ABSTRACT

In wireless communication systems have several advantages,One of them is high mobility. But, in fact that the wireless communication systems are vulnerable to disturbance so can decrease performance of system. WCDMA is a third generation mobile communication systems (3G) technologies that support multimedia applications with high mobility rate. In mobile communication systems, signal propagation path between transmitter and receiver will not directly related to but it through the reflection path or commonly referred to as multipath channel. Multipath channel can effect multipath fading. One of the factors that affects multipath fading is doppler spread. Doppler spread can effect fast fading. This is what will decrease the performance of wireless communication systems.

To handling fast fading problem, WCDMA system need reliable channel coding technique. The addition of Forward Error Correction (FEC) can suppress the quantity of bit error rate (BER) as a result of large data delivery and fast. One type of FEC is a turbo code. Advantange of turbo code is using a minimum power at each modulation whereas transmission of signals with very low power levels can be happen.

In this tessis, have done BER performance analysis against Eb/No using turbo code encoding technique. Turbo code encoding technique simulated in MATLAB R2009a by using SOVA(Soft Output Viterbhi Algorithm). Using of this coding technique get BER 10^{-5} can achieve at Eb/No 6 dB but without Turbo code get BER 10-5 can achieve at Eb/No 9.9 dB so performance using Turbo code is better when compare with encoding without using turbo code. Performance of turbo code will decrease with the user adding, vehicle of data rate, and the vehicle adding of user.

Keywords: channel coding,turbo code, SOVA (Soft Output Vitebi Algorithm)