

ABSTRACT

Telecommunication is growing rapidly from year to year, and in Indonesia has reached the fourth generation of Long Term Evolution (LTE) which is a standardized technology by 3rd Generation Partnership Project (3GPP), LTE is developed from Global System for Mobile (GSM) and Universal Mobile Telecommunication System (UMTS). Advancement of LTE technology has been developed in various regions in Indonesia, including in Pematang District. Therefore, required a network design or application of LTE network. In this study there is a coverage of coverage that includes Radio Link Budget and Cost-231 propagation model. And capacity calculations related to the number of LTE subscribers, including the population data of a region with the last 5 years, user estimation, throughput calculation, Single User Throughput calculation, Network Throughput, Resource Capacity, and calculate the number of eNodeB in capacity. In this case, using 1800 MHz frequency and bandwidth of 10 MHz and simulation is done by capacity using Atoll software. In the calculation of eNodeB amount of capacity obtained eNodeB total of 173 eNodeB, and simulation done using NodeB Existing with amount of 22 NodeB, which then in upgrade to 173 eNodeB. In this simulation the RSRP value is - 78,35 dBm, SINR value is 5,21 dB, and the value of active user or user is connecting is 522.845 user, or there are 76.7% of users served by eNodeB, and Users are rejected or rejected by eNodeB of 121.653 users or 23.3%.

Keywords-LTE, Pematang, eNodeB, Coverage, Capacity, Throughput