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Carrier aggregation in Long Term Evolution - Advanced (Conference Paper)

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Abstract

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Long Term Evolution-Advanced (LTE-Advanced) provides considerably higher data rates than even early releases of LTE. One key enhancement feature is bandwidth extension by the use of multicarrier technology to support deployment bandwidth up to 100 MHz. In order to achieve up to 1 Gb/s peak data rate in IMT-Advanced mobile systems, carrier aggregation technology is introduced by the 3GPP to support very-high-data-rate transmissions over wide frequency bandwidths (e.g., up to 100 MHz) in its new LTE-Advanced standards. The carrier aggregation (CA) technology allows scalable expansion of effective bandwidth provided to a user terminal through simultaneous utilization of radio resources across multiple carriers. The CA in LTE-Advanced is designed to support aggregation of a variety of different arrangements of component carriers (CCs), including CCs of the same or different bandwidths, contiguous or non-contiguous CCs in the same frequency band, and CCs in different frequency bands. The CA is supported by both formats of LTE, specifically the frequency Division Duplex (FDD) and Time Division Duplex (TDD) variants. This guarantees that both FDD LTE and TDD LTE are able to meet the high data throughput requirements placed upon them. This paper provides an outline of carrier aggregation including aggregation structure, deployment scenarios, implementation, main design features and backward compatibility with legacy LTE systems. © 2012 IEEE.

SciVal Topic Prominence ⓘ

Topic: Agglomeration | Long Term Evolution (LTE) | Component carriers

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Author keywords

Carrier aggregation LTE LTE-Advanced

Indexed keywords

Engineering uncontrolled terms

Aggregation structure Backward compatibility Bandwidth extension Carrier aggregations
Data rates Data throughput Deployment scenarios Design features Different frequency
Effective bandwidth Frequency band width Frequency-division duplexes IMT-advanced
LTE Lte-advanced Mobile systems Multi-carrier technology Multiple carriers
Radio resources Scalable expansion Simultaneous utilization Time division duplex
User terminals

Engineering controlled terms:

4G mobile communication systems Bandwidth Frequency bands Legacy systems
Standards

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