

ABSTRACT

The high interest of mobile users towards internet access causes an increase in traffic. Therefore, enhancement are made for capacity so that market demand and traffic needs can be met. The solution to deal with this problem is to use frequency spectrum efficiently. However, the limited frequency spectrum which are available becomes a problem to provide capacity. The presence of LTE-Advanced to use Carrier Aggregation (CA) feature can utilize bandwidth to increase capacity. Although these techniques can cause high interference, it can be combined with the frequency reuse method as interference management.

In this Final Project, LTE-Advanced network planning carried out with carrier aggregation feature at frequencies 1800 MHz and 2100 MHz. Optimal performances is expected by using additional scenarios which are performed using the Soft Frequency Reuse (SFR) and Fractional Frequency Reuse (FFR) methods. Reference parameters from the simulation results include RSRP, SINR, throughput, and user connected using Atoll software.

This Final Project produces an influence on LTE-Advanced network performance by applying FFR and SFR. For CA scenarios with FFR, the RSRP value obtained is 1.64 dBm better than the SFR. At the SINR parameter, the CA scenario with SFR gives a better value with a difference of 1.69 dB than FFR. While the SFR and FFR methods have decreased in the value of throughput around 3 – 8 Mbps and decreased in the number of user connected around 100 users than those who only use carrier aggregation.

Keyword : *LTE-Advanced, carrier aggregation, FFR, and SFR*