

## ABSTRACT

*Service quality of LTE (Long Term Evolution) technology is poorly to serve all of user which is at the locations that can not cover by eNodeB, this area of network can be called is bad spot area which has the value of RSRP is  $< -100$  dBm. The causes of bad spot area is the elevation of eNodeB, building density, the distance beetwen one of eNodeB and another, and the geography structure. In this final project will disscuse about the problem of bad spot area in W.R Supratman street Bandung. This area is the area with the crowded population because this location is at crossroads when the red light, with the condition of eNodeB existing is on the top of the building.*

*In this final project has done the optimization of LTE (Long Term Evolution) technology in W.R Supratman street Bandung with the relay node methode. This methode using coverage planning in 1800 Mhz frequency using atoll 3.2.1 software, with a pay attention of link budget and the determination of propagation model which is cost-231 to estimate the amount of relay node which will be used. This network optimization is based on the measurement of quality service with initial drive test methode in W.R Supratman street Bandung.*

*The result in this final project is the enhancement of the average RSRP from the drive test in the amount of 18%, and the average of SINR value in the amount of 53%, through the reporting and analysis process, based on telkomsel RF parameter were obtained that the percentage of the average RSRP which the sample are under -85dB had improved in the mount of 81%, While the percentage of the average SINR which the sample are under 5dB had improved in the mount of 45%.*

**Keyword** : Optimization, Outdoor Planning , Long Term Evolution, Relay Node, Software atoll, RSRP, SINR.