ABSTRACT

Users of Long Term Evolution-Advanced (LTE-A) network service technology require excellent network quality. Network capacity and interference between cells become a problem that often occurs along with a significant increase in users. The problem of inter-cell interference when the user is within the scope of the femtocell area in the building or building, this is because the user does not have access rights to the femtocell network. Therefore users will be forced to join the closest macrocell network even though it has a lower signal quality than the power quality of the femtocell cell coverage. From the user side that does not have access rights to the femtocell, it is considered as a source of interference.

To overcome this, LTE-Advanced technology applies a technology scheme to increase capacity, namely the Heterogeneous Network. Heterogeneous Network (Het-Net) is a scheme on cellular networks that implements smallcell within the scope of a macrocell with the same or different technology. Small cells used are femtocells.

The simulation results from this the final assignment research obtained a good system performance for parameter values which is suitable with standard that has been set by the operator. The RSRP value obtained forem the heterogeneous network simulation using the eICIC method is the RSRP parameter value with an average of -86.56 dBm, the SINR parameter value with an average of 12.01 dB, the average value for DL throughput is 16.5 Mbps , for UL throughput which is 15 Mbps, and the results of the percentage of user connected is 99.4% where 3 users experienced rejects with a percentage of 0.6%. From these results, the design of heterogeneous networks with small cells forming micro cells using eICIC is feasible to implement.

Keywords: LTE-Advanced, Heterogeneous Network, eICIC, Macrocell, Smallcell, Femtocell.