

ABSTRACT

LTE network has been designed to achieve the predetermined KPI (Key Performance Indicator) in the planning stage. KPI is the reference for engineer in determine of radio frequency access network to meet optimal network. Reviewed parameters in this study are mean throughput, RSRP (Radio Signal Received Power), and SINR (Signal to Interference Noise Ratio).

This study will discuss about the analysis of LTE (Long Term Evolution) frequency 2300 MHz network optimization in DKI Jakarta (Central Jakarta) using 20 MHz of channel bandwidth configuration. DKI Jakarta is one of the urban cities in Indonesia where the demands of LTE services is quite high, based on the number of population and the number of mobile data services usage. However, the real conditions on the network usually result that the LTE services do not meet the predetermined KPI targets. Therefore, the optimization process is required to improve the quality of LTE services. In this study, the optimization process will use three scenarios such as using different TDD subframe configuration scheme, physical tuning scheme, and higher-order MIMO implementation scheme.

According to calculation and simulation, it is showed that mean throughput value has increased from 4.3 Mbps to 23.5 Mbps which KPI target is above 20 Mbps. Then, mean value of RSRP has increased from $100\% \leq -80$ dBm to $94,48\% \geq -80$ dBm which KPI target is 80% above -80 dBm. Interestingly, mean value of SINR also has increased from $16,4\% \geq 5$ dB to $50,531\% \geq 5$ dB which KPI target is 50% above 5 dB. All in all, the reviewed parameters met the KPI target in TDD-LTE network Central Jakarta.

Keywords: LTE, TDD, mean throughput, RSRP, SINR, network optimization