ABSTRACT

Commuter are a big part of many people's daily routines, including workers, business professionals, students, and other citizens. Statistically, trains are one of the most efficient and effective modes of land transportation for transporting people to their destinations. Given the convenience provided by train services, passengers tend to utilize their free time for business, entertainment, and other activities that require VoIP services. As a result, providing reliable LTE services with sufficient data speeds on trains is a big challenge for mobile operators in Indonesia.

The growing interest among commuters in switching to train services needs to be matched with sufficient LTE cell capacity and bandwidth. To determine the requirements for achieving customer satisfaction and optimizing the LTE network on the Bandung-Rancaekek a train line, research must be conducted.

The research is carried out through a drive test conducted on the train and supported by the software, G-NetTrack Pro, which will record the drive log file to obtain RSRP, RSRQ, and SNR values during the journey on the train. The network optimization aims to reduce capital expenditure and operational expenditure costs and reassure customers about the services provided by the operator.

Network optimisation is done by reconfiguring the antenna on the cell tower Cell ID 38245408 with the Tilting and re-azimuth methods simulated using Atoll 3.4 software. From the optmation simulation performed RSRP increased by 6.2%, SINR increased by 3.9 dB, and RSRQ by 28% with the most cost-efficient method.

Keywords: *4G LTE, Optimization, Drive Test, Antenna, QoS*