

## ABSTRACT

Long Term Evolution (LTE) is a mobile technology that has been commercialized in the world as the successor of 3G. But nowadays the development of LTE in Indonesia still not optimal. One of the parameters that can be seen is by looking in terms of network coverage quality in big cities and densely populated, one of them is Bandung City. Therefore the traffic capacity handling is not the only requirement, but also it needs a good and wide coverage quality. By using optimization, the quality of network performance will be increased and it will affect the experience of *users*.

The quality of network performance is determined based on the range of values that achieved in the Key Performance Indicator (KPI) parameter. The parameters reviewed are mean *throughput*, RSRP and SINR.

In this research, optimization is done by using *physical tuning* scenario, *power configuration* and *higher-order* implementation of MIMO *Spatial multiplexing*. Optimization is done by analyzing the problems that occur in coverage and by reviewing mean *throughput*, RSRP and SINR parameters.

Results from this research has increased through calculation and simulation. The mean *throughput* increased from 5.137 Mbps to 16.076 Mbps, with target KPI above 12 Mbps. Average RSRP value increased from -93.31 dBm to -88,69 dB and the percentage is based on the above *threshold* value also increase from 88,03% to 99,10% with target above -100 dBm must be over 90%. The average value of the SINR parameter has increased from 2,01 dB to 5,58 dB and seen the percentage based on the above *threshold* value also increased the previous 59,33% to equal to 84,72% with the target value above 0 dB should be above 80%. All the review parameters indicate that they have met the KPI targets that must be obtained. So from the research optimization, it has been done successfully to overcome the problems of *low throughput*, *low RSRP* and *low SINR* in the area of Bandung City.

Keywords : *Long Term Evolution, Key Performance Indicator, mean throughput, RSRP, SINR*