Abstract

The current scenario of a communication channel using the concept of Orthogonal Frequency Division Multiplexing with Multi Input Multi Output (MIMO) data scheme over a multipath Rayleigh fading channel is presented in this paper. The implementation of the system without using a channel estimation technique has results with poor BER performance. To understand and counter the effects of the distortions added by the channel, estimation, equalization and correction technique is required. The idea of channel estimation by Maximum Likelihood algorithm was implemented here. Moreover the concept of MIMO was made clear by using combinations of transmit receive antenna number to make the MIMOOFDM system according to the Space Time Block Coding Alamouti scheme for $2 \times 2$, $2 \times 3$ and $3 \times 2$ transmitter-receiver system and comparison study has been done by plotting the SNR v/s BER for the same, which shows that channel estimation technique in MIMO is advantageous using STBC Alamouti scheme.
- Jiang Xuehua, Hen Peijiang, “Study and Implementation of MIMO-OFDM System Based on Matlab Simulation,” IEEE International Conference on Information Technology and Computer Science, Vol. 3, pp. 554-557, July 2009. Fig. 8. BER vs SNR for 2 × 3 MIMO OFDM system. Fig. 9. BER vs SNR for 3 × 3 MIMO OFDM system.

Index Terms

Computer Science

Networks
Keywords
Maximum Likelihood Estimation  Multi-Input Multi-Output  Orthogonal Frequency Division Multiplexing
Error Rate
Signal to Noise Ratio