EDUCATION SERVICES

Eclipse Installation, Operation and Maintenance Course
TRN-ECL-IOM-A/B/C/D

Course Specifics

Duration:	3 days
Class capacity:	10 students
Materials provided:	Student Handbook (e-Book)

Course Description

The Eclipse™ product family is a highly modular and scalable platform that delivers a unique combination of high-capacity hybrid or all-packet transport, Carrier Ethernet/IP networking, and comprehensive mission-critical microwave features, enabling operators to prepare for the all-IP future.

The **Eclipse Installation, Operation, and Maintenance course** teaches students key functions of the Eclipse platform. The course includes an overview of all available equipment, basic configuration with the Portal craft tool, system commissioning, maintenance, diagnostics, and troubleshooting. Extensive hands-on labs (nearly 50% of the course duration) offer students scenarios they will face in real deployments in their networks.

Courses are conducted by **AVIAT expert trainers** in a mentoring environment backed by their deep technology expertise and experience in the implementation of microwave wireless and IP networks.

The Eclipse Installation, Operation, and Maintenance course is conducted at the Aviat Training locations or can be arranged at customer sites.

Target Audience

This course is intended for installation and service personnel responsible for installation, configuration, test, and maintenance procedures for the Eclipse platform.

Prerequisites

- Participants must complete the Eclipse System Overview e-learning course.

- Participants should have a basic understanding of Microwave and IP Fundamentals and have basic computer skills.

- Each student must bring a laptop PC and must have administrator rights on the PC with the following minimum specifications:
    - Pentium 4 or later w/ 1GB of RAM and 250 MB of free hard drive space
    - Microsoft Windows 7, 8, or 10 and Google Chrome as web browser
    - USB Port / LAN Port / and DB9 serial port connections, or adapter

Objectives

Upon completing this course, participants will be able to perform:
- Basic installation and radio link configuration on the Eclipse platform
- Provisioning of features such as Backplane Circuits, DPP, and VLANs
- Preventive maintenance, diagnostics, and troubleshooting of the Eclipse radio

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Course Outline

Eclipse System Overview
- Introduction to Eclipse
- Introduction to Eclipse Nodal Units

Eclipse Node
- Node Concept and Features
- Basic Architecture and Capabilities
- Indoor Units: INU and INUe
- Slot Assignment Rules
- Backplane Bus
- Node Capacity Rules and Licensing
- Plug-in Cards
  NCC, FAN, RACs, DACs, AUX, NPC. PCC
- Node and DAC Protection

Eclipse RF Overview
- ODU600v1/v2
- IRU600v3/v4 (North America only)
- RSSI
- RAC-ODU/RFU Cable
- Flexible Power Mode
- Antenna Mount and Coupler

Hardware Installation
- Indoor Installation
- Pre-power up checks
- DC Connections
- Grounding
- Plugin Card Handling
- Blank Panels and Airflow
- Outdoor Installation
- ODU Installation
- Antenna Interface
- Polarization Rotor
- Lab Exercise

Portal Overview
- Introduction to Portal Craft Tool
- Installing Portal
- Portal PC Configuration for Ethernet and V.24/RS-232 Connections
- Eclipse Network Management
- Portal Screens
- Lab Exercise

Radio Link Configuration
- Link Configuration – Fixed Modulation
- Link Configuration – ACM
- Protection Options - Hot Standby, Space Diversity, Frequency Diversity
- Outdoor Coupling Unit
- Protected Link Configuration
- CCDP with XPIC Link Configuration

Backplane Circuits
- Circuits Screen
- Backplane Circuits Configuration
- TDM DAC
- Backplane Ethernet Circuits

Data Packet Plane
- Eclipse Packet Node
- DPP Configuration

DAC GE3
- DAC GE3 Overview
- DAC GE3 Basic Screen
- Transport Channel Capacity
- Advanced Tab
- VLAN Tab
- Modes of Operation
- Introduction to Advanced Functions:
  Link Status Propagation
  QOS
  Rate Limiting and Scheduling
  Policing
  Ring Protection
  Synchronous Ethernet
- DAC GE3 Protection
- Link Aggregation
- DAC GE3 VLAN Configuration
- Lab Exercise

Eclipse Maintenance
- Preventative Maintenance
- NCC Replacement
- ODU Replacement
- Software Management
- Lab Exercise

Eclipse Diagnostics
- Front Panel LEDs
- Portal Diagnostics Screens
- System/Controls Screen
- Loopback Options
- Performance and History Screens
- Help System
- Eclipse Alarms
- Event Browser

Eclipse Troubleshooting
- Troubleshooting Overview
- Off-site and On-site Checks
- Troubleshooting Basics for Eclipse
- Receive Alarms
- Path Problems
- Configuration Problems
- Troubleshooting Ethernet
- DAC GE3 Performance and History Screens
- Lab Exercise

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![Aviat Networks logo]

Required Equipment for Training Sessions at Customer Sites

RADIO

One equipment rack with 48VDC power supply (Note: All Eclipse equipment is positive earth.)

At least 1 radio link set up - 2 radios talking to each other. The path must have at least 60dB of attenuation. (For troubleshooting, variable attenuators are preferred but not mandatory.)

Each INU/INUe should include as a minimum:

- Compact Flash Card with relevant feature licenses
- RAC
- DAC
- Any relevant optional cards
- Appropriate traffic cables (Ethernet/Optical cables)
- Electrical/Optical SFPs

For the ODU:

- 50-ohm N-type IF cable for RAC-ODU connection
- Radio cables, attenuators, and transitions (WG-coax adapters)
- ODUs should be a matching pair, i.e., same sub-band and TR spacing with one being Tx High and the other Tx Low

It is preferred although not essential to have 3 x INU/INUe and 2x Pairs of ODUs to allow nodal configurations.

OTHER EQUIPMENT

Ethernet tester, Digital Multimeter

CLASSROOM SET UP

Sufficient in size to handle all participants, desks, chairs, and classroom equipment. The room must have enough 110 AC (220) AC power and air conditioning to operate all necessary equipment, including students' laptops.

Classroom Equipment

Multimedia projector and screen
Whiteboard and markers

Desk and Chairs

Desks or workstations with enough room for each student's laptop and training materials.

Internet Access

Strong Wi-Fi connection

EDUCATION SERVICES

Pricing & Scheduling

Please contact your Aviat local sales team for a quote or email aviatcareeducate@aviatnet.com and request pricing for the following items:

TRN-ECL-OVIEW-E   ECLIPSE OVERVIEW - ELEARNING -PRICE PER STUDENT

TRN-ECL-IOM-A   ECLIPSE: INSTALLATION, OPERATION AND MAINTENANCE - ILT, 3 DAYS, AVIAT TRAINING CENTER - OPEN ENROLLMENT -PER STUDENT

TRN-ECL-IOM-B   ECLIPSE: INSTALLATION, OPERATION AND MAINTENANCE - ILT, 3 DAYS, AVIAT TRAINING CENTER- 10 STUDENTS MAX

TRN-ECL-IOM-C   ECLIPSE: INSTALLATION, OPERATION AND MAINTENANCE - ILT, 3 DAYS, CUSTOMER LOCATION- 10 STUDENTS MAX

TRN-ECL-IOM-D   ECLIPSE: INSTALLATION, OPERATION AND MAINTENANCE - ILT, 3 DAYS, CUSTOMER LOCATION- WITH EQUIPMENT- ONLY FOR US- 10 STUDENTS MAX