ABSTRACT

Based on the results of the drive test that has been carried out in Kiaracondong sub-district, an RSRP value of 90.84% was obtained where this value has not met the operator's KPI target for coverage, which is at least 95% ≥ − 100 dBm, the SINR value is 77.24% and also has not met the KPI target for quality of 85% ≥ 0 dB and a throughput value of 86.81% which has not met the KPI target of 90% ≥ 3 Mbps. In addition, Kiaracondong subdistrict ranks third as the district with the highest population in the city of Bandung with a population of 130,347 people, which means that the number of 4G LTE network users occupy the same area simultaneously, causing network quality to decrease so that 4G LTE network optimization is carried out using the Automatic Cell Planning (ACP) method.

In this final project, physical tuning optimization is carried out using the Automatic Cell Planning (ACP) method. The results of the ACP optimization simulation will be compared with the results of the existing or non-ACP site simulation and the results of the ACP implementation by the operator to see the improvement of the quality of the 4G LTE network before and after optimization. The observed optimization parameters are RSRP, SINR and Throughput.

Based on the results of the optimization comparison, non-ACP simulation when compared to the results of the ACP simulation obtained results for RSRP, SINR and Throughput parameters, which increased after the ACP simulation was carried out. Meanwhile, when compared to the results of the ACP implementation, there was a decrease for several parameters of RSRP, SINR and throughput. Optimization results for the dominant RSRP parameter in the range of -80 to 0 with excellent category, SINR parameter dominant in the range 0 to 10 with normal category, dominant throughput parameter in the range 20000 to 30000. The simulation results in the three areas have met Telkomsel's KPI standards, so optimization with the Automatic Cell Planning (ACP) method can be used as a solution to the problem.

Keywords: *Optimization, Automatic Cell Planning, Site Existing, Physical Tuning, Atoll.*