ABSTRACT

Soekarno-Hatta Airport is the most populous airport in Indonesia. Most visitors use cellular communication as a necessity. Long Term Evolution (LTE) is one of the technologies in cellular communications. LTE at Soekarno-Hatta Airport, especially on the railroad lines of Soeta Airport Terminal 1 to Terminal 3, is still not optimal, so efforts are needed to improve the performance of an LTE network. One effort to improve the performance of a network is to improve service coverage.

The problem classification with coverage in this study is the problem of weak coverage. Improvements to coverage are done by analyzing Reference Signal Received Power (RSRP), Signal to Interference Noise Ratio (SINR) and Throughput parameters in the area. Improvements to coverage are done by using network parameter setting scenarios such as tilting antennas, re-azimuth antennas, changing cell power references, antenna heigh relocation and adding sector antennas.

Key Performance Indicator (KPI) is a parameter of the quality of a network's performance and as a reference for this study. The results of research that have been carried out the improvement process through simulation has increased. The average value of RSRP has increased from -100,84 dBm to -82,32 dBm and seen from the percentage threshold value has also increased which was previously 100%> -105 dBm to 100%> -100 dBm with a KPI target of 90% > -100 dBm. The average value of SINR is 2,53 dB which has increased to 8,54 dB with the threshold value also experiencing an increase of 52,14% to 83,30% with a KPI target that is the SINR value above 0 dB must be above 80%. The obtained mean throughput is 8,058 Mbps which has increased to 21,667 Mbps KPI target, which is the mean throughput above 12 Mbps. All review parameters have met the KPI target. So this research can overcome the problem of low RSRP, low SINR, and low throughput on the Soekarno-Hatta Airport railroad.

Keywords: *Long Term Evolution*, **RSRP, SINR,** *Throughput*, *Key Performance Indicator*.