

ABSTRACT

LTE - Advanced is a 4th generation technology (4G) that delivers the latest features to achieve high data rate. The expected data rate reaches 1 Gbps for the downlink and 300Mbps for the uplink side. One feature that becomes the factor of increasing data rate is by Carrier Aggregation technique. But this technique is not maximized due to interference problems. Interference that dominates is the inter-cell interference that can result in decreased data rate on cell edge. In this research will be planning the LTE network - Advanced with Carrier Aggregation feature that will use frequency band at 1800 and 2300 MHz. To achieve optimal performance, the Carrier Aggregation feature will be combined with Fractional Frequency Reuse (FFR) and Soft Frequency Reuse (SFR) methods. While the application of carrier aggregation scheme used is carrier aggregation deployment scenario 2. This planning is done with two approaches namely planning by coverage and planning ny capacity, through simulation of Atoll software. The parameters analyzed in this research are number of site, RSRP, CINR and percentage of User Connected. For the design of CA and FFR the mean RSRP was -87.9 dBm, the mean CINR was 12, 89 dB, the average user connected percentage was 99.5% and the mean throughput was 1,219.1 Mbps. For the design of CA and SFR, the mean RSRP was -87.94 dBm, the mean CINR was 7.03 dB, the average percentage of users connected was 99.5% and the mean throughput was 1,226.91 Mbps.

Keywords: LTE - Advanced, FFR, SFR, CADS, Atoll