LTE Performance Management and Optimization (Flexible Learning Model)

Description
This is a Flexible Learning Model (3 contact hours per day) course with mandatory competence assessments following each learning segment. The delivery methods used are, Lecture (on-line and classroom), Small Groups Discussion, Self Study, Case Work and Hands-on Labs. An initial assessment will be conducted on day 1, followed by Individual Student Paths provided to each student, outlining their required learning objectives and schedule of events. Students are responsible for self-study, attending lectures per schedule, submitting completed casework on time, and successfully passing assessments. Through this training, Students will become familiar with using eNodeB counters to create KPI formulas to measure E-UTRAN Accessibility, Retainability, Integrity, Mobility and Availability performance and the parameters that may be used to optimize these areas. Through practical hands-on exercises they will learn how to use the Ericsson OSS-RC to collect counters from the eNodeB, and setup and decode LTE Cell and UE Trace.

Learning objectives
On completion of this course the participants will be able to:

1. Explain the E-UTRAN Performance Management solution
   1.1. Describe the difference between Initial Tuning and Optimization
   1.2. Identify how eNodeB counters are collected and stored
   1.3. Describe the eNodeB counter types and structures

2. Measure LTE Accessibility performance
   2.1. Describe the E-RAB setup procedure and associated counters
   2.2. Use eNodeB counters to create E-RAB Accessibility KPIs
   2.3. Explain the eNodeB parameters and Features that influence Accessibility

3. Measure LTE Retainability performance
   3.1. Describe the E-RAB release procedure and associated counters
   3.2. Use eNodeB counters to create E-RAB Retainability KPIs
   3.3. Explain the eNodeB parameters and Features that influence Retainability

4. Measure LTE Integrity performance
   4.1. Explain the counters that are used to measure LTE Radio Bearer LTE throughput
   4.2. Use eNodeB counters to create E-UTRAN Integrity KPIs
   4.3. Explain the eNodeB parameters and Features that influence Integrity

5. Measure LTE Mobility performance
5.1 Explain the various LTE mobility procedures and associated counters
5.2 Use eNodeB counters to create E-UTRAN Mobility KPIs
5.3 Explain the eNodeB parameters and Features that influence Mobility

6. Measure LTE Cell Availability
6.1 Explain the counters that are used to measure LTE Cell Availability
6.2 Use eNodeB counters to create Cell Availability KPIs and measure System Utilization
6.3 Explain the eNodeB parameters and Features that influence Cell Availability and System Utilization

7. Explain briefly how LTE Cell and UE Trace are collected and stored
8. Use the OSS-RC to collect E-UTRAN counters and handle LTE Cell and UE Trace
8.1 Create, activate and delete subscription profiles
8.2 Use the OSS-RC to open and view the contents of LTE Cell and UE Trace files
9. Principles of Tuning
9.1 Perform a network design review and consistency check
9.2 Define cluster and drive test routes
9.3 Define the services to test
9.4 Describe the different interference scenarios in a LTE network
9.5 Define coverage in different scenarios e.g. macro and hotspot
9.6 Describe the neighbor list with or without the Automated Neighbor Relations

**Target audience**

The target audience for this course is:

Service Planning Engineers, Service Design Engineers, Network Design Engineers, System Engineers and Service Engineers.

This audience is responsible for LTE Performance Management and Optimization.

**Prerequisites**

Successful completion of the following courses:

LTE L12 Air Interface, Protocols and Procedures LNA 1087401
LTE L12 Radio Network Functionality LNA 1087402

The students should also have a basic knowledge of Microsoft Excel.

**Duration and class size**
The length of the course is 10 days and the maximum number of participants is 24.

**Learning situation**

This course is based on theoretical and practical instructor-led lessons. The delivery methods used are, Lecture (on-line and classroom), Small Groups Discussion, Self Study, Case Work and Hands-on Labs.

**Time schedule**

The time required always depends on the knowledge of the attending participants and the hours stated below can be used as estimate.

<table>
<thead>
<tr>
<th>Day</th>
<th>Topics in the course</th>
<th>Estimated Time (hours)</th>
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</thead>
<tbody>
<tr>
<td>1</td>
<td>LTE Performance Management Introduction and Initial Assessment</td>
<td>2.5</td>
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<tr>
<td>2</td>
<td>LTE Accessibility Optimization and Assessment</td>
<td>3.5</td>
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<tr>
<td>3</td>
<td>LTE Retainability Optimization</td>
<td>3.5</td>
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<tr>
<td>4</td>
<td>LTE Integrity Optimization</td>
<td>3.5</td>
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<tr>
<td>5</td>
<td>LTE Mobility Optimization</td>
<td>3.5</td>
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<tr>
<td>6</td>
<td>LTE Availability Optimization</td>
<td>3.5</td>
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<td>7</td>
<td>OSS-RC Statistics, Cell and UE Trace Handling</td>
<td>3.5</td>
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<tr>
<td>8</td>
<td>Tuning Principles</td>
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<td>9</td>
<td>Hands-on Lab</td>
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<td>10</td>
<td>Re-evaluation period (as needed)</td>
<td>TBD</td>
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