ABSTRACT

Electric Rail Train (KRL Commuter Line) is a public transportation model between cities that are cheap, fast, and practical to use. KRL passengers mostly use smartphones that are integrated with Long Term technology Evolution (LTE) for communication media such as chatting, video calling, or telephone, and information media. Due to the large number of uses of this service, it is necessary to improve the quality of service for the convenience of KRL passengers. After a drive test was carried out on August 6th and 7th, 2021, there were several bad spots, then optimization is needed so that the signal quality is expected to be improved.

In this final project, the method of improving signal quality with Physical Tunning is to improve signal quality by changing direction sectoral antenna transmission physically and Power Configuration that is changing the power transmit on the transmitter. The repair parameters used are RSRP, SINR, and throughput is measured by doing a drive test then the data is processed by Actix Analyzer and Attol software.

The results of improvements and optimization on the KRL line with the physical tunning method and the power configuration shows an increase in the parameter values of RSRP, SINR, and output. Physical tuning method is more effective to use than power configuration. This is caused by too much transmit power may affect other transmitters on different sites. The average value to increase the RSRP is -92.32 dBm, the average SINR value is 16.92 dB and the throughput of 30,606 Kbps with physical tunning method.

Keyword : Electric Rail Train, Key Performance Indicator, LTE, RSRP, SINR, Throughput.