

A B S T R A C T

The world of information communications technology in Indonesia is now entering a new phase with the presence of LTE technology. In this case the research was conducted in Medan city, especially cluster Medan inner. With the rapidly growing inner density of Medan's inhabitants, the presence of LTE technology is expected to accommodate a wide range of high-speed data packet services on existing networks and frequency allocations.

Current condition of LTE network cluster Medan inner with traffic volume and resource block downlink utilization is very high that is above 80%, For that on the application of LTE network inner cluster Medan needed optimization with the recommendation to increase the bandwidth allocation and tilting antenna LTE network so as to produce optimal network And profitable for the user on the cluster Medan inner.

This research was conducted using the recommended methodology of refarming the 5 Mhz bandwidth upgrade to evaluate network capacity utilization and tilting antenna recommendations to evaluate the coverage of the inner LTE Medan network.

The expected result of this final project research is obtained an optimal LTE network system that is by increasing the issue capacity (improvement capacity) which is used in Medan inner cluster. KPIs in LTE Medan inner are not degraded and maintained. Average Speedtest results of LTE sites inner Medan after increasing the bandwidth allocation experienced a very big improvement. RSRP-dedicated after upgrade upgrade level of 0.26%. RSRQ-dedicated after upgrade upgrade rate of 0.27%. SINR-dedicated improve of 1.66%. Results Throughput dedicated obtained a very significant improvement of 17.59%

Key Words : LTE, resource block utilization, KPI (Key Performance Indicators), RSRP (Reference Signal Received Power), RSRQ (Reference Signal Received Quality), SINR (Signal to Noise Ratio), Throughput.