ABSTRACT

Based on drive test and speedtest results that has been done in Cihampelas area, it is found that the signal strength and quality of LTE (Long Term Evolution) network in this area was bad. Whereas Cihampelas is one of the most crowded points so it needs a good LTE network to be able to provide data services to everyone in this area.

In this final project, optimization improvement network by microcell planned in Jalan Cihampelas which has 675 meters long road. Optimization improvement network by microcell using soft frequency reuse method designed on B3 FDD LTE 1800 MHZ. The goal is to be able to improve and increase the power received and the quality of LTE network. It is intended to optimize user performance in LTE network by using soft frequency reuse. Simulation will be done using Atoll 3.2.1 with 10 MHz bandwidth. The parameters measured in this optimization network improvement using soft frequency reuse method are RSRP, SINR, and throughput.

The results of optimization that have been obtained based on the simulation in this final project is an increase of average RSRP 3.19 dBm; SINR 11.85 dB; and throughput 16,367 kbps after microcell planning is performed. Furthermore, simulations using soft frequency reuse is able to improve average RSRP 0.81 dBm; SINR 2.39 dB; and throughput 1277 kbps.

***Keywords** : LTE, microcell, soft frequency reuse, RSRP, SINR, throughput.*