

ABSTRACT

Adaptive modulation is the technic for changing modulation format based on variation of instantaneous channel condition. Adaptive modulation can improve the adaption ability to flat fading or selective fading channel condition in order to obtain better system performance by changing modulation mode using BPSK, QPSK, 16 QAM, or 64 QAM or by adaptive OFDM modulation with changing modulation mode value to 4,2,1, or 0 bit/ subcarrier according to channel condition. The above adaptive OFDM is adapting each Subband of the OFDM (AOFDM) which each subband subcarrier with the smaller selective frequency fading effect is provided more additional bit than the subbands with the higher selective frequency fading.

In this research, Kalman methode is used rather than MMSE methode that used in the past researches for prediction channel transfer function of IEEE 802.16e wireless communication system using adaptive OFDM by each subband so that transmission parameter is getted which can be analyzed by the form of SNR and BER that resulted from the measurement. Kalman Filter was implemented because more strengthness factor that it has, the one is better accuracy performance in prediction.

The diagram block scheme which performed is expected can be accommodate 802.16e standard that available recently. The propose system must work properly in the broadband wireless network. That system must also work on Slowly-Frequency Selective Fading channel.

The purpose of this research is getting simulation result performance and the best block model that can be implemented in the future of IEEE 802.16e communication system architecture. Hopefully, this technic can increase SNR, system troughput, bandwith efficiency with the minimum error and more extensive IEEE 802.16e system transmittion region range.

Key word : Adaptive modulation, Adaptive OFDM, Kalman Methode, IEEE 802.16e