ABSTRACT

Wangunharja Village lembang district has an area of 832 ha with a population of 8256 people. In this village, 4G LTE network coverage still does not reach the entire region. After measuring using drive test, an average RSRP value of -102 dBm, an average SINR value of 0.45 dB and an average throughput value of 109.6 Kbps. From these results it can be concluded that the LTE network in Wangunharja Village is still not included in the category of sufficient orfeasible. Therefore, LTE network planning is needed back in this village which aims to expand coverage in the region.

In this study, analysis and planning of LTE networks using microwave backhaul in Wangunharja Village. The first step is to check the quality of the signal along the main line of the village. Then do the capacity planning and LTE network coverage in the village to determine the number of sites needed. Next, microwave backhaul planning is carried out with work frequency based on the distance of the backhaul link.

Based on the results of calculations of LTE network capacity and coverage, two sites are needed to cover the Wangunharja Villagearea. Furthermore, the planning simulation was carried out using simulation software and obtained an average value of RSRP of -75.86 dBm, the average value of SINR are 8.19 dB, and the average value on Throughput of 39.42 Mbps. With a microwave link distance of 2.87 km, the working frequency is used on the microwave antenna of 11 GHz. The results of calculations and microwave link simulations for the value of the receiving power level of -18.95 dBm, with an antenna gain of 45.8 dBi. Fading margin obtained in microwave link planning of 49.04 dBm so that there is a availability value or availability rate for a year of 99.999%.

Keywords : LTE, *Coverage planning*, *Capacity Planning, Microwave Backhaul, Drive Test*