

5G Technology Primer: Carrier Aggregation

Instructor Led | Duration: 0.5 Days | Course Number: TPR1016

5G

LTE network operators are trying to reduce and consolidate the different mobile networks they have to maintain. This results in a fragmented set of carriers possibly spread across different bands. With the introduction of LTE-Advanced, operators have an opportunity to use features such as Carrier Aggregation (CA) to maximize their RF capacity and efficiency. This primer starts with a short introduction to various features of LTE-Advanced, where CA is introduced along with its key drivers and benefits. This is followed by a closer look at the various changes made to the LTE air interface to support CA, including important LTE operations such as bearer setup, traffic management and handover. The primer finishes with a quick look at some of the other features introduced as part of LTE-Advanced, including Coordinated Multipoint (CoMP) and new MIMO options.

Intended Audience

This technology primer is designed for a wide range of audiences including operations, engineering, and performance personnel, as well as other personnel needing a good understanding of the Carrier Aggregation features.

Learning Objectives

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

- Identify the targets and key features of LTE-Advanced
- Mention the capabilities of new UE categories in LTE-Advanced
- Explain the concept of Carrier Aggregation (CA)
- Define primary and secondary cells
- Summarize how CA is configured, activated, and deactivated
- Illustrate typical deployment scenarios for CA
- Describe the mobility scenarios in conjunction with CA

Suggested Prerequisites

- A working knowledge of LTE radio networks and the LTE air interface

Course Outline

1. Carrier Aggregation(CA) Basics

- 1.1. Goals of LTE-Advanced technology
- 1.2. What is CA?
- 1.3. Drivers and benefits of CA

2. Carrier Aggregation Radio Aspects

- 2.1. CA-related terminology
- 2.2. CA options (intra- and inter-band)
- 2.3. CA-related radio changes
- 2.4. CA scheduling options
- 2.5. CA deployment scenarios

3. Carrier Aggregation Operations

- 3.1. LTE bearer setup
- 3.2. UE categories and capabilities
- 3.3. Traffic management
- 3.4. Mobility and handovers

4. Other LTE-Advanced Features

- 4.1. Coordinated Multi-Point (CoMP)
- 4.2. MIMO options