

ABSTRACT

Jalan Cikutra Barat is an infrastructure in Bandung City that connects Jalan Cikutra to Jalan Tubagus Ismail. This road is surrounded by a quite dense residential and business areas with a high level of road congestion. There are some obstacles that makes the area was not covered properly and the LTE signal performance decreases. Limited area for eNodeB developing is another difficulty to fix this problem. Therefore, we need a solution that can be solved the problem that happens in Jalan Cikutra Barat Bandung.

The right solution to resolve the problem that occurs is by relay node planning, because this method is suitable for adding coverage to limited area. In this relay node planning, TEMS Pocket device used for initial drive test and measured the RSRP, CINR, and throughput parameters. Then doing coverage and capacity planning, and simulation using Atoll 3.3.

Through the simulation process in this Final Task, the best result is generated using 4 pieces relay node planning scenario based on capacity planning calculation. The average RSRP of the relay node planning results is -79,51 dBm. The average CINR value is 11,44 dB. For throughput, average downlink throughput obtained is 29,282 Mbps and uplink throughput is 7,194 Mbps. After comparing the simulation results with the operator standard feasibility, the planning has met the operator standards, which causes coverage and capacity increasing in Jalan Cikutra Barat.

Keywords: Relay Node, LTE, Coverage and Capacity Planning, Atoll