
ABSTRACT

The increasing number of customer demands in high-speed and large-capacity data services has encouraged 3rd Generation Partnership Project (3GPP) to develop the Long Term Evolution (LTE) technology. This is a pre-4G technology which is defined in 3GPP (3rd Generation Partnership Project) Release 8 standard. LTE supports the speed up to 100 Mbps for downlink and 50 Mbps for uplink on the channel bandwidth of 20 MHz.

In this final project, the dimensioning task of LTE network was done in several stages, which were : the data collection of Node B UMTS existing network position, traffic data analysis of existing Node B UMTS network, capacity-based network planning, coverage-based network planning, and simulation planning results.

Based on the acquired capacity plan, the maximum capacity of one cell is 150.84 Mbps, with 2.534 km² of urban cell area and 4.682 km² of sub-urban cell area. The radius of the urban cell area is 0.707 km² and 0.961 km² for the sub-urban cell area. The LTE eNode B plan in Denpasar requires 42 eNode B, 39 eNode B are the upgraded existing UMTS Node B, and the remaining 3 are new sites. Based on the plan simulation it is concluded that the broad scope of the planning area is 144.2 km², and the average signal level is -80.95 dBm.

Keyword: Long Term Evolution, Node B, eNode B, Network Planning.