

## ABSTRACT

Telkom University is a private campus located in Bandung Regency, with a significantly increasing number of students year by year. Telkom University is one of the favorite private universities in West Java, producing top graduates annually. Given the growing number of students, and the various network operators providing services in the campus area, users tend to use their free time for streaming, downloading, and other activities that require VoIP services. Consequently, providing reliable LTE services with sufficient data speeds in the densely populated campus area poses a significant challenge for mobile operators in Indonesia.

The research was conducted with a drive test conducted within the campus and supported by G-NetTrack Pro software which will record the drive logfile to obtain RSRP, RSRQ, and SNR values during data retrieval experiments within the Telkom University campus area. Network optimization is carried out with the aim of improving service quality with the most cost-efficient method. The results of this study aim to identify and implement effective optimization methods for LTE networks in Telkom University campus area. By using drive test supported by G-NetTrack Pro software, various network parameters such as RSRP, RSRQ, and SNR can be measured accurately during the experiment. The results of this optimization show an improvement in service quality and network efficiency.

Network optimization is done by reconfiguring the antenna on the cell tower Cell ID 110209547 with the Tilting and re-azimuth methods simulated using Atoll 3.4 software. From the optimization simulation performed RSRP increased by 8.66%, SINR increased by 5.3 dB, and RSRQ by 28% with the optimization results obtained exceeding the KPI target for SINR parameter.

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