ABSTRACT

Celluler technology grow rapidly now, especially its caused by many user that want to access data with high speed, and they can communicate with the other people anywhere, anytime. Third Generation Partnership Project (3GPP) develop fourth generation (4G) or *Long Term Evolution (LTE)* that was came from the other technology like UMTS (3G) and HSDPA (3,5G)), *t*o facilitate user's necessaries. UMTS technology have a maximum data transfer up to 2 Mbpz, and HSDPA have a data transfer rate up to 14,4 Mbps for downlink and 5,6 Mbps for uplink. LTE have datarate up to100 Mbps for downlink, and up to 50 Mbps for uplink. The LTE technology uses scalable bandwidth from 1,25 MHz to 20 MHz.

In this final project, we will discuss about cellular network planning for Long Term Evolution (LTE) technology at 2600 MHz and 5 and 10 MHz channel bandwidth. A planning will be design for Radio Frequency (RF) parameter, such as User Equipment (UE) to Evolved Node B (ENodeB). A planning steps are analyze user's traffic growth, existing network capacity analysis, coverage calculation, and capacity calculation for LTE system. This planning calculations are based on the cell existing. In the end of the calculation, we will do some simulation with Atoll and make an analysis about planning LTE system, and then analyze about the planning result.

In the result, GSM service traffic is bigger than the existing condition in 2008-2010, otherwise for BSC Soeta and BSC Soeta 2. GPRS+EDGE service traffic increase for each BSC at 2009-2020 and bigger than the existing condition at 2013-2020. 3G CS and 3G PS (UMTS PS+HSDPA) service in RNC Bandung and RNC Soeta decrease from 2010 to 2020, otherwise RNC Dago 2 and RNC Dago 3 traffic increase rapidly. LTE implementation will be go at 2013 until 2016 for each site. The number of LTE cell that will be implement until 2016 is 77 cell. LTE cell implementation in 2013 will be placed 12 *site,* in 2014 will be placed 10 *site,* 29 *site* for 2015, and 26 *site* for 2016.

Keyword : ***Long Term Evolution (LTE), user traffic, existing capacity, coverage, capacity***