

ABSTRACT

One of service demand in wireless communication through air is service that base on multimedia with big capacity, high velocity, flexible, and small error. Nevertheless, known that the availability of bandwidth is limited, besides, the big bandwidth can cause selective fading.

Adaptive MIMO Switch (AMS) and Adaptive Modulation (AM) technique are implemented to handle this problem. The principle of AMS technique is switching between Space Time Block Code (STBC) and Spatial Multiplexing (SM). While adaptive modulation is to change signal constellation (mapper) that used.

AMS technique and adaptive modulation works due to feedback contains Channel State Information that represented with Eb/No parameter.

Coalition from both adaptive technique, hopefully can upgrade data rate with guarantee the qualities is still well-kept.

In this thesis, AMS technique and adaptive modulation implemented in MIMO-OFDM Mobile WiMAX (IEEE 802,16e) system.

The result of this research, MIMO OFDM system use AM+AMS give the performance improvement equal to $\pm 0,5$ Msps (*data rate*) and $\pm 1,5$ dB to AM or AMS.