ABSTRACT

Currently mobile technology Long Term Evolution (LTE) in the stage of the deployment process in Indonesia. But LTE deployment in Indonesia is not optimal because it was using the band 900 in which the operator is only allocated a narrow frequency range. By utilizing Carrier aggregation (CA) on LTE-Advanced is expected to allocate the band in 1800 to optimize the development of LTE networks in the band 900. To obtain optimal results deploying the necessary election CA proper deployment scenarios.

So that this assignment is made using the LTE network design bandwidth of 5 MHz in the 900 band and LTE-Advanced network by providing additional bandwidth of 5 MHz in the band in 1800 through the features of inter-band carrier aggregation. The design is done with two approaches, namely planning by coverage and planning by capacity. To get the optimal scenario is based on a comparison done Carrier aggregation Deployment Scenario 2 (CADS2) and Carrier aggregation Deployment Scenario 3 (CADS3).

The parameters analyzed in this thesis is the number of sites, RSRP, CINR, and the percentage of users connected by Monte Carlo simulations on the Software. To design as many sites as needed without CA 426, the average RSRP -52.76 dBm, the average CINR 4.1 dB, and the average percentage of 78.56% of connected user. While on the design after the applied technique needs CA site number decreased to 260. And the average value RSRP and the average CINR user mobility 50 km / h at CADS2 and CADS3 the same value, which is an average RSRP -56.82 dBm. However CINR on CADS2 4.66 dB and at 5:24 CADS3 dB. The percentage of users connected to the CADS2 by 87.36% and increased after applied CADS3 amounted to 92.54%. Some of the above parameters shows that the results of the design with the most excellent worth CADS3 techniques. So based on these parameters can be concluded that the CADS3 feasible in Indonesia to optimize the LTE network deployment.

Keyword: carrier aggregation, Jakarta*, secondary cell, deployment scenario*