5G RF Performance Workshop (UE-Based)

5G_402x | Expert-Led Live | 5G Access | ⚙⚙⚙
Course Duration: 3 days

This workshop helps RAN and UE engineers analyze 5G SA and NSA based RAN operations using actual UE logs. Learners use the post processing tools to analyze 5G NR and LTE messages, parameters, and their impact to user experience. Instructor-led exercise sessions use signaling messages captured from live case studies (where available) to ensure the key learnings of this hands-on workshop are reinforced. Finally, learners present one of their log analysis to reinforce the learning of this workshop.

Intended Audience

RAN and UE Performance engineers

Objectives

After completing this course, the learner will be able to:

- List the 5G RAN KPIs that impacts network performance
- Identify the factors and events that impact 5G RAN KPIs
- Analyze UE logs to derive performance issues related to Setup, Radio link, Throughput, Handover
- Understand the failure signatures that result into poor performance
- Analyze various scenarios of poor performance and present the findings

Course Prerequisites

5G (SA) RAN Signaling and Operations

Outline

1. RF Performance Essentials
1.1 5G RAN KPIs - SA and NSA
1.2 Accessibility, Retainability, Integrity, Handovers
1.3 Mapping Call flow events and RAN KPIs
1.4 Split bearer and PDCP Aggregation in EN-DC based NSA network
Exercise: UE log analysis

2. Accessibility Analysis
2.1 RACH success in SA network
2.2 SgNB Cell add success in NSA network
2.3 Call flow and event triggers
2.4 Impact of coverage of FR1 and FR2 and in FDD and TDD bands
Exercise: Accessibility problem analysis
Exercise: Student Exercises

3. Retainability Analysis
3.1 UE detected radio link failures
3.2 eNB and gNB detected radio link failures
3.3 Call flow and event triggers
3.4 Beam management
Exercise: Retainability problem analysis
Exercise: Student Exercises

4. Throughput and Latency Analysis
4.1 UE and cell throughput and latency analysis
4.2 Impact of Carrier Aggregation (CA), EN-DC, and NR-DC
4.3 Split bearer and PDCP Aggregation
4.4 UL on 5G NR or LTE
4.5 Call flow and event triggers
Exercise: Throughput problem analysis
Exercise: Student Exercises

5. Handover Analysis
5.1 Intra-CU and Inter-CU Handovers
5.2 Stages of Handover
Exercise: Handover problem analysis
Exercise: Student Exercises

Student Presentations

Final Assessment