



Course Number H7216A/B

Opt. 301 Scheduled, Dedicated

GSM: An Engineering Perspective Using the Agilent 8960

Course Overview

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This 2-day course teaches engineers about the GSM cellular system, including the basic GSM technology and ETSI standards. It discusses manufacturing test methods using the Agilent 8960 Series 10 wireless communication test set. The class provides insight into the various measurement specifications and how to interpret the results.

What you will learn

- GSM network, cells, and sectors
- Hand-offs
- Control channels
- Traffic channels
- Vocoders and error correction
- Bursted transmissions
- Camp and call set-up
- Agilent 8960 Series 10 wireless communication test set operation
- Transmitter measurement
- Receiver measurement

Upon completion of this course, you will:

- Gain an in-depth knowledge of GSM technology
- Understand the detailed description of functional blocks of mobiles
- Understand how a mobile operates in a network and recognize the impact of faults on a network
- Make measurements on mobiles and interpret results
- Learn what measurements tell you about mobile design
- Learn operation of the 8960 Series 10 wireless communication test set.

Specifications

Course Type

Application Training

Audience

GSM Engineers working with the manufacture and testing of GSM mobile phones

Prerequisites

Students should either complete the RF Measurement Basics and Analog & Digital Cellular Communications courses or have an understanding of RF and microwave measurements, analog and digital cellular systems. 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

The course is divided into instructor-led lessons and hands-on labs. Instruction is done by an experienced instructor, who is a specialist in RF technology and the application of test and measurement equipment.

Delivery Method

“Scheduled” (at Agilent training locations) or “Dedicated” (at customer site)

To save you time and travel, many courses can be delivered at your site. Agilent can provide required equipment, or save money by furnishing your own.

Detailed Course Agenda

Digital Fundamentals

Digital Modulation Basics

GSM Fundamentals

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

The GSM Network looks at:

- Network components
- Cells and sectors
- Frequency planning
- Hand-off techniques
- Power control



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The Air Interface explores:

- GSM implementation
- Power versus time
- Frames and data formatting
- Paging and call origination

The Signal Path from the microphone to the antenna is explained:

- Vocoder
- Channel coder
- Interleaving
- Modulation
- Transmission

GSM Measurements

Using 8960 Series 10 wireless communication test set, the instructor will demonstrate the theory covered in the first section of this course. Emphasis is not on learning to operate the equipment, but to reinforce the concepts of GSM. This is achieved using:

- Detailed mobile block diagrams
- Functional testing
- Transmitter measurements
- Receiver measurements
- What measurements tell us

The student will also have hands-on time to reinforce concepts.

- GSM 11.10 Standard

What is the Wireless Curriculum for Engineers?

The Wireless Curriculum is a series of courses that are designed to increase productivity of engineers. Learning fundamental RF building blocks and how they are constructed in communications systems allows engineers to understand the technology, what they are measuring, and what the results reveal.

Courses include:

- RF Measurement Basics
- Analog and Digital Cellular Communications
- Mobile Station Measurement Courses

Ordering Information

To order the *GSM: An Engineering Perspective* Using the Agilent 8960 course (H7216A/B Opt. 301) call:

US (800) 593-6632

Canada (800) 561-3276

The Agilent 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.

You may also register or request additional information online at:

www.agilent.com/find/tmeducation

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Our Promise

"Our Promise" means your Agilent test and measurement equipment will meet its advertised performance and functionality. When you are choosing new equipment, we will help you with product information, including realistic performance specifications and practical recommendations from experienced test engineers. When you use Agilent equipment, we can verify that it works properly, help with product operation, and provide basic measurement assistance for the use of specified capabilities, at no extra cost upon request. Many self-help tools are available.

Your Advantage

"Your Advantage" means that Agilent offers a wide range of additional expert test and measurement services, which you can purchase according to your unique technical and business needs. Solve problems efficiently and gain a competitive edge by contracting with us for calibration, extra-cost upgrades, out-of-warranty repairs, and on-site education and training, as well as design, system integration, project management, and other professional services. Experienced Agilent engineers and technicians worldwide can help you maximize your productivity, optimize the return on investment of your Agilent instruments and systems, and obtain dependable measurement accuracy for the life of those products.

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Or check your local phone book for the Agilent office near you.

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