Wireless Coverage Measurement, Interference Analysis and QoS Optimization Training Course

1 – 12 August 2027
Amman (Jordan)



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Introduction:

In this 2-week Wireless Coverage Measurement, Interference Analysis and QoS Optimization Training Course, you learn to measure coverage, hunt and classify interference, and tune 4G, 5G and Wi-Fi networks against international QoS frameworks. You build and take back a coverage, interference and QoS optimisation report for one network area, backed by a calibrated propagation model and a KPI scorecard. You need hands-on experience with radio measurements, drive test tools or network KPIs, as this course works at an advanced level. You practise in labs with real drive test logs, spectrum traces and Wi-Fi survey data, and the content follows 3GPP, ITU and ETSI measurement and QoS practice.

Course Objectives:

- Run drive test, walk test and Wi-Fi survey campaigns planned to ETSI TS 102 250 statistical rules
- Test RSRP, RSRQ, SINR and RSSI readings against 3GPP measurement definitions on your own logs
- Map interference sources with spectrum analysers and direction finding, then classify them by signature
- Build a propagation model calibrated against measurement data and score its prediction error
- Score accessibility, retainability, integrity and mobility KPIs and benchmark them against peers
- Draft optimisation change requests for 4G, 5G and Wi-Fi with before and after verification

Target Audience:

- You plan and run drive tests, walk tests and post-processing for radio access networks
- You optimise cell parameters, neighbours and handovers on 4G and 5G layers
- You hunt and resolve interference using spectrum analysers and monitoring receivers
- You analyse network KPIs and QoS benchmarks and report service quality
- You design, survey and tune enterprise or venue Wi-Fi networks

Course Outline:

Day 1: Frame Coverage and QoS Measurement Objectives

- Mapping Measurement Goals to ITU-T E.800 QoS Terms
- Comparing Active, Passive and Crowdsourced Measurement Methods
- Interpreting RSRP, RSRQ and RSSI Under 3GPP TS 36.214
- Defining SS-RSRP and SS-SINR Using 3GPP TS 38.215
- Build: Measurement Objectives and Metric Definition Sheet



Day 2: Apply ETSI and ITU-T QoS Frameworks to Test Plans

- Selecting QoS Parameters From ETSI TS 102 250-2
- Applying ITU-T E.804 Service Trigger Points to Test Scripts
- Setting Statistical Sample Sizes and Confidence Intervals
- Designing Drive and Walk Test Routes With Clutter Maps
- Build: Drive and Walk Test Campaign Plan

Day 3: Run Drive Tests, Walk Tests and Wi-Fi Surveys

- Configuring Scanners and UE-Based Drive Test Tools
- Logging Indoor Walk Tests With Floor-Plan Waypoints
- Running Passive and Active IEEE 802.11 Wi-Fi Site Surveys
- Validating Log Quality With Calibration and GPS Checks
- Build: Field Measurement Log Set and QA Checklist

Day 4: Post-Process Measurement Data and Spectrum Traces

- Binning RSRP and SINR Samples Into Coverage Plots
- Reading Spectrum Analyser Traces for Noise Floor Rise
- Correlating Drive Test Logs With Cell Configuration Data
- Detecting Pilot Pollution and Overshooting Cells From Scanner Data
- Build: Post-Processed Coverage and Quality Report

Day 5: Diagnose a Guided Multi-Layer Coverage Case Study

- Tracing Coverage Holes Across LTE and NR Layers
- Diagnosing Low SINR Clusters With Best-Server Plots
- Ranking Problem Areas With a Severity Scoring Matrix
- Proposing Tilt, Azimuth and Power Changes With Verification Drives
- Build: Guided Case Diagnosis and Change Proposal

Day 6: Hunt and Classify Interference Sources

- Classifying Interference Using ITU-R Spectrum Monitoring Handbook Methods
- Locating Emitters With Directional Antennas and Triangulation
- Separating Harmonics, Intermodulation and Passive Intermodulation Signatures
- Analysing Uplink Interference With PRB-Level Noise Statistics
- Build: Interference Hunting Log and Classification Report



Day 7: Calibrate Propagation Models and Validate Coverage Predictions

- Comparing Okumura-Hata, COST-231 and ITU-R P.1546 Predictions
- Tuning Propagation Model Parameters Against Drive Test Data
- Applying ITU-R P.1812 for Path-Specific Terrain Predictions
- Auditing Prediction Error With Mean and Standard Deviation Targets
- Build: Calibrated Propagation Model and Validation Record

Day 8: Optimise 4G, 5G and Wi-Fi Networks Through Change Control

- Optimising Neighbour Lists and PCI Plans Through Change Requests
- Tuning Handover Parameters for A3 and A5 Events
- Planning Wi-Fi Channels and Transmit Power Against Co-Channel Interference
- Briefing Operations and Planning Teams With Optimisation Change Logs
- Build: Optimisation Change Request Pack

Day 9: Measure KPIs and Benchmark Service Quality

- Computing Accessibility and Retainability KPIs per 3GPP TS 32.450
- Tracking Integrity and Mobility KPIs With Counter-Based Dashboards
- Benchmarking Networks With ETSI TS 102 250 Test Statistics
- Mapping 5G End-to-End KPIs From 3GPP TS 28.554
- Build: QoS KPI Dashboard and Benchmark Scorecard

Day 10: Present a Capstone Optimisation Report in a Lab Review

- Reviewing Standards With Exam-Style Practice Question Sets
- Re-Analysing Your Own Drive Test Logs With Week-One Methods
- Applying Interference and KPI Findings to Optimisation Actions
- Defending Recommendations to a Peer Engineering Review Panel
- Build: Final Coverage, Interference and QoS Optimisation Report

Skills You Will Gain:

- Drive Test Campaign Design
- 3GPP Radio Measurement Interpretation
- Spectrum Trace Analysis
- Interference Direction Finding
- Propagation Model Tuning
- Handover Parameter Optimisation
- Wi-Fi Channel Planning
- QoS KPI Benchmarking



Why Attend This Course:

- Plan your next drive test campaign with sample sizes you can defend statistically
- Classify an interference complaint by its spectrum signature before you send a team out
- Tune a propagation model so coverage predictions match what your drive tests show
- Take back a coverage, interference and QoS optimisation report ready for your planning and operations teams

Conclusion:

In your first week back, you load fresh drive test logs for your chosen area into the optimisation report and confirm the coverage and SINR findings still hold. You then walk your planning and operations leads through the change request pack and agree which tilt, neighbour and Wi-Fi channel changes go first. After the changes are applied, you run a verification drive or walk test and compare the KPI scorecard with the baseline. Where results miss the target, you adjust the propagation model or parameters and log the reason.

Frequently Asked Questions FAQ:

What will you be able to do after the wireless coverage measurement, interference analysis and QoS optimization course?

You will plan and run statistically sound drive, walk and Wi-Fi survey campaigns, interpret 3GPP radio measurements, hunt and classify interference, calibrate propagation models, compute QoS KPIs and turn the findings into verified 4G, 5G and Wi-Fi optimisation changes.

What do you need to know before starting wireless coverage measurement and QoS optimization training?

You need working experience with radio measurements, drive test tools, spectrum analysers or network KPIs, and familiarity with 4G, 5G or Wi-Fi architecture. The course works at an advanced level and assumes you already read measurement logs.

What do you build during the wireless coverage measurement, interference analysis and QoS optimization course?

You build a metric sheet, a campaign plan, a post-processed coverage report, an interference classification report, a calibrated propagation model, a change request pack and a KPI scorecard, combined into one optimisation report for a network area.



How does this wireless coverage measurement and QoS optimization course differ from a basic drive test course?

A basic drive test course teaches tool operation and log reading. This course adds interference hunting, propagation model calibration, statistical QoS benchmarking against international frameworks and optimisation change control across 4G, 5G and Wi-Fi.

