

ABSTRACT

Broadband Wireless Access (BWA) is high speed and access information technology that still becoming research project in many countries. One of BWA services is WiMAX IEEE 802.16 which is mobility supported. This standard could use at NLOS (Non Line of Sight) condition and it is supported by mobility for mobile user until 120 km/h.

When NLOS condition is on, standard IEEE 802.16e (mobile WiMAX) are required to have a reliable performance on the channel conditions change constantly because of the multipath fading phenomenon. SOFDMA technology can be one of solution to overcome the various problem caused by the NLOS conditions.

This final project discuss about the performance analysis of mobile WIMAX OFDMA system in downlink direction for single and multiuser based on the SNR parameter. The system is designed to do work on bad channel condition (assumed SNR = 1) until reach good channel condition (assumed SNR = 21) by increasing of SNR value and then compare the parameters between BER graph against S NR. .

In the simulation results, when using type of modulation at higher level, system will have more and more performance degradation. Maximum BER could be achieved when the number of user is one and two user with QPSK and 16QAM modulation. The value of BER is 2.41×10^{-5} in speed at 10 km/h and 30 km/h. In the other hand, in speed 120 km/h BER value is 4.82×10^{-5} . The system performance which is using Adaptive Modulation and Channel coding (AMC) could be said good because its get the value of BER that is not too differently with the BER system in non adaptive modulation.

Keyword : SOFDMA, SNR, BER, BWA, AMC