

## ABSTRACT

Manggarai Station is one of the largest stations in Indonesia. It is located in the center of Jakarta City, making this station the main transit center. The dense activity caused by the high number of visitors influences the weakened Long Term Evolution (LTE) network, this is seen from the results of the walk test which states that the value of each parameter has not yet reached the Key Performance Indicator (KPI) standard. So we need coverage improvement solutions such as physical tuning, power configuraton, sector addition, and changes in device specifications on the microcell network to improve signal quality at Manggarai Station.

This research began by measuring signal quality using the walk test method using TEMS Investigation software and analyzing the problems that occur with Actix software. Then design a signal quality improvement according to the scenario determined using the Atoll software. The parameters that become the reference in the design of this improvement include, Reference Signal Received Power (RSRP), Signal to Interference Noise Ratio (SINR) and Throughput Performance.

The results of the study with the scenarios offered have increased signal quality and network performance. The scenarios that meet the KPI target standard are the Scenarios for Changing Equipment Specifications in the Microelevel Network and Addition Sector However, the Change of Device Specifications scenario on Microsel Networks produces better values to be recommended as a repair solution. RSRP value before the change of device specifications is -102 dBm to -61.36 dBm, the previous SINR mean value is 0.48 dB with a threshold of 64.58% > 0 dB to 23.63 dB with a threshold of 98% > 0 dB and a mean Througput previously it was 5,078 kbps to 60,890 kbps.

**Keywords :** Microcell, RSRP, SINR, Throughput, Key Performance Indicator.