

ABSTRACT

Mobile Wimax is one of Wimax (Worldwide Interoperability For Microwave Access) standard that suitable for mobile user and can use in NLOS (Non - Line of Sight) channel. Adaptive modulation system is one of feature that can be applied in mobile Wimax. Adaptive Modulation used to manage modulation scheme based on SNR (Signal-To-Noise Ratio) condition. If channel condition in the best performance the system use the higher modulation scheme. But if channel condition in the worst performance Mobile Wimax system can select lower modulation scheme to maintenance channel quality and stability.

In this Final Assignment designed an algorithm for select adaptive modulation in Rayleigh channel based IEEE 802.16e Downlink use kalman prediction. The modulation and coded that used based standard 802.16e, there are QPSK code Rate 1/2 and 3/4, 16QAM code rate 1/2 and 3/4, and 64 QAM code Rate 2/3 and 3/4.

From the simulation we know that adaptive modulation algorithm performance better than fixed modulation. In 3 km/hour adaptive modulation has gain from 1,75 dB up to 15,375 dB. Beside that in 30 km/hour has gain from 3,05 dB up to 11,5 dB, but in 120 km/hour BER target 10^{-3} was not reached because channel condition was worse.