



## Who Should Attend?

This training is an excellent choice for engineers and managers who are already familiar with LTE/EPS and need to learn about the most fundamental E-UTRAN counters and KPIs that should be available in every vendor implementation. This knowledge can be a basis for further self- or instructor-led studies of E-UTRAN performance management. It is also useful for engineers who are not directly responsible for E-UTRAN but would like an overview of E-UTRAN measurements (e.g. EPC/CN, IMS/VoLTE/RCS engineers).

## Course Scope

1. Introduction.
  - Management system architecture.
  - Measurement result generation (Cumulative Counter, Status Inspection, Gauge, Discrete Event Registration).
  - Measurement definition structure.
  - Measurement reporting.
  - Performance alarms.
2. Counters related to:
  - RRC connection.
  - UE Context Management.
  - E-RAB management.
  - Intra-RAT Handovers.
  - Cell level QoS measurements.
  - Radio resource utilisation.
  - UE-associated logical S1-connection.
  - Paging.
  - LAs of overlapping RAT's (CSFB).
  - Measurements related to equipment resources.
  - RF measurements.
  - SCell scheduling related measurements in CA.
  - Measurements related to Relay Node.
  - Measurements related Measurement Report.
  - UE Rx-Tx time difference and AOA related measurements.
3. Key Performance Indicators (KPIs).
  - Accessibility.
  - Retainability.
  - Integrity.
  - Availability.

## Course Objectives

This training presents standard R8-R12 E-UTRAN counters and KPIs that are comparable across all vendors' implementations. Each counter is described in the system-wide context of procedures and configuration parameters impacting its value.



Please note that only standard counters and KPIs are covered. This training should not be considered as an alternative to similarly-titled trainings offered by equipment vendors, since standard counters are just a small fraction of the total number of counters available in real equipment. The counters covered in this training can, however, be used to benchmark E-UTRAN areas served by eNBs from different manufacturers.

## **Prerequisites**

The participants should be familiar with basic aspects of mobile network architecture and services. Background knowledge of LTE is highly recommended.

## **Training Structure**

One-day training divided into logical sessions.

## **Methodology**

Instructor-led training. Lectures and multimedia presentations.