HARRIS

Microwave Communications Division

Technical Training

Other Equipment Manufacturer (OEM)

Table of contents

TRT ADM 155 and 155C Synchronous Multiplexer

Maintenance and Operation course

TR-ADM-01

Course Specifics

Duration:	4 days
Class capacity:	12 students
Location(s) for pre-scheduled class:	N/A
Materials provided:	▪ Student guide

Prerequisite

- Basic Telecommunications background

Objectives

At the end of this course, participants will be able to:

- To operate, install and maintain the TRT ADM 155 or 155C Synchronous Multiplexer

Course Content

Day 1: Introduction

- Advantages to SDH
- Synchronization
- Frame structure
- SDH network structure
- SDH network applications
- Standardization

Day 2: Theory of Operation

- Theory of drop and insert
- Overview of ADM 155 system
- Application
- Synchronization
- Module description
- Installation and commissioning

Day 3:Operation and Maintenance

- LCS software
- Maintenance lab
- Handing unit for repair and return

Day 4: Troubleshooting

- Troubleshooting lab and discussion

ASX-200BX

Maintenance and Operation course

TR-ASX-01

Course Specifics

Duration:	5 days
Class capacity:	12 students
Location(s) for pre-scheduled class:	N/A
Materials provided:	▪ Student guide

Prerequisite

- Basic knowledge of IP
- E1 and OC3 knowledge
- ClearBurst™

Objectives

At the end of this course, participants will be able to configure the following service with an ASX-200 BX connected to the ClearBurst:

- E1 over ATM (AAL1)
- Pots over ATM (AAL2)
- IP over ATM (AAL5)

Course Content

Day 1: ATM Theory Review

- Technology overview
- ATM adaptation layer (AAL)
- Virtual circuits
- Quality and class of service
- ATM interface
- UNI, PNNI, NNI
- NSAP format
- LAN data over ATM SVC applications
- LANE
- CLASSICAL IP
- ASX-200 BX hardware
- Switch fabric
- Switch control processor
- Network module
- Power supply

Day 2: ASX-200 Configuration

- Installation and configuration
- AMI connection commands
- WEB GUI interface
- AMI/WEB GUI maintenance
- Common data base operation
- Flash file system
- Software upgrade
- Management
- Application (Console, http, Telnet, SNMP)
- Security
- SNMP
- ASX-200 BX system timing
- Signaling configuration
- Signaling channel
- LAB

Day 3: LANE & Virtual Circuit

- LANE configuration
- LAB
- LANE network application
- AMI/WEB GUI PVC/SPVC connections
- Virtual circuit review
- Virtual path terminator
- Permanent virtual channel connections (PVCC)
- Path connection (PVC)
- Smart permanent connection channel (SPVC)
  Reroute status
  Backoff Status
- OC-3 ETMOD
- Port settings
- LAB
- AAL2 (TDOSFT) circuit creation
- AAL5 (RiverStone) circuit creation

Day 4: E1 N

- E1 NETMOD
- Port Settings
- Timing
- Service CES
- LAB
- AAL1 over ClearBurst
- ETHERNET NETMOD
- Port setting
- Ethernet PVC
- Ethernet SPVC
- LAB
- AAL5 over ClearBurst

Day 5: Subject

- ATM policing
- Service categories
- Cell loss priority (CLP)
- Connection admission control (CAC)
- Traffic shaping
- UPC contract
- LAB (Review of the whole week)
- Creation of AAL1, AAL2 & ALL5 circuit with UPC contract over the ClearBurst

BAYLY OMNIPLEXER

Maintenance and Operation course

TR-BAY-01

Course Specifics

Duration:	2 days
Class capacity:	12 students
Location(s) for pre-scheduled class:	N/A
Materials provided:	▪ Student guide

Prerequisite

- Basic telecommunications background

Objectives

At the end of this course, participants will be able to:

- To operate, install and maintain the Bayly Omniplexer.

Course Content

Day 1: Introduction & Theory of Operation

- Review of PCM theory
- Theory of drop & Insert
- Overview of Omniplexer system
- System chassis
- Remote access and control system
- E1 Line interface module
- Internal power supply
- Module description

Day 2: Installation & Troubleshooting

- Theory of installation
- Operation and maintenance
- Installation and commissioning
- Troubleshooting lab
- Troubleshooting discussion

Bandwidth Manager

ISurfRanger and iSurfCommander, Maintenance and Operation course

TR-BM-01

Course Specifics

Duration:	3 days
Class capacity:	12 students
Location(s) for pre-scheduled class:	N/A
Materials provided:	▪ Instruction manual (CD-ROM) ▪ Student guide

Prerequisite

- TCP, UDP and IP knowledge
- LAN/WAN interconnection knowledge
- Subnetting knowledge

Objectives

At the end of this course, participants will be able to:

- Interconnect the iSurfRanger and the iSurfCommander in a ClearBurst network
- Configure the iSurfRanger and the iSurfCommander
- Provision the iSurfCommander

Course Content

Day 1: Theory Review and Application

- iSurf family product
- Virtual pipe concept
- Traffic shaping
- Committed information rate (CIR)
- Maximum burst rate (MBR)
- Priority: attack and retreat
- Account
- Network example
- Class of service, subscriber and user

Day 2: iSurfRanger and iSurfCommander Configuration

- iSurfRanger modules and redundancy
- Hardware installation
- iSurfRanger command line interface
- LAB #1: provision the iSurfRanger
- iSurfCommander system requirement

Day 3: Provisioning

- iSurfCommander GUI
- Create policies
- Define schedules
- Define bandwidth sets
- Defining class of service, subscriber and users
- Creating accounts
- LAB #2: provision a user account and verify the results using WSFTP.

DDM 200 SONET Multiplexer

Maintenance and Operation course

TR-DDM-01

Course Specifics

Duration:	3 days
Class capacity:	12 students
Location(s) for pre-scheduled class:	N/A
Materials provided:	▪ Student guide

Prerequisite

- Basic telecommunications background

Objectives

At the end of this course, participants will be able to:

- To operate, install and maintain the DDM2000 SONNET Multiplexer

Course Content

Day 1: Introduction

- Product line
- Applications
- DDM 2000 user/service manual
- Reference Vol. 1 & 2
- Task oriented practice Vol. 3 & 4

Day 2: Transmission

- Customer connection
- Unit interfacing
- Signal path
- Operations interface

Day 3:Maintenance & Troubleshooting

- Maintenance lab
- Trouble clearing lab
- Operation discussion
- Operational lab
- Troubleshooting lab and discussion

DSLAM IES-1000

Maintenance and Operation course

TR-IES-01

Course Specifics

Duration:	1 day
Class capacity:	12 students
Location(s) for pre-scheduled class:	N/A
Materials provided:	▪ Student Guide

Prerequisite

Basic IP/TCP Notions

Objectives

At the end of this course, participants will be able to:

- Integrate a DSLAM in their network
- Configure ADSL modems accordingly
- Deliver voice and data services to the customer premise

Course Content

Day 1: Subject

- DSLAM introduction
- Theory of operation
- Field replaceable unit
- Application configuration
- Provisioning
  Upstream rate
  Downstream rate
- Lab

PSTN Gateway, TdGate

Maintenance and Operation course

TR-PSTN-01

Course Specifics

Duration:	4 days
Class capacity:	12 students
Location(s) for pre-scheduled class:	N/A
Materials provided:	▪ Student Guide

Prerequisite

- ATM AAL2 knowledge
- Basic telephony knowledge
- E1 and CAS signaling knowledge
- LAN/WAN interconnection knowledge

Objectives

At the end of this course, participants will be able to:

- Interconnect the PSTN Gateway in a ClearBurst™ MB network
- Configure the PSTN gateway
- Provision the PSTN gateway

Course Content

Day 1: Theory Review and Application

- Loop emulation service using AAL2 Basic summary (ATM forum AF-VMOA-0145.000)
- ITU-T recommendation I.366.2 Basic summary
- CAS signaling and ABCD bits exchange in a ClearBurst network
- V.5.x basic course
- ATM adaptation layer 2 review
- TdGate in a ClearBurst MB network
- TdGate VPI/VCI/CID considerations

Day 2: TdGate Field Replaceable Unit and Element Management System

- LAB#1: Configure V.5.X
- TdGate Chassis and cards overview
- TdGate interconnectivity configuration
- LAB#2: TdGate interconnectivity
- TdGate element management system overview
- Backup files

Day 3: Provisioning

- LAB#3: Provisioning table
- LAB#4: Provision the TdGate

Day 4: Integration LAB

- LAB#4: Provision the TdGate (Continuation)
- LAB#5: Integrate TdGate into a ClearBurst MB network

Riverstone Networks Routers

RS1000, RS3000 and RS8000 Maintenance and Operation course

TR-RS-01

Course Specifics

Duration:	4 days
Class capacity:	12 students
Location(s) for pre-scheduled class:	N/A
Materials provided:	▪ Student Guide

Prerequisite

- OSI Reference Model
- Bridging/Switching
- TCP/IP Protocols
- IP Routing and respective routing protocols
- VLANs and Subnetting

Objectives

At the end of this course, participants will be able to:

- Interconnect a Riverstone router in a ClearBurst MB network
- Configure a Riverstone router
- Provision a Riverstone router

Course Content

Day 1: Product Overview and Application LAB

- Course overview
- Riverstone networks RS product line
- Riverstone networks RS system administration
- IP over bridged RFC 1483 and ATM adaptation layer 5 review
- Riverstone VLANsLAB#1 – VLANs
- Configure Riverstone as a bridged device
- LAB#2: Bridged device
  Integrate the Router configured as a bridged device with ClearBurst MB

Day 2: Application Labs

- LAB#3: Integrate the router configured as a bridged device with ClearBurst MB.
- LAB#4: Interconnect two Riverstone routers and ClearBurst on the same subnet.
- Subnetting Review
- LAB#5: Subnetting
- Configure Riverstone as a routing device and static routes
- LAB#6: Interconnect two Riverstone routers and ClearBurst with static routes

Day 3 & 4: Application Labs

- Riverstone RIP
- LAB#7: RIP
- Riverstone OSPF
- LAB#8: OSPF
- Riverstone Access List
- LAB#9: Access List
- Riverstone Layer 2 Filter
- LAB#10: Layer 2 Filter

SAT COM 30 Multiplexer Installation

Maintenance and Operation course

TR-SAT-01

Course Specifics

Duration:	2 days
Class capacity:	12 students
Location(s) for pre-scheduled class:	N/A
Materials provided:	▪ Student guide

Prerequisite

- Basic telecommunications background

Objectives

At the end of this course, participants will be able to:

- To operate, install and maintain the SAT COM-30 Multiplexer.

Course Content

Day 1: Introduction & Theory of Operation

- Tributary protection
- Overview of the COM 30 switch
- System chassis
- Communications unit
- Supervisory channel unit
- Transmission channel unit
- Selector unit
- Distributor unit
- Switching unit
- Internal power supply

Day 2: Installation & Troubleshooting

- Theory of installation
- Operation and maintenance
- Installation and commissioning
- Troubleshooting lab
- Troubleshooting discussion
- Replacing units

SAT 2-34 Multiplexer Installation

Maintenance and Operation course

TR-SAT-02

Course Specifics

Duration:	2 days
Class capacity:	12 students
Location(s) for pre-scheduled class:	N/A
Materials provided:	▪ Student Guide

Prerequisite

- Basic Telecommunications background

Objectives

At the end of this course, participants will be able to:

- To operate, install and maintain the SAT 2-34 Multiplexer.

Course Content

Day 1: Introduction & Theory of Operation

- Review of the PCM theory
- Overview of the SAT 2-34
- Control Software
- System Chassis
- Multiplexer Module
- Supervisory Interface module
- Internal Power Supply

Day 2: Installation & Troubleshooting

- Theory of installation
- Operation and Maintenance
- Installation and Commissioning
- Troubleshooting lab
- Troubleshooting discussion
- Replacing units

VPN, ZyWall

Maintenance and Operation course

TR-VPN-01

Course Specifics

Duration:	1 day
Class capacity:	12 students
Location(s) for pre-scheduled class:	N/A
Materials provided:	▪ Student Guide

Prerequisite

- Basic IP/TCP Notions
- Network Notions (NAT, DHCP, LAN, WAN, etc.)

Objectives

At the end of this course, participants will be able to:

- Integrate a VPN device in their network
- Create and test IPSec tunnels

Course Content

Day 1: Subject

- VPN Introduction
- Theory of Operation
- Field Replaceable Unit
- Application / Configuration Procedure
- Provisioning (3 DES, DES
- LAB (Setup tunnel, filters, etc.)