LTE RF Optimization Training

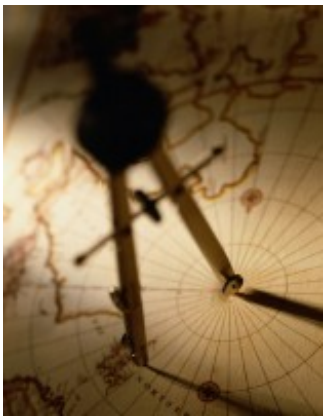
Why should you choose LTE RF Optimization Training: Certified LTE Radio Planning & Optimization

LTE RF Optimization Training provides knowledge and skills needed for successful delivery of LTE network design, LTE planning and optimization activities.

Learn how undertake network performance improvement (KPIs) and optimization tasks and create acceptance plan, sponsor best practices and ensure data integrity of various morphology/topography databases and drive test data for model calibration.

Detailed definition of LTE data transmission, modeling, LTE RF channel, LTE RF propagation and interference, digital signal processing, OFDM implementation, and MIMO- SU-MIMO and MU-MIMO antenna systems. Learn how to work with complex process of LTE network design and LTE RF optimization using GIS data, project configuration, site location, performance analysis, planning, and performance reports.

Objectives of LTE RF Optimization Training:



- List LTE RF Optimization Objectives
- Understand Network and RF Optimization Processes
- Understand the impact of the LTE capacity and coverage issues
- Perform site build verification and site level acceptance
- Examine LTE link budgets to calculate the typical link budget reference points
- Model and Analyze KPIs, investigation and improvement of network quality problems
- Learn how Radio Planning and Optimization of an LTE network helps to troubleshoot and improve defined KPIs
- List key parameters and operations related to Inter-RAT deployment
- Implement new features and tuning LTE radio network parameters
- Analysis of neighbor relations and implementation of corrections
- Understand RSRP and RSRQ measurements applied to LTE RAN RF performance
- Understand coverage and capacity tradeoff requirements to acheive optimal radio network design
- Apply multiple antenna techniques to optimize coverage and performance

Course Content

LTE RF Overview

- Overview of LTE
- LTE service definition and SLA

- Overview of LTE network planning
- LTE network planning and RF optimization
- LTE deployment system architecture
- LTE air interface overview
- LTE RF principles

LTE Radio Network Design & Optimization Procedures

- LTE Network Architecture
- Physical Layer Downlink:
- Principles of Orthogonal Frequency Division Multiplexing (OFDM), OFDMA and SC-FDMA
- Propagation Models applied to LTE
- LTE Link Budget principles
- Frequency Reuse in LTE Networks
- Timing and Synchronization for LTE Networks
- Use of Quality KPI Performance
- LTE RF planning tools
- LTE Link Budget
- RF Design and Site Selection
- Antennas in LTE Networks
- LTE Network Design and Traffic Engineering
- Case Study: LTE Drive Test
- Case Study: LTE RF Planning Optimization Process

LTE RF Performance

- Performance counters
- key performance indicators (KPIs)
- Testing & measurement
- Drive testing and survey
- Data collection and post processing of data
- LTE service optimization
- Bandwidth
- Poor coverage
- Quality
- Overview of optimization process
- KPI optimization

- Root Cause Analysis (RCA) applied to RF issues
- Optimization tools and software

Advanced LTE Network Planning & Optimization Topics

- LTE UE measurements (RSRP/RSRQ)
- LTE Capacity Planning
- RF Configuration Parameters
- LTE Cell selection/reselection planning
- LTE Radio Network KPIs
- LTE User-centric KPIs
- LTE Network performance KPIs
- LTE System utilization KPIs
- LTE RF Channel Performance Predictions
- LTE Channel Information Processing
- LTE Channel multiplexing
- Physical Layer and Structure
- MIMO in LTE
- LTE Resource Plan
- LTE and Self-Organizing Networks (SON)

Radio Network Optimization Work Flow

- Work Flow
- Understanding of the Existing Network
- Optimization Team Establishment and Cluster Division
- Single Site Verification
- Alarm Check
- Cell State Check
- Radio Parameters Check
- Site Verification
- Statistics Analysis
- Coverage problem Analysis

RF Optimization Process

- Understand existing LTE network

- Deployment site locations
- Site readiness
- Backhaul
- Propagation models for LTE
- LTE Link budget analysis
- LTE coverage maps
- Site acquisition process in LTE engineering
- RF optimization planning
- RF optimization execution
- RF planning and optimization tools
- LTE Network Resource Management
- Quality of Service (QoS)
- Quality of Experience (QoE)
- Service Quality Architectures
- Scheduling Algorithms
- Test cases
- Physical layer throughput tests peak
- RLC throughput tests peak
- Physical layer throughput tests median
- Radio Bearer Control (RBC)
- Radio Admission Control (RAC)
- Connection Mobility Control (CMC)
- Dynamic Resource Allocation (DRA) – Packet Scheduling (PS)
- Inter-cell Interference Coordination (ICIC)
- RSRP, RSRQ, RSSI and SINR to get Good Data Rate
- LTE Femtocell

Workshops

- Modeling and Building LTE RF Optimization KPIs
- Link Budgets for LTE
- Coverage Planning Calculations
- Coverage Planning for LTE
- Coverage Optimization Techniques

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