Abstract

Orthogonal Frequency Division Multiplexing (OFDM) is a popular method for high data rate wireless transmission. OFDM may be combined with antenna arrays at the transmitter and receiver to increase the diversity gain and/or to enhance the system capacity on time-variant and frequency-selective channels, resulting in a Multiple-Input Multiple-Output (MIMO) configuration. To investigate the performance of MIMO-OFDM system, its physical layer is simulated using MATLAB and Bit Error Rate (BER) performance is observed. Further performance improvement is achieved using Forward Error Correction (FEC) codes. The goal of this paper is to compare different FEC codes in Additive White Gaussian Noise (AWGN) and Rayleigh fading channel and propose a suitable code for MIMO-OFDM system. Three codes, Reed Solomon-Convolution Code (RS-CC), Convolutional Turbo Code (CTC) and Low Density Parity Check code (LDPC) are considered for this purpose. It is found that CTC gave a coding gain of 0.2 dB and 0.25 dB than its rival LDPC in AWGN and Rayleigh fading channel respectively.

References

Index Terms

Computer Science  
Signal Processing

Keywords

BER  FEC  RS-CC  CTC  LDPC  MIMO-OFDM