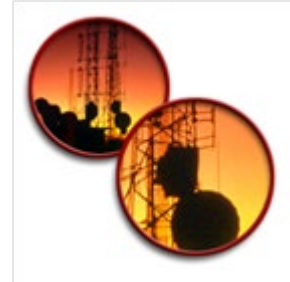

Microwave Link Troubleshooting using PCR Tool TRN-PCR-A/B/C

Course Specifics

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



Course Description

PCR reports a countless variety of microwave transmitter, receiver, and traffic data responses to a multitude of combinations of: Transmitter and receiver alarms, Flat and dispersive multipath fades, Power fades caused by rain and ABL (Atmospheric Boundary Layer) duct-generated signal entrapments, Radio module behavior, Maintenance activity, Antenna misalignments, non-optimum space and frequency diversity separations, Effects of the path's geo-climatic conditions, Interference.

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

The PCR course is conducted at Aviat Training locations or can be arranged at customer sites.

Target Audience

This course is intended for Network /System Engineering and Network Support personnel requiring knowledge of advanced Transmission Planning concepts and PCR

Objectives

Upon successfully completing this course, participants will be able to:

- Use the PCR tool to troubleshoot microwave links
- Solve the most frequently encountered microwave link problems using the analysis performed with the PCR tool.

Prerequisites

1. Microwave transmission engineering experience
2. Microwave link design experience
3. Attendees are encouraged to bring their system-specific PCR data for analysis in the workshop
4. PathLoss V.4 or V.5 is required to complete the tasks associated with the course
5. Each student must bring an IBM compatible laptop PC and have administrator rights on the PC (to allow installation of the Portal craft tool).

The PC must have minimum parameters of:

- Pentium 4 or later w/ 1GB of RAM and 250 Mb of free hard drive space.
- Microsoft Windows XP, Vista, 7 or Windows 10.
- USB Port.
- Network adaptor port (LAN Port).
- DB9 serial port connection or adapter (optional).

Objectives

Upon successfully completing this course, participants will be able to:

- Analyze microwave propagation events
- Better understand the effects of the environment on microwave frequencies
- Perform basic path analysis
- Correlate RSL hits to propagation events
- Interpret basic PCR readings
- Describe common RF problems

Course Outline

Microwave propagation - link performance

- Atmospheric effects – mixed and layered
- Terrain effects – scattered and specular
- Fade mechanisms:
- Multipath fades – reflective and refractive
- Power fades – antenna decoupling, wave front defocusing, path obstruction; rain depolarization
- Dispersive fades – spectrum distortion
- Interference issues – co- and adjacent-channel
- EMI issues – site noise, feeder system contamination, spurious radar and LMR interferences, oTE11 mode conversion
- Error migration via muxless repeaters
- Protection schemes and diversity arrangements

- Link impairment mitigation

PCR basics

- PCR overview - analog traces, radio status, radio and traffic alarms,
- Extracting PCR performance data
- Reading and interpreting PCR data
- Path and Performance analysis

PCR Workshop

- Case study
- Path analysis
- Performance data analysis
- Impairment mitigation strategies
- Customer – specific PCR discussion

Review

- Open discussions

Required Equipment for Training Sessions at Customer Sites

RADIO Not Applicable.

OTHER EQUIPMENT Not Applicable.

CLASSROOM SET UP Sufficient in size to handle all participants, instructor, desks, chairs, classroom equipment. The room must have enough 110 AC (220) AC power and air conditioning to operate equipment, all students clients PC's and the server or radio as required.

Classroom Equipment

Marker board, SVGA or Overhead projector and screen.

Desk and Chairs

Desks or workstations with enough room for each student to write have open books, client PC and / or, keyboard and monitor.

Internet Access

Internet access through the sever or through client PC.

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-PCR-A	PCR: CONFIGURATION AND MANAGEMENT - ILT, 3 DAYS, AVIAT TRAINING CENTER - OPEN ENROLLMENT -PER STUDENT
TRN-PCR-B	PCR: CONFIGURATION AND MANAGEMENT - ILT, 3 DAYS, AVIAT TRAINING CENTER- 10 STUDENTS MAX
TRN-PCR-C	PCR: CONFIGURATION AND MANAGEMENT - ILT, 3 DAYS, CUSTOMER LOCATION- 10 STUDENTS MAX