

ABSTRACT

The 3Store Karawang area is one of the potential market areas in Karawang City. There are many crowd centers such as malls, waterpark, department stores, and shop houses. The high activity in this area causes Low Throughput Cell because of the limited capacity of existing sites. Based on the results of the drive test, the number of percentages that exceed the 3 operator standard is for RSRP parameters with standards above -90dBm which is only 28.8%, then SINR as much as 33.8% of samples above 6dB, and throughput as much as 28.2% of samples which is above 1 mbps. This shows that network quality is still relatively poor with the target operator, which is 80% above the standard of each parameter. Then an OSS operator data was also conducted, the measured average throughput results in this region were 343,348 kbps for downlinks and 335,675 kbps for uplinks. This shows that the speed of access is low with standard 3 operator throughput which is above 1 mbps.

To overcome the problem above, the network optimization is done by planning Microcell with Cell Splitting method in the area located on Jalan Galuh Mas Raya, Karawang City. The Cell Splitting method is used to increase a site's capacity by splitting a macrocell into a microcell. The microcell will be planned on FDD LTE 1800 MHz and bandwidth of 10 MHz with 3 Operator. The simulation will be done using Atoll 3.3 by considering the RF parameter value, such as RSRP, SINR, and especially throughput.

The results of optimization that have been obtained based on the simulation in this final project are the increase of percentage value above the operator target, they are RSRP to be 82,56% with and increase of 53.76%, SINR to be 87,27% with and increase of 53.47%, and throughput to be 83,60% with and increase of 55,4%.

Keywords : LTE, microcell, RSRP, SINR, throughput