

ABSTRACT

VoIP is an application of voice communication for computer network which is applied into IP based system in a wired or wireless manner. If this real streaming application is used for wireless media with high mobility, then the need of high bandwidth and high bit rate are important to give the best performance. That things are answered with a new technology called mobile WiMAX (*Worldwide interoperability for Microwave Access*) which has data rate up to 70 Mbps as well as its ability for adaptive modulation, scalable OFDM, and NLOS (*Non Light of Sight*) has made this IEEE 802.16e more excellent than other BWA (*Broadband Wireless Access*) such like HPSA and 1xEVDO. Therefore, there is an idea for bundling VoIP application and Mobile WiMAX called mobile wireless VoIP.

This document, simulates the working process of data processing in downlink direction from voice with G.711 Alaw and mulaw codec which have IP protocols header to Mobile WiMAX containing randomizer, Reed Salomon, convolution, interleaving, modulation, and OFDM. Then, this simulation will discern and analyze output VoIP when the parameters of velocity, distance, and carrier frequency are changed into channelizations with multipath Reyleigh Fading, AWGN, and pathloss.

At the end of simulation, there were found that for same velocity, varies in distance, have same of Doppler spectrum pattern. Besides, high velocity and long distance from receiver to transmitter, the bandwidth is lower than low velocity and short distance. In the final result, it is found that for SNR = 9.7 dB with the changes of parameters of velocity and distance, VoIP output with QPSK modulation is better used than 16QAM.

Keyword: *mobile wireless VoIP , mobile WiMAX , doppler spectrum*