

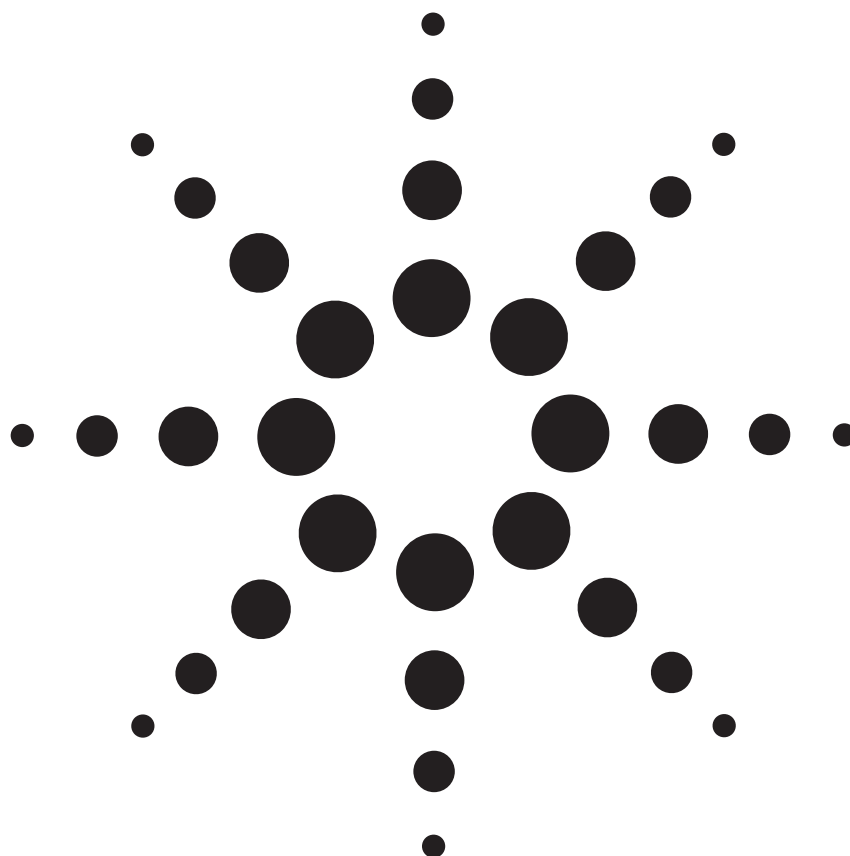
# 3G Technology Overview

Course Overview

Course Numbers:

Agilent Training Center: H7216A #310

Onsite Training: H7216B #310



**Learn the fundamentals of  
3G technologies, CDMA2000, and G3G WCDMA**



**Agilent Technologies**

### **Course Overview**

This two-day course will introduce engineers to the concepts of third generation cellular technologies. It begins with a quick overview of CDMA concepts, gives a brief history of where the standards have come from, and then provides the students with a fundamental understanding of the two 3G technologies: CDMA2000 and G3G WCDMA.

### **What you will learn**

- Basic knowledge of the two 3G cellular technologies
- 1X EV overview
- Concepts of CDMA2000 and its features and technologies
- Concepts of the harmonized global third generation WCDMA system, its features, advantages and technologies
- Creating and analyzing signals for the 3G systems
- Measurement challenges for the two systems
- How mobiles operate in these more complex networks
- Be able to create and analyze signals for the 3G systems
- An appreciation for the added complexity of these systems

### **Specifications**

#### **Course type:**

Application Training

#### **Audience**

Engineers interested in the new 3G cellular technology, whose responsibilities will include either testing of mobiles in manufacturing, or installation and maintenance of base stations.

#### **Prerequisites**

Students should have completed the courses leading up through CDMA Basics, or have an understanding of analog and digital communications systems, and the CDMA technology.

#### **Course Length**

2 days

#### **Course Format**

The course combines lecture presentations with instructor-guided, hands-on sessions (about 50% each).

#### **Delivery Method**

*Scheduled* at Agilent locations, or

*Dedicated* at a customer site.

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

## **Detailed Course Agenda**

### **Overview of IS-95 Concepts**

#### **Technology Roadmap**

#### **1X EV Overview**

#### **Concepts of CDMA2000**

- New features, improvements and technologies
- SR1 operation for both forward and reverse link
- SR3 Multi-carrier mode of operation
- Variable length Walsh Code spreading
- HPSK modulation
- Forward power control
- OTD operation
- Reservation access operation

#### **Concepts of WCDMA**

- New features, improvements and technologies of the 3GPP system
- Physical channels used in the downlink and uplink
- Overview of system acquisition and access
- OVSF code spreading
- HPSK modulation
- Fast forward power control
- Compressed mode
- Turbo coding

### **Creating and Analyzing Signals for WCDMA and CDMA2000**

#### **Measurements on the Two Systems**

- Creating and analyzing signals for the systems
- Discussion of measurement challenges
- Hands-on labs with digital signal generator and vector signal analyzer

For the latest information on class schedules and locations visit our website:  
[www.agilent.com/find/education](http://www.agilent.com/find/education)

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Printed in the USA April 19, 2001

5980-2182E



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