Abstract

In the present paper performance analysis and a comparative study is reported for channels using receive diversity (1X2), transmit diversity (2X1) and transmit-receive diversity (2X2) with maximum Likelihood detection technique. The channel is assumed to be flat Rayleigh fading channel and noise samples are independent with zero mean complex Gaussian random variable. The Alamouti Space Time Block codes with modulation techniques BPSK, QPSK 8-PSK and 16-QAM are used to obtain the bit error rate performance under different SNR scenarios. The results reported in this paper suggest substantial improvement in the system
Incorporation of multiple input multiple output techniques has shown significant improvements in link quality by utilizing maximum likelihood detection techniques. This approach enables a higher bit error rate performance, thereby enhancing overall communication reliability.

**Reference**

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**Index Terms**

Computer Science Communications
Key words

Channel state information (CSI)
Phase Shift Keying (PSK)
Bit Error Rate (BER)

Signal-to-Noise Ratio (SNR)

Space Time Block codes (STBC)

Quadrature Amplitude Modulation (QAM)