

LTE R8 RADIO NETWORK DESIGN

Course Description

LTE, long term evolution introduces new opportunities as well as challenges. Great spectrum flexibility and spectrum allocation alternatives contribute to the complexity. The new OFDMA radio standard requires new or updated design principles, compared to UMTS/WCDMA. Cell edge performance can no longer rely on soft handover, while Inter-cell interference levels still must be taken into account. Multi-antenna installation using MIMO will contribute to capacity increase in some occasions, while in others situations, beam-forming techniques will be used.

This course will exploit the new opportunities in the radio design area. Guidelines will be explained and concrete examples will be given.

Content

EVOLVED PACKET SYSTEM (EPS) ARCHITECTURE

- E-UTRAN and EPC systems
- Interfaces and protocols
- Comparison with UMTS/WCDMA
- Capabilities/system limitations

LTE AIR INTERFACE PRINCIPLES

- Subcarriers and resource blocks
- Flexible allocation of spectrum
- LTE channel structure: logical, transport and physical channels
- Elementary procedures in LTE radio (X2 and S1)

LTE TRAFFIC TYPES AND THEIR CHARACTERISTICS

LTE DIMENSIONING

- Uplink coverage and capacity dimensioning
- Downlink coverage and capacity dimensioning



- Noise rise and throughput at cell edge
- Link budget and site count
- simple dimensioning example
- average bit-rate and cell throughput calculations

LTE CELL PLANNING

- Load vs SINR examples
- Resource Block data rates for uplink and downlink
- LTE neighbor analysis
- ICIC and neighbor list updates
- Handover and cell change measurements
- Thresholds criteria for cell change and handover initiation

TOOLS AND SIMULATIONS

- Simulation methods and assisting tools in LTE radio design and dimensioning

Target audience

Target audience is radio engineers and project managers as well as network architects.

Pre-requisites

The participants should have basic LTE knowledge

Course length

2 days

Widermind communicates the knowledge you need to develop and implement new technologies for current and future network operations. Our clients are telecom operators, system integrators, system suppliers and consultancy firms.

Based in Stockholm, Sweden, we develop courses backed by a comprehensive network of associates. Our instructors employ technical and pedagogical skills that have made Widermind training well known and appreciated as one of the best services in the field.

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