



Fundamentals of Aeronautical Telemetry Ground Stations

Four-Hour Short Course

Instructor: Mark McWhorter, V.P. of Sales & Marketing, Lumistar Inc.

Course Objectives

This short-course is designed to provide a fundamental high-level overview of aeronautical flight telemetry ground stations, followed by a brief presentation of actual ground station hardware. The student will see how ground stations are set up to operate in real time, including the many basic parameters required to successfully receiver telemetry data at the ground station. Ideas related to Mission Planning and techniques for insuring System Maintenance and Readiness will be offered.

Who Should Take this Course?

Entry Level Engineers, Technicians, and Technical Management who desire to learn (or brush up on) a wide array of fundamental topics related to Aeronautical Mobile Telemetry (AMT), with a particular emphasis on Ground Receiving and Data Processing Stations.

Course Content

The topics listed below will be discussed during the presentation of the course materials:

- Briefly explain how telemetry data is formatted and transmitted from the airborne side
- Explain basic components and functionality of each in a typical Ground Telemetry System
 - Track Antenna and Principles of RF Propagation
 - Multicoupler
 - Receiver Tuner/Downconverter
 - Diversity Combiner
 - Demodulator
 - Bit Synchronizer
 - Frame Synchronization
 - Decommuation
 - Data Recording and Playback
 - Telemetry Transport over Ethernet Protocols (TMoIP)
 - Real Time Data Processing and Display of Telemetered Parameters
- Factors Related to Mission Planning
- Impediments to Receiving "Good Telemetry"
- Periodic System Readiness Checks and Calibrations



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www.telemetry.org

Instructor's Biography: Mr. McWhorter has been involved in the design, development, production and marketing of a variety of microwave components and digital communication systems for over 35 years. He holds a BSEE Degree from the University of South Florida and has authored several papers on microwave components and communication system applications. Mr. McWhorter previously held the position of Technical Director at Honeywell Space Systems, Clearwater, FL where he was involved in the design, development, and mission operations of ground based mobile Range Safety and Telemetry Systems for launch vehicle flight test applications in Kodiak, Alaska. Currently, he is VP of Sales and Marketing for Lumistar, Inc.

Suggested Class Size:

A class size of approx. 15-30 persons is optimal. Other sizes can be arranged.

Material Resources:

Optional book for “*additional study*” is Telemetry Systems Engineering”, ISBN I-58053-257-8. Authors: Carden / Jedlicka / Henry, 573 pages, Copyright 2002.

<http://www.artechhouse.com>

The course can be tailored to the specific needs of individual customers, including “hands-on” training with the customer’s own Telemetry Ground Station. Specific tailored procedures for improving “system-readiness” can be offered.

**For more information please call (727) 642-0939 or
E-mail to mmcwhorter@lumistar.net**

Link to Mr. McWhorter’s “Fundamentals of Microwaves and RF Class:

<https://lumi-star.com/uploads/TRAINING/FundamentalsMicrowavesCourseDescr5.pdf>