ABSTRACT

The increase on data traffic these days is inversely proportional to the available capacity. To meet these needs, a concept which is considered to be the solution of the problem is presented. The concept of femtocell is considered as a promising solution to increase capacity and coverage problems indoor. However, the unpredictable deployments pattern of femtocell often form a centralized network practically. This problem occurs because the femtocell is not coordinated with each other. For that reason, an efficient interference management is needed to objectify the purpose of femtocell optimally.

In this thesis the author uses a method called Distributed Carrier Selection to manage interference.This method works by calculating the value of interference cognitively by estimating the value of pathloss between FAP & FUE. From interference obtained will be calculated the value of SCC (Secondary Component carrier) from PCC (Primary Component carrier) used.

This method also provides an increase in the value of downlink throughput. This method was tested with several different scenarios, it is known that the biggest value of interference is 154,280mW and the smallest is 726,61mW. Also, the increase in downlink throughput by using the Distributed Carrier Selection method is 1,94 times its initial size.

Keywords: Femtocell, Interference, Cognitive, Distributed carrier selection (DCS), Downlink Throughput (DLT).

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