

## **HSPA OPTIMIZATION**

### **Course Description**

Mobile networks of today are becoming true multimedia networks, providing telephony, data and video services to mobile end users. Historically, mobile networks have been optimized for mobile telephony services. Lately, the data related traffic has surpassed the telephony generated traffic. In addition, the end user expectations on the mobile data services, in terms of high quality, lead to tougher requirements on network performance, such as bandwidth availability, packet losses and low delay.

The course is intended for operators and system integrators who need to understand the network mechanisms behind QoS and learn the optimization techniques available in order to meet the system requirements. Moreover, the analysis of typical KPIs is presented in order to assess and evaluate the optimization performed on the system.

## **HSDPA**

### **HSDPA introduction**

Drivers for HSDPA  
HSDPA architecture  
Comparing HSDPA with R99 data channels

### **HSDPA carrier strategies**

Deploy HSDPA on a separate carrier or share spectrum with R99, pros and cons  
HSDPA impact on R99

### **Coverage and capacity of HSDPA**

Coverage for different rates and how it can be improved  
HSDPA Capacity and how it can be improved  
Benefits of 16 QAM and 64 QAM in real network deployment

### **Optimizing the radio network for HSDPA**

Benefits of Code multiplexing  
Benefits of Dynamic code allocation  
Pros and cons of different scheduler strategies  
Handling chatty applications  
Handling VoIP over HSDPA

### **Optimizing other parts of the network**

- Optimizing and dimensioning of Iub
- Optimizing core network parameters for HSDPA
- Optimizing the PC client for HSDPA

## **HSUPA**

### **HSUPA introduction**

- Drivers for HSUPA
- HSUPA architecture
- Comparing HSUPA with R99 data channels

### **Coverage and capacity of HSUPA**

- Coverage for different rates and how it can be improved
- HSUPA capacity and how it can be improved
- Benefits of 2ms TTI

### **Optimizing the radio network for HSUPA**

- Optimizing noise-rise thresholds - stability aspects and impact on R99
- Handling chatty applications
- Handling VoIP over HSUPA
- Optimizing soft handover settings to minimize inter-cell interference

### **Optimizing other parts of the network**

- Optimizing and dimensioning of Iub
- Optimizing core network parameters for HSUPA
- Optimizing the PC client for HSUPA

### **Featuring useful tools for optimization of HSPA**

- Studying different examples of e.g.
  - TEMS
  - Wireshark
  - Fping
  - Doctor TCP
  - Protocol analyzers

**Pre-requisites**

The participants are expected to be experienced within radio network planning / optimization as well as having good knowledge of TCP-IP.

**Course length**

3 days