

## **ABSTRACT**

*Network optimization is needed to maximize network quality in a densely populated area, especially if a spot is found that interferes with the transmission of the antenna signal on the site to the scope area around the site. In this final project, we analyze the 4G LTE network at the CKR816\_Telaga Murni site in West Cikarang, Bekasi Regency, West Java. After carrying out a drive test on this site, a bad spot case was found which was a decrease in the quality of this site. Prior to optimization, the existing data sheet in the form of engineer parameters that have been obtained after carrying out the drive test are imported into the Genex Assistant software. Route design is done in mapinfo software by inputting export data from Genex Assistant. Furthermore, in the atoll software, before and after optimization will be carried out as indicated by the output parameters RSRP, SINR and PCI. This optimization is carried out by the physical tuning method which changes the azimuth angle and mechanical tilting of the antenna. This angle change is based on known antenna specifications. 5 trial scenarios were carried out to determine the best value for comparison Analysis before optimization. To see the results of this optimization percentage by looking at the RSRP and SINR histograms while PCI is only to find out the physical bad spot sectors being analyzed. Based on the results of the analysis, the RSRP value before it was around 46.85% with an average of -95.33 dBm and the SINR value before it was 78.31% with an average of 21.78 dB. Furthermore, in the final results of the optimization simulation, the best score was obtained in scenario 2 for RSRP of 51.87% with an average of -94.35 dBm and for the best SINR in scenario 5, it obtained a value of 84.46% with an average of 23.27 dB. PCI analyzed from 3 antenna sectors, namely 147, 148, 149 with badspot issue cases.*

**Keywords:** *Site, Bad spot, RSRP, SINR, PCI, Drive Test, sector, azimuth, mechanical tilting.*