

ABSTRACT

Long Term Evolution (LTE), defined as 3GPP (*Third Generation Partnership Project*) Release 8 Standard, is an evolution of 1xEV-DO technology as part of the roadmap of a 3GPP-2 standard. This technology is designed to provide a better spectrum efficiency, radio capacity enhancement, latency, low operational cost for the operator, and high quality of mobile broadband service for the user. Therefore, an LTE Network Design which has an up-to-100 Mbps for downlink and 50 Mbps for uplink in 20 MHz bandwidth channel is needed to realize it.

In this Final Project, an LTE Network Design is implemented using existing data in Manado, North Sulawesi. The Design has some steps, they are data collecting of Node B UMTS existing network position, collecting and analyzing of Node B UMTS traffic data, network designing based on capacity, and range area, and the last, The Design Simulating.

Based on the acquired capacity plan, the maximum capacity of one cell is 150.84 Mbps, with 2,33 km² of urban cell area, 4,392 km² of sub-urban cell area, and 13,59 km² of rural cell area. The radius of the urban cell area is 0,678 km, 0,937 km for the sub-urban cell area, and 1,6375 km for the rural cell area. Based on the plan, it requires 10 cell at urban area, 7 cell at sub-urban area, and 5 cell at rural area.

Keywords: Long Term Evolution, Network Design, Node B, eNode B