



## Who Should Attend?

This course is intended for experienced network engineers and E-UTRAN developers who are planning or have already begun introducing LTE in Unlicensed Spectrum.

## Course Scope

1. Introduction. Overview of predecessor LTE-WLAN/WiFi interworking solutions: I-WLAN, Untrusted non-3GPP Access to EPS – S2b, Trusted WLAN Access to EPS – S2a, Multiple Access PDN Connectivity (MAPCON), IP Flow Mobility (IFOM), Broadband Access Interworking using WLAN/H(e)NB, Local IP Access (LIPA), Selected IP Traffic Offload (SIPTO), and MultiPath TCP (MPTCP).
2. Licensed-Assisted Access (LAA)/LTE-U. Carrier Aggregation (CA) as a basis for LAA, deployment scenarios, Listen Before Talk (LBT) and channel access procedures, physical layer modifications, radio frame type 3 and partial subframe, scheduling and resource allocation methods DL/UL, HARQ, Discovery Reference Signals (DRSs), measurements, mobility, and performance analysis.
3. LTE WLAN Aggregation (LWA). Dual Connectivity (DC) as a basis for LWA, radio protocol architecture, split LWA bearer, switched LWA bearer, new protocols and interfaces, flow control, terminal capabilities, WLAN mobility, WLAN measurements, LWA operation, Xw setup, addition, release, modification and change of WT, WT status reporting, WLAN UE-WT link security, and performance analysis.

## Course Objectives

While licensed spectrum remains 3GPP operators' top priority to deliver advanced services and user experience, the opportunistic use of unlicensed spectrum is becoming an important complement to meet the growing traffic demand. LTE-WLAN Aggregation (LWA) and Licensed-Assisted Access (LAA)/LTE-U will give operators the option to make use of unlicensed spectrum with a unified network, offering potential operational cost saving, improved spectral efficiency, and a better user experience. The training is focused on hot topics of LWA and LAA. However, it also contains an introductory section which gives an overview of some selected approaches to LTE-WLAN/WiFi integration available in the previous 3GPP standard releases.

## Prerequisites

Knowledge of LTE/E-UTRAN is required. Completion of "LTE/E-UTRAN Signalling" course is highly recommended.

## Training Structure



One-day training divided into logical sessions.

## **Methodology**

Lectures and multimedia presentations.