

LTE RADIO PLANNING STRATEGY

- LAYERED STRUCTURES AND INTERWORKING

Course Description

Most mobile carriers find themselves planning and operating multi-generation networks on multiple and split frequency bands. What strategy should they apply to achieve an optimally performing composite radio network?

How should the GSM, UMTS and LTE networks be planned with respect to the different technologies and the different frequency bands?

How should the layering be performed?

The LTE radio functionality and the integration options with existing mobile radio systems are described. Furthermore, interworking options with- and fall-back to/from GSM and UMTS systems are discussed.

The opportunities offered by new regulatory framework that allows for frequency re-use are described by means of migration scenarios (spectrum re-farming).

The course is relevant to strategic decision makers and radio planners who require better understanding of LTE radio planning and its implications on the existing radio plans and mobile infrastructure.

Content

TRENDS, EXPECTATIONS AND OPERATOR STRATEGIES

- Service bundling and operator positioning
- Service coverage vs. service differentiation
- Performance expectations on LTE/4G
- Terminals currently available

IMPORTANT LTE SPECTRUM RELATED ISSUES

- LTE Spectrum and Bandwidth Flexibility
- Spectrum migration and re-farming of 2G and 3G spectrum
- Bandwidth, capacity and coverage planning



- Multi-Band & Multi-standard radio systems
- Frequency vs. coverage and capacity relations

THE LTE SYSTEM ARCHITECTURE

- The major differences compared to UMTS
- Migration vs. replacement of 3G and 2G systems
- OFDMA radio capacity and performance
- SON, Self Config and Opt features in LTE
- QoS based service provisioning in LTE
- The role of IMS: an optional or mandatory system
- Radio Network design principles for capacity and coverage
- Multi-band LTE radio network design guidelines

ROAMING, MOBILITY AND SERVICE CONTINUITY ACROSS SYSTEM GENERATIONS

- Handover and interworking scenarios between 2G/3G and 4G system
- 3G/4G service level compatibility
- VCC, Voice call continuity and CS fall-back with 2G/3G
- Service prioritization and traffic separation issues across the systems
- Voice prioritization in an 'all-IP' network scenario

TRAFFIC CASES IN LTE/EPS

- USIM based roaming and registration – Initial procedure
- Session initiation and call set up in LTE networks
- Throughput calculations for LTE
- Inter-RAT system handover and cell change procedures
- Cell reselection procedures in a multi-generation operator

CONFIGURATION OPTIONS AND RADIO NETWORK TUNING

- Multi-system Hierarchical Cell Structures
- Multi-band LTE configuration options
- Parameter settings for cell selection/reselection criteria
- Cell reselection based on service type, IMSI, mobility and cell load
- Self-tuning features in LTE radio and UMTS (future)

EXERCICES AND EXAMPLES

- MIMO influence on throughput and network capacity
- Practical antenna configurations SNIR, throughput, sensitivity
- Deployment scenarios and coverage calculations
- Cell reselection and handover

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Target audience

The target audience of this training is strategic decision makers and radio planners within the telecom community.

Pre-requisites

The participants should have long working experience from WCDMA and GSM Systems.

Course length

3 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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