A Survey of Component Carrier Selection Algorithms for Carrier Aggregation in Long Term Evolution Advanced

By: Ramli, HAM (Ramli, Huda Adibah Mohd)[1]; Asnawi, AL (Asnawi, Ani Liza)[1]; Isa, FNM (Isa, Farah Nadia Mohd)[1]; Azman, AW (Azman, Amelia Wong)[1]

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Abstract

Given that the demand for real-time multimedia contents that require significantly high data rate are getting of high popularity, a new mobile cellular technology known as Long term Evolution-Advanced (LTE-A) was standardized. The LTE-A is envisaged to support high peak data rate by aggregating more than one contiguous or non-contiguous Component Carriers (CCs) of the same or different frequency bandwidths. This paper provides a survey on the case where the LTE-A is working in backward compatible mode as well as when the system contains only LTE-A users. Note that the backward compatible mode indicates that the LTE-A contains a mixture of the legacy Long Term Evolution Release 8 (LTE) users that support packets (re) transmission on a single CC and the LTE-A users that are capable of utilizes more than one CCs for packets (re) transmission. It can be concluded from the study that the CC selection algorithms for newly-arrived LTE users can benefit from the channel diversity and the load status whereas the carrier aggregation that does not allocate all of the available CCs to the newly arrived LTE-A users shown to be more efficient.

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Author Information

Reprint Address: Ramli, HAM (reprint author)

+ IIUM, Fac Engn, Dept Elect & Comp Engn, Kuala Lumpur, Malaysia.

Addresses:

+ [1] IIUM, Fac Engn, Dept Elect & Comp Engn, Kuala Lumpur, Malaysia

E-mail Addresses: hadibahmr@iium.edu.my; aniliza@iium.edu.my; farahn@iium.edu.my; amy@iium.edu.my

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