

ABSTRACT

Cellular telecommunications technology is growing so rapidly. This can be seen from a growing number of users and requires operators to provide maximum access services with improvements not only for cellphones but also devices. Based on this needed, the latest telecommunications technology is present by supporting the Internet of Things, the namely is Narrowband Internet of Things (NB-IoT). In 2016 3GPP standardized for NB-IoT, technology capable of providing IoT devices, with extensive support, a low data rate of 50 kbps, and a small power usage of 35 dB to support In-Band and 43 dB for Standalone. In this thesis, by using frequency 900 MHz frequency and using NB-IoT scheme there are In-Band by using 10 MHz and Standalone by using bandwidth 200 kHz. The parameters analyzed in this thesis are the capacity performance of the connected users obtained by the number of connected users of 197,226 user devices when obtaining In-Band. While in Standalone number of users connected is, 109,933 of user device. The result of throughput from both transforms at 3,269.47 Mbps to require In-Band and 85 Mbps to approve Standalone. Performance coverage that analyzes SINR values obtained at Band-In is 4.18 dB and on Standalone approval is 4.73 dB. The RSRP value obtained from the simulation is -93.31 dBm to require In-Band and 68.53 dBm for Standalone. And 0,03 for BLER Performance.

Keywords : NB-IoT, Scheme Model, Performance parameter