

# LTE RF Optimization: Part 2– Downlink and Uplink Throughput

This workshop provides insights into the symptoms and possible causes of field performance issues in LTE radio networks using UE logs. RF measurements related to coverage and interference are discussed to analyze coverage holes and overlapping regions. Students analyze LTE signaling messages through UE logs and map them to success and failure events. Students perform root cause analysis and gain an in-depth understanding of these signaling events to network performance. LTE RF optimization areas such as downlink and uplink throughput analysis are addressed. This knowledge transfer is obtained through hands-on experience using UE based diagnostic tools and scanner tools.

## Intended Audience

This workshop is primarily intended for RF and systems performance engineers involved in LTE design, performance, and optimization.

## Objectives

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

- Define the LTE RF KPIs and map them to RAN counters
- Identify various LTE signaling events that map to success and failure operational counters
- Identify the RF measurements that are key to coverage and interference
- Analyze the RF measurements through post processing tools
- Analyze UE logs for root cause analysis of successful and failure events
- Map above events to operational counters and corresponding KPIs
- Understand LTE KPIs where they are pegged
- Describe DL and UL bandwidth and UE throughput

## What You Can Expect

- Expert-Led Live Duration: 10 HOUR
- Prerequisite: LTE RF Optimization: Part 1 – Coverage and Accessibility
- Required Equipment: PC laptop

## Outline

### 1. Workshop Overview

#### 2. LTE RAN KPIs

- 2.1 LTE RAN KPIs
- 2.2 LTE signaling to KPI mapping
- 2.3 Summary
- 2.4 Review exercise

#### 3. DL Data Traffic Performance

- 3.1 DL traffic operation walk-through
- 3.2 DL traffic KPIs
- 3.3 Analysis of CQI, PMI, RI
- 3.4 HARQ/ARQ and BLER analysis
- 3.5 Summary
- 3.6 Review exercises

#### 4. UL Data Traffic Performance

- 4.1 UL traffic operation walk-through
- 4.2 UL traffic KPIs
- 4.3 UL power control parameters
- 4.4 HARQ/ARQ and BLER analysis
- 4.5 Summary
- 4.6 Review exercises