

ABSTRACT

The Railink Train has been used as transportation to go to Medan Kuala Namu Airport. But often mobile users have difficulty downloading and uploading. This is probably caused by the density of users and the coverage of the Base Transceiver Station (BTS). One of the main causes is that there is a poor coverage area. The effect of this causes the quality of the communication network to decline. On October 14, 2021, a Drive Test (DT) was carried out using Tems Investigation to determine the quality of LTE network parameter values, namely Reference Signal Received Power (RSRP), Signal to Interference Noise Ratio (SINR), and Throughput. The measurement results using MapInfo Professional software show that there are 2 locations of signal attenuation or bad spots with an average RSRP parameter value of 111.785 dBm, a SINR parameter of 5.6 dB, and a throughput parameter of 925.28 kbps. The parameter values still do not meet the standard Key Performance Indicator (KPI) of an operator.

To overcome the problem of the low value of the RSRP, SINR, and Throughput parameters, one of the methods used is to use improvements in terms of coverage. The approach in this method is done by changing the transmitter parameters, with physical tuning methods such as mechanical tilting, changing the azimuth pattern, and adjusting the height of the antenna. The next method is power configuration, or setting the transmit power on a transmitter. The repair was carried out using the Atoll simulation software.

The standard operator KPI thresholds for RSRP parameters are > -95 dBm, SINR > 10 dB and Throughput $> 8,000$ kbps. By making improvements to 2 bad spots, it is able to increase the average value of Bad Spot 1 from the RSRP parameter to $-49,52$ dBm in the Very Good category, SINR to $0,28$ dB in the Normal category, Throughput value $17.299,76$ kbps with Very Good category. The average value of Bad Spot 2 from the RSRP parameter is $-37,79$ dBm in the Very Good category, the SINR value is $4,57$ dB in the Normal category, and the Throughput value is $21.774,75$ kbps in the Very Good category. The three parameter values have met the operator's KPI standard threshold.

Keywords: Airport Railink Train, KPI, LTE, RSRP, SINR, *Throughput*