuration process
- Perform FTTH P2P HSI service configuration via U2000
- Perform FTTH P2P VoIP service configuration via U2000
- Perform FTTH P2P IPTV service configuration via U2000

Training Methods

Lectures, Hands-on Exercise

Duration

1 working day

Class Size

Min 6, max 12