HSPA for UMTS experts

The introduction of HSPA takes the data rates and efficiency in UMTS to a new level. This is achieved by the implementation of new functions and principles, which will be used also in the upcoming new standard LTE. Even with the introduction of LTE HSPA remains a very attractive option for network operators as the achievable data rates in comparable bandwidth are comparable. Therefor this training offers a detailed overview of used principles and functions in HSPA and HSPA+..

The participant will learn in which areas of the network HSPA provides advantages to the network-operating company as well as to the user. HSPA does not just accelerate the data transmission at the air interface, but also optimises it in UTRAN. A technically-based illustration prepares the participant for the comparison with LTE at the end of the course.

Target Group / Requirements

The course is addressed to technical personnel of UMTS network providers who require a detailed knowledge of UMTS characteristics and processes. Prerequisite is a basic understanding of mobile-radio technologies, especially of UMTS. If this basic knowledge is not available, this course can be divided into a sequence of UMTS courses.

Course Content

Introductory overview of UMTS networks

- Overview of the UMTS network
- Introduction to air interfaces

HSPA

- Introduction to HSPA
- Overview of the changes in UMTS in order to incorporate HSPA
- Prerequisites, benefits and limitations of HSPA
- Key features of HSPA

HSDPA technology in detail

- Optimising of data transmission
  - Scheduling and resource changes
  - Adaptive Modulation and coding based on the quality of the connection (QPSK and 16QAM)
  - Hybrid ARQ (Layer $_2$ error detection and correction in Node B) leads to a better allocation of the available radio interface qualities
- Changes to the protocol layers
  - HS-DSCH frame protocol for flow control
  - The HSDPA MAC-hs Protocol, which controls the subscriber access
  - Additional channels in the radio interface (HS-SCCH, HS-PDSCH, HS-DPCCH, etc.) and their functions
- Physical implementation of UMTS networks
  - Requirements of the Node B

Course Duration:
2 days

Course Number:
NW1231

Requirements:
Basic understanding of mobile-radio technologies

- requirements of the RNCHSUPA

HSUPA technology in detail

- Introduction to HSUPA
- Description of new channels for HSUPA (E-DCH, E-DPDCH, E-DPCCH, E-AGCH, E-RGCH, E-HICH)
- Protocol extensions for HSUPA
- HSUPA scheduling
- HSUPA Macro Diversity

HSPA Call Set Up and mobility procedures

- Call Set Up
- Cell change
- Inward and outward mobility

HSPA+

- MIMO
- Higher Order Modulation
- Continuous connectivity for packet data users
- E-FACH
- Changes on Layer 2

HSPA and LTE

Certification

Certificates are given to all participants at the end of the course about the successful completion.

Course Registration:

Please contact us via

- phone: +49 89 1894354-0
- email: training@tfk.de or
- via our website www.tfk.de/training

You will receive a confirmation of your registration. We can also advice you concerning the best combination of course contents.

For clients with special requirements the optimal training concept can be customized. Modules from our training portfolio can be combined to meet your company-specific needs.