Course Number H7216B Opt. 201, Dedicated

GSM: Mobile Station Measurements Using the Agilent 8922

Overview

Course Overview

This course provides technicians with a fundamental understanding of GSM technology and provides a hands-on classroom environment to learn about the block diagram of a mobile and how to measure and find faults. This experience enhances the productivity of technicians in the production environment who do testing, rework, and support. By taking knowledge of the GSM system together with measurement theory the student will have the tools and knowledge necessary to be faster and more effective in working with mobile phones.

What you will learn

- GSM networks
- Cells, sectors, and hand-offs
- Broadcast channels
- Traffic channels
- Mobile block diagram
- Vocoders
- Error correction
- Camp and call set-up
- Agilent 8922 GSM test set operation
- Transmitter measurement
- Receiver measurement

Upon completion of this course, you will:

- Understand how a mobile operates in a network
- Recognize the impact of faults on a network
- Make measurements on mobiles using the Agilent 8922 and interpret results
- Be able to isolate faults on mobiles down to module level

Specifications

Course Type

Application/Product training

Audience

Technicians working in a production environment

Prerequisites

Students will have to have completed the RF Measurements Basics (H7216B Opt. 101) for mobile technicians course or equivalent. This will equip them with an understanding of the terms and theories that will be the building blocks of the GSM Mobile Station Measurements course.

Course Length

2 days

Course Format

This course is divided into instructor-led lessons and hands-on labs. These reinforce the theory and its application to mobile fault finding.

Delivery Method

"Dedicated"—at customer site using customer's equipment

Detailed Course Agenda

Digital Basics

What is the reason behind the move to digital systems? Understanding these issues enables us to introduce the fundamental shifts from directly modulated analog signals to digitally encoded data transmission.

GSM Basics

This lesson looks at three areas of GSM: the Network, the Air Interface, and the Signal Path.

The GSM Network:

- Network components
- Cells and sectors
- Broadcast channels
- Traffic channels
- Hand-offs
- Power changes

The Air Interface explores:
- FDMA and channels
- TDMA timeslots and bursts
- Frames and data formatting
- Paging and call organization
- RACH, SACCH, and FACCH
- Equalizers

The Signal Path from the microphone to the antenna is explained:
- Vocoder
- Channel coder
- Interleaving
- Modulation
- Transmission

GSM Measurements

Making real measurements and applying all the theory learned in the previous lessons will enable students to quickly find faults in the mobile. This will reduce the amount of time spent looking for problems and improve productivity. This is achieved by teaching the student about:
- Functional testing
- How to make measurements
- What is being measured
- What measurements tell us
- How to isolate problems

The use of labs along with the theory will allow the student to apply all that has been learned and to fully understand the measurements, how to make them, and, most importantly, what they reveal about the mobile itself.

Ordering Information

To order the *GSM: Mobile Station Measurements Using the Agilent 8922* course (H7216B Opt. 201), call:
US (800) 593-6632
Canada (800) 561-3276

The Agilent Technologies Customer Registration Center can provide you with price and enrollment information about scheduled courses or a dedicated course which can be customized to meet your specific needs.

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