

Mobile Positioning in ANSI Networks

Mind Commerce® Course

Overview: This course explains the major methods and procedures for use in positioning mobile terminals in non-GSM or ANSI (CDMA, TDMA and N-AMPS) networks. The standards-based LBS reference architecture, network element function and operations are described, as are the challenges to ensuring end-user security and privacy and location procedures involved in positioning the ANSI-based mobile station and the use of location information for applications. The seminar attendee will also learn the function and procedures of each network element in support of ANSI emergency services and commercial application in addition to the limitations of each positioning technology and the appropriate use of various methods and procedures for different LBS applications. In addition to emerging commercial applications there are numerous ramifications and implications of ANSI positioning in military, national defense and emergency response applications.

Duration: 2 - 3 days

Prerequisites: This is a relatively detailed course, requiring intermediate knowledge of mobile communications systems and operations such as ANSI networks (CDMA, TDMA and N-AMPS), SS7, and ANSI-41 messaging and procedures

Objectives:

At the conclusion of the workshop the student will be able to:

- Understand the major methods and procedures for use in positioning mobile terminals in ANSI networks
- Identify the standards-based emergency service and LBS reference architecture, network element function and operation
- Understand the function of each network element, interface, and logical procedure in the ANSI LBS reference architecture
- Understand the Emergency Services call scenarios
- Understand the function and procedures of each network element in support of ANSI emergency services and commercial application
- Understand the location procedures involved in positioning the ANSI-based mobile station and the use of location information for applications
- Identify the issues and challenges to ensuring end user security and privacy
- Understand the limitations of each positioning technology and identify the appropriate use of various methods and procedures for different LBS applications

Course Outline:

1. Course Introduction

2. Mobile Positioning Overview

- 2.1. Introduction to Location Technologies
- 2.2. Standardization and Industry Groups

3. Network Reference Model

- 3.1. Emergency Services
- 3.2. Commercial Applications
- 3.3. Network Entities
 - 3.3.1. Mobile Station
 - 3.3.2. PDE
 - 3.3.3. MPC
 - 3.3.4. CRDB
 - 3.3.5. MSC
 - 3.3.6. HLR
- 3.4. Interfaces
 - 3.4.1. E2
 - 3.4.2. E3
 - 3.4.3. E5
 - 3.4.4. E11
 - 3.4.5. E12
 - 3.4.6. L1 – L5

4. Location Technologies in Depth

- 4.1. Network Based Solutions
 - 4.1.1. AOA
 - 4.1.2. U-TDOA
 - 4.1.3. Radio Fingerprinting
- 4.2. Handset Based Solutions
 - 4.2.1. A-GPS
 - 4.2.2. E-GPS

5. Emergency Services

- 5.1. Legal Background
- 5.2. FCC Requirements
- 5.3. Joint Standard 036
- 5.4. Network Implementation
 - 5.4.1. ESNE
 - 5.4.2. ESME
- 5.5. Network Procedures
 - 5.5.1. CAS Push
 - 5.5.2. NCAS Pull

6. Commercial Services

- 6.1. Applicable Standards
- 6.2. Service Examples
- 6.3. Network Implementation
- 6.4. Network Procedures
 - 6.4.1. Idle Mobile
 - 6.4.2. Call Related