## ABSTRACT

Based on the results of the study of literature about cell splitting and carrier aggregation method, it was found that both methods can be applied in increasing network capacity. As carrier aggregation allows network providers to use more than one carrier to increase capacity. While the cell splitting method splits macrocells into smaller cells, this is able to increase the channels which-result in increasing the traffic capacity. So, from the similarity of these methods in increasing the capacity, the comparison analysis of both methods is needed to determine which method has better performance in increasing the capacity of LTE cellular network.

In this project, the area of study case is Jalan Suryala, Bandung. The process begins with the calculations by using coverage planning and capacity planning respectively. As cell splitting method is being used on FDD LTE 850 MHz, while the carrier aggregation method using inter-band carrier aggregation by applying the band 5 FDD 850 MHz and band 40 TDD 2300 MHz. The simulation is done by using Atoll 3.3 software and then analyze the comparison of the results of these methods by observing the parameter values of RSRP, SINR, BLER, and throughput.

Based on the simulation in this area, the result shows that cell splitting method is better than inter-band carrier aggregation method, which cell splitting method resulting in the value of SINR and throughput respectively 8.87 dB and 22.5 Mbps, while inter-band carrier aggregation method resulting better in RSRP of 94.52 dBm. As for the BLER in both methods resulting in a value of 0.02.

Keywords: Cell Splitting, Carrier Aggregation, LTE, Microcell.