

## ABSTRACT

According to the Central Statistics Agency, Central Sumba is the poorest populated area in East Nusa Tenggara Province. Due to the location of the area far from the provincial capital, economic growth has been hampered so that infrastructure development is uneven. Centra Sumba included in the 3T area, 3T area is the lagging, leading, and outermost area in Indonesia. 3T area is a village level area or outermost village whose territory and community are less developed compared to other areas on a national scale.

In this Final Project, a comparison of LTE designing of frequencies of 700 MHz and 900 MHz has been carried out using microwave link backhaul. At the beginning of planning, coverage planning for the LTE network was carried out by paying attention to the parameters to be analyzed, namely *RSRP* values, *SINR*, throughput simulated using Atoll software. Furthermore, microwave link backhaul planning is carried out with working frequency based on the backhaul link distance. The parameters in this plan are availability and Receiver power levels simulated using *Pathloss 5.0* software.

Based on the results of LTE planning simulations with a frequency of 700 MHz, the average results for *RSRP* parameters were obtained at -60.44 dBm, *SINR* at 5.82 dB, and throughput at 13.38 Mbps. While with a frequency of 900 MHz, the average results for *RSRP* parameters were obtained at -62.84 dBm, *SINR* at 6.64 dB, and Throughput at 15.48 Mbps. Based on the microwave link backhaul simulation, los achievements are met with an average *fade margin* value of 41.87 dBm and availability of 100%.

**Keyword:** LTE, Microwave Backhaul, RSRP, SINR, Throughput.