ABSCTRACT

The application of LTE technology has not been evenly distributed in several regions, one of them in the Buah Batu-Pasteur Bandung freeway. In this area there are some points that are not covered by the eNodeB existing, so that users who cross the area cannot access the LTE network services with good quality. One way to overcome this problem by doing an open new site, but in the development of eNodeB requires a lot of time and money. Another solution is to design an LTE network with a relay node.

Before planning the LTE network using a relay node, a drive test was conducted to determine the values of RSRP and SINR parameters on the Buah Batu - Pasteur Bandung free way. In this final task, the planning of LTE networks using relay nodes is based on capacity planning and coverage planning. The number of relay nodes that used in this research are 8 relay nodes based on the calculation of coverage planning.

The results of planning the LTE network using a relay node in this final project after a simulation on Atoll 3.2.2 software is increasing the RSRP value from -95.57 dBm to -66.25 dBm, increasing the SINR value from 7.75 dB to 21.47 dB, and the percentage of rejected users decreased from 47.50% to 0.40%. Increased RSRP, and SINR, as well as decreasing the value of rejected users are in accordance with the targets and standards of XL.

Keywords : Network Planning, Long Term Evolution, Relay Node, Capacity Planning, Coverage Planning