ABSTRACT

Multi-Carrier Code Division Multiple Access (MC-CDMA) is combination of *Code Division Multiple Access* (CDMA) system and *Orthogonal Frequency Division Multiplexing* (OFDM) system. This system has many advantages such as high data rate and high performance where good to implement in downlink communication. In detection process, system which uses coherent modulation need to know the information about the channel and every wireless communication include this MCCDMA, the channel response is time varying, so it need a technique to get estimation of channel response for signal compensation for optimum performance.

This final assignment was done by doing simulation about the influence of iterative method in channel estimation for MCCDMA system uses BCH(*Bose-Chaudhuri-Hocquenghem*) as channel coding. The analysis was done by change the variable value of simulation in Matlab program in fading Rayleigh distributed and AWGN(Additive White Gaussian Noise) channel for quasi static condition. Parameter which used for performance system measurement is BER(Bit Error Rate) value versus SNR(*Signal to Noise Ratio*) value.

Simulation result show that channel estimation with iterative method get performance reduction ±1,75 dB in BER $(1/5).10^{-3}$ uses BCH(63,24) for channel estimation without iterative method. However in channel estimation without iterative method with BCH(63,30) get performance improvement ±0,6 dB by iterative method in BER 10^{-3}. In BER $(1/9).10^{-3}$ system estimation channel system with iterative method uses four different *coding rate* BCH(63,30), BCH(63,24). BCH(63,16), and BCH(63,10) need SNR value ±23,5 dB, ±18,65 dB, ±17,25 dB, dan ±14,75 dB respectively. In BER $(1/7)10^{-2}$ estimation channel system with iterative method and BCH(63,30), system with pilot distance 5, 10, and 37 need SNR value ±13,25 dB, ±14 dB, and ±16 dB respectively. In BER 10^{-3} estimation channel system with iterative method and BCH(63,30) in fast fading channel, system with pilot distance 5, 17, and 33 need SNR value ±15,25 dB, ±14 dB, and ±16 dB respectively.

Keyword : MCCDMA, BCH, quasi static, iterative