

ABSTRACT

The need for wireless service is currently required to meet the needs of large-capacity transmission with high bitrate. With increasing channel capacity is an issue that can not be avoided. This requires the need for wide bandwidth (broadband), so that it very vulnerable to the occurrence of selective fading, in addition to data transmission caused by a large and fast, it can caused a large error.

MultiCarrier - Code Division Multiple Access (MC-CDMA) is a technique of combining multiple access techniques variants with Orthogonal Frequency Division Multiplexing (OFDM). MC-CDMA makes use of frequency selective fading will turn into flat fading so that the process to overcome the consequences of the influence of fading becomes easier. Besides the ability to overcome multipath fading, can also make efficient use of bandwidth. Channel coding techniques in multicarrier-CDMA technology (MC-CDMA) is needed to overcome random errors caused by multipath fading. The addition of Forward Error Correction (FEC) expected to suppress the quantity of bit error rate (BER) as a result of large data delivery and fast. One type of Forward Error Control is a Turbo Code.

Based on the overall simulation results, we can conclude that using Turbo code with variation of code rate, mapping, and interleaver can get a BER increasing too. To get a quality BER as a big 10^{-4} , on code rate 1/3 needed Eb/No 8.56 dB with a coding gain as a big 6.27 dB. Mapper using a QPSK signal mapping get a better performance than 16 QAM because it can reach a BER target 10^{-5} in Eb/No as a big 8.83 dB with coding gain as a big 14.93 dB and the use of the Random interleaver shows excellent performance in terms of improving the BER. When system using a Random Interleaver 16x16, BER target BER 10^{-4} can be reached at Eb/No 8.93 dB with coding gain as a big 2.92 dB.

Keywords : MC CDMA, Turbo Code, BER, Eb/No