

ABSTRACT

Telkom University is building a new building which is planned to be a new lecture building with a height of 19 floors, namely Telkom University Landmark Tower (TULT). Most Telkom University students use cellular communication tools as needed. Walk test analysis was carried out to classify the coverage in this study by analyzing the Reference signal received power (RSRP) and Signal to interference noise ratio (SINR) parameters.

The walk test analysis was carried out from the 1st floor and the 19th floor which has a significant difference due to the influence of altitude where it greatly affects the quality of the indoor LTE service area coverage. The walk test analysis on the 1st floor states that the measured SINR value > 5 dB is 60%, then the RSRP states the measured value > -100 dB is 86% and the results of the walk test analysis on the 19th floor states the measured value > 5 dB is 11% , then the RSRP states the measured value > -100 dB is 73%.

From these results it is concluded that the 19th floor needs an increase in the performance of the indoor LTE service area coverage. The design of improving the performance of the indoor LTE service area coverage at TULT 19th floor is carried out by calculations based on link budget calculations with the Cost-231 Multiwall propagation model, after obtaining the design model and the number of antennas, a design simulation is carried out. From the results of the simulation and analysis with the number of antennas taken into account, there are 1 unit with 3 scenarios in the 19th floor of the TULT Building and the best scenario is obtained with the results of the coverage area having an average value of -42.63 dBm and the percentage RSRP < -100 dBm reaching 94 % so that it meets the Key Performance Indicator (KPI) standard, namely the RSRP value < -100 dBm for 90% of the area.

Keywords : LTE, Walk test, RSRP, SINR, Cost-231 Multiwall