



INVESTIGATION OF THE PERFORMANCE OF  
MOBILE WiMAX WITH THE INCREASING THE  
NUMBER OF USERS

KHAMSIAH BINTI ISHAK

MASTER OF SCIENCE IN  
TELECOMMUNICATION AND INFORMATION  
ENGINEERING

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## ABSTRACT

Mobile WiMAX has been developed to be the best wireless broadband standard for portable devices enabling of high throughput and high bandwidth. Mobile WiMAX (IEEE 802.16.e) offers high speed internet access anytime and anywhere based on mobility, allowing wireless users to travel at speeds up to 75 miles per hour across large geographic areas while seamlessly receiving data and multimedia services. The increasing number of users resulting in a decrease of the network throughput and performance is one of the challenges in Mobile WiMAX technology. It is expected to fulfil the requirements for serving continuous increase of users. The aim of this project is to analyze the performance of throughput, delay, data drop and jitter and to evaluate the number of users of a Base Station can support. The thesis compares the performance using three different service traffic flows; Voice Over IP (VoIP), Video Conferencing and HyperText Transfer Protocol (HTTP). To achieve the objective, OPNET Modeler is used to simulate the network. Results indicate that the performance of the network decreased when the number of users above the capacity of the network. The VoIP supported low capacity of users as compared to Video Conferencing and HTTP.

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