

## ABSTRACT

The high population densities that exist in Kelurahan Lengkong Bojongsoang Subdistrict because residential developments that increasingly massif. Bojongsoang Subdistrict Lengkong village only has 1 site in the macro exactly in Cikoneng street. In one day this *site* cumulatively more than 3000 users. Based on the evaluation of the experiment, 52.19% users who try to access the service denied.

To solve this problem in technology LTE-A there is a plan to increase the capacity of the technology that is heteroenous network. Heterogeneous network (HetNet) is a cellular network scheme that applying small cell within the scope of the macro cell with the same technology as well as different. This Final Task is doing the design of heterogeneous networks for LTE-A TDD technology with small cell in the form of micro cell in Bojongsoang Subdistrict Lengkong Village by using the calculation of capacity calculation and coverage calculation. Frequencies used i.e. 2360 MHz TDD for site macro and 2360 MHz TDD for micro site.

The results of this Final Project study obtained a scenario with the number of 3 micro sites with bandwidth of 20 MHz is the best choice of all the scenarios carried out. Good performance for parameter values that are in accordance with operator standards. Reference Signal Receive Power (RSRP) value average result from the design of heterogeneous networks average i.e -75.29 dBm. For the value of the Carrier to Interference Noise Ratio (CINR) average i.e. 10.27 dB. The value obtained for the downlink throughput averages of 19.665 Mbps and uplink of 10.578 Mbps. The result of percentage of user connected is 99%. From these results, the design of heterogeneous networks with small cells forming micro cells is feasible to implement.

**Keyword : LTE-A, TDD, Heterogenous Network, Micro Cell**