

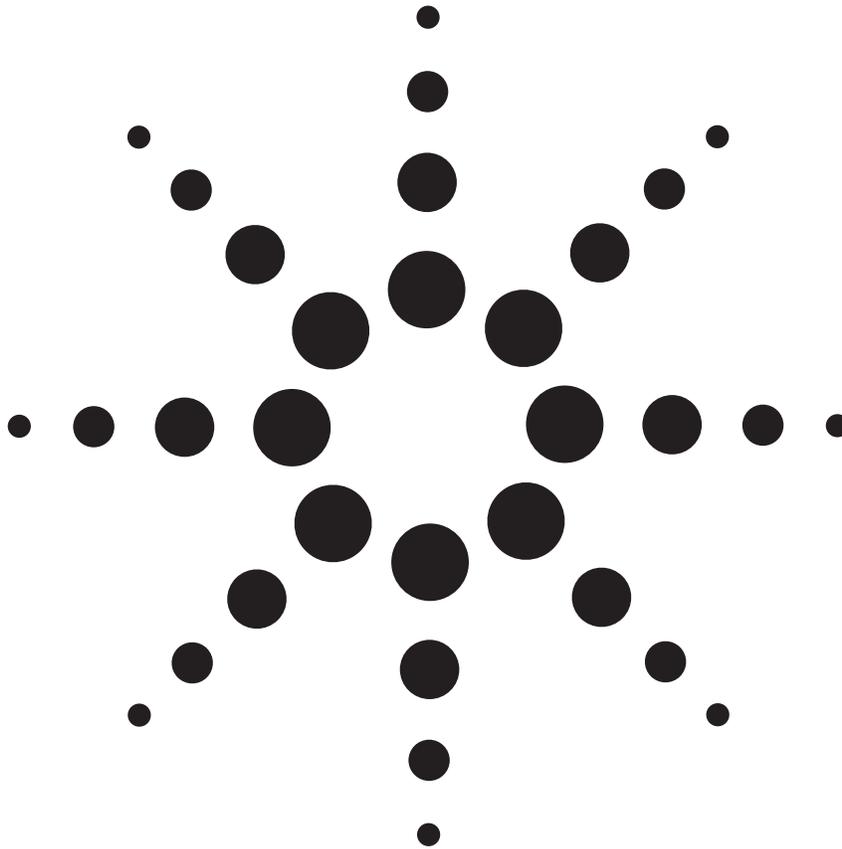
Edge Technology Training

Course Overview

Course Numbers:

Agilent Training Center: H7216A #204

Onsite Training: H7216B #204



**Gain a thorough understanding of the
EDGE technology.**



Agilent Technologies

Innovating the HP Way

Course Overview

The purpose of this course is to provide a detailed explanation of EDGE technology (Enhanced Data Rates for GSM Evolution). EDGE will be built on top of the GPRS core network to provide high-speed data communications at rates up to 384kbps. Instructors will explain how EDGE fits in the big picture of 3G, its relationship with the GPRS network, and how it will be integrated into other networks.

The course will provide an overview of Phase II development and its capabilities for integrating services over the EGPRS network. EDGE is being developed in two phases. Phase I has been incorporated in the GSM standards release R99. Phase II will be incorporated in the GSM standards Release R00.

EDGE meets the IMT-2000 outdoor requirement, and has been adopted by GSM and UWC-136 Standard Development Organizations.

What you will learn

- describe the physical layer and explain comparisons to GSM/IS-136 in terms of channel coding, data rates, modulation, and RLC/MAC functions
- explain how EDGE achieves high data rates, and how it fits with 3G systems
- describe the relationship of EDGE to GPRS
- identify the differences between EDGE Classic (EDGE over GSM) and EDGE Compact (EDGE over IS-136)
- identify and perform key measurements and interpret results

Specifications

Course type:

User/application training

Audience

All personnel involved in the development or implementation of EDGE Technology. This includes GSM, NADC IS-136, and 3G.

Prerequisites

Participants should have taken these Agilent Technologies courses, or have equivalent knowledge of:

- GSM Basics
- TDMA Concept
- GPRS

A brief introduction to GSM, IS-136, and GPRS will be given.

Course Length

Two days

Course Format

70% lecture; 30% labs

Delivery Method

Scheduled at Agilent locations, or

Dedicated at customer's site.

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

Detailed Course Agenda

- Overview and foundational review of EDGE technology: 1/2 day
- Advanced look at EDGE technology: 1/2 day
- EDGE measurements - what, why and how: 1 day

Part I:

Introduction to GSM and IS-136 Air Interfaces

- GSM functional block diagram
- Timeslot and frame structure
- Modulation filtering
- Logical physical and channels
- IS-136 functional block diagram
- Timeslot and frame structure
- Modulation and filtering

Capabilities and limitations of GSM and IS-136 systems

- Voice: FS, EFS, and HS
- Circuit-switched data (CSD)
- HSCSD in GSM
- IS-136+ data

The need for higher data rates

Introducing packet-switched data service in GSM and IS-136

GPRS Premier

- System architecture
- QoS and data rates
- SGSN
- GGSN
- Logical and physical channels
- Channel coding and coding schemes (CS)
- Link quality control
- GPRS in IS-136 (GPRS-136)

ITU IMT-2000 requirements for 3G systems

EDGE as an evolution path

Positioning EDGE with other 3G systems

EDGE roadmap

EDGE Phase I and II

- Definition, services and vision

Part II: Edge Phase I

Development of the EDGE Concept

How it is compared to GSM

System description

- The radio interface
- 8PSK vs. GMSK
- Modulation and Channel coding schemes (MCS)
- Puncturing: how it works
- EDGE Tx filter
- Link quality control: Link Adaptation
- Incremental Redundancy: how it works.
- Offered EDGE bearer services
- Enhanced packet-switched (EGPRS)
- Enhanced circuit-switched (E-CSD)
- Logical and physical channels
- Asymmetric services and mobile terminal classes (A, B and C)

Aspects of introducing EDGE in GSM networks

- Effects on the GSM system architecture
- Impact on GSM network coverage planning
- Impact on GSM network frequency planning

Aspects of introducing EDGE in NADC IS-136 networks

- Effects on the IS-136+ network system architecture
- Impact on network coverage planning
- Impact on network frequency planning
- Impact on Control channels

EDGE Phase II

- Purpose and vision
- Integrated services over EDGE
- Real-time service requirements
- Enhancements and Improvements

PART III: EDGE Measurements

EDGE vs. GSM

Key measurements

The effects of EDGE Tx filter

EDGE measurement filter

Transmitter Tests

- Mean transmitted power
- Power vs. time
- Spectrum due to modulation and wideband noise
- Spectrum due to switching
- Modulation accuracy
- Spurious emission measurements (inband and out of band)

Receiver measurements

- BER, FER, RBER, BLER

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