# Technology Primer: Carrier Aggregation

Instructor Led Live Virtual Class | Duration: 0.5 Days | Course Number: TPR1016

LTE network operators are trying to reduce and consolidate the different mobile networks they have to maintain, resulting 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. We start with a short introduction to various features of LTE-Advanced, where CA is introduced along with its key drivers and benefits, 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

A high-level technical overview to personnel involved in product management, marketing, planning, design, engineering, and operations.

## 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

- LTE Overview (eLearning)
- Exploring LTE: Architecture and Interfaces (eLearning)

## 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
   1.4. LTE DL and UL operations
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
   3.5. LAA – What and Why?
4. **Key Take-aways**