ABSTRACT

Users of Long Term Evolution-Advanced (LTE-A) network service technology require excellent network quality. Increased traffic causes by limited network capacity that can be used by users. Limited capacity causes a decrease in quality on the LTE-A network. Smallcell development can be done to improve the quality of operator services and reach users who have not been served by the main site. But in the addition of new cells, inter-cell interference becomes a problem that often occurs. This problem arises because of inter-cell interference when the user is in the microcell coverage area which is simultaneously served by macrocells. This makes users who do not have access rights to the microcell network considered as interference and forced to connect to the nearest macrocell even though the quality of service is inadequate.

Heterogenous Network (HetNet) is a network architecture introduced by 3GPP in release 9. Interference that occurs in a heterogeneous network architecture will be minimized using the eICIC method, a method that allows the exchange of information between main stations through a channel that contains a pattern of information called Almost Bank Subframe (ABS).

Based on simulation results this Final Project have a good system performance for parameter values which is determined by the operator. By using the eICIC method, the average value of RSRP parameter is -103.66 dBm, the average value of SINR parameter is 16.28 dB, the average value of DL and UL throughput is 31.84 Mbps and 16.58 Mbps and the percentage of user connected for 2 load schemes traffic of 322 people and 1000 people at 100%. Based on the results of this research in this Final Project, the eICIC method is feasible to be implemented to overcome interference between cells in heterogeneous networks using microcell.

*Keywords***:** Heterogenous Network, LTE-Advanced, eICIC, Microcell, Macrocell