Performance Analysis of Different M-ARY Modulation Techniques in Cellular Mobile Communication

Abstract
Cellular communication systems are the most widely used wireless communication systems. It is our primary need today to achieve the higher data rates in limited spectrum bandwidth to improve the performance of signals. We know digital communication system outperforms analog ones in terms of noise performance and flexibility. Hence, there has been great deal of search for a digital communication system that is bandwidth efficient and has low bit error rate at a relatively low signal to noise ratio. Various digital modulation schemes are incorporated but they are not feasible or cannot fulfill actual requirement varying in different kind of environment.
In this paper we provide a general theoretical approach to analyze various M-ary modulation schemes using MATLAB taking BER as measure of performance when the system is subjected to AWGN and multipath Rayleigh fading channel. Based on these performances a desirable modulation scheme is suggested that provides low BER at low received SNR, performs well in multipath & fading conditions occupies a minimum of bandwidth and is easy & cost effective to implement in present cellular communication.

Reference

5. A.S. Madhukumar, Francois Chin, “An Efficient Method For High-Rate Data Transmission Using Residue Number System Based Ds-Cdma”, IEEE.

Index Terms

Computer Science Communications
Key words

Phase Shift Keying (PSK)
Bit Error Rate (BER)

Signal-to-Noise Ratio (SNR)

AWGN (Additive White Gaussian Noise)