

## SURVEY OF LTE AND LTE ADVANCED SYSTEM

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### ABSTRACT

Carrier aggregation (CA) is one of the most important technologies to ensure the success of 4G technologies. Carrier aggregation allows both an efficient use of spectrum already deployed and the required support for the resource allocation in new frequency bands. The Release 8 LTE carrier maximum bandwidth is 20 MHz. This bandwidth can be further extended in LTE-Advanced by carrier aggregation, with which the base stations can transmit multiple LTE carriers, each having bandwidth upto 20 MHz. When no carrier aggregation is used, the user will receive one carrier. When carrier aggregation is used, it is possible to send not only one carrier but multiple carriers to the users, which leads to a higher bit rate. Adding carrier aggregation influences energy efficiency for some modulation schemes. So, the objective is to study energy efficient LTE system in order to reduce power consumption of the system and to increase the energy efficiency and throughput.

**KEYWORDS:** Carrier Aggregation (CA), Long Term Evolution (LTE), Long Term Evolution Advanced (LTE-A), Heterogeneous LTE and LTE-A, Multiple Input Multiple Output (MIMO)