

## ABSTRACT

The next generation digital wireless communication system is demanded to serve high data rate with reliable QOS (small BER with minimum  $E_b/N_0$ ). wireless communication problem is multipath fading. Caused of multipath fading, error in receiver will be increasing.

MC-CDMA systems make up merging technique between multiple access technique and OFDM (*Orthogonal Frequency Division Multiplexing*). The advantage of MC-CDMA is very powerful to overcome multipath propagation, with the ability to overcome *fading* and efficient of bandwidth. Channel coding is a technique to protect information from error possibility while transmission process. Channel coding technique is needed to combat random error while block interleaver is needed to combat burst error cause multipath fading.

In this research has been tested the performance of LDPC coded and block interleaver on MC-CDMA system. Simulation was done by using matlab 7.1. Experiment that have been done include comparing LDPC coded MC-CDMA and uncoded MC-CDMA, the effect of mapper, effect of block interleaver and effect of user speed.

The simulation result show that LDPC Coded MC-CDMA system achive coding gain 3.2 dB. QPSK mapper technique has better performance 2.8 dB compare with 8-PSK. Using block interleaver able to combat burst error but couldn't increase performance for system without burst error. Simulation result also show that performance LDPC coded MC-CDMA system for mobility user still good, where in user speed 120 kph BER target can be achived at 8.3 dB of  $E_b/N_0$ .