Abstract

Tremendous improvement has been made possible in wireless technology due to success of OFDM system which is a multi carrier modulation technique with capability to support high data rates. Despite its many advantages OFDM has failed against inter symbol interference (ISI), high sensitivity to Inter carrier interference (ICI), high peak to average power ratio (PAPR), phase noise and band limited channel. Hence the performance of an OFDM system is highly affected by the aforementioned undesired phenomenon. For this reason bandlimited system often employs pulse shaping techniques. In this paper pulse shaping of multi carrier signal is introduced by using various pulse shapes like Rectangular pulse (REC), Raised cosine pulse (RC), Better than raised cosine pulse (BTRC), Sinc power pulse (SP) and Improved sinc power pulse (ISP). The impulse responses and frequency spectrums have been evaluated and compared with system without using pulse shaping. Results obtained by simulation for OFDM system using pulse shaping and without using pulse shaping indicate that the performance of OFDM system with various pulse shapes is better than without using pulse shaping. Along with it can also be observed that among pulse shaping ISP exhibits better performance. Computer simulation has been done by using MATLAB 7.0 software.
Implementation of Pulse Shaping Techniques in OFDM System

Refer


Index Terms

Computer Science

Communication Systems

Keywords

OFDM  ISI  ICI  Rectangular pulse (REC)  Raised cosine pulse (RC)  Better than
raised cosine pulse (BTRC)

Sinc power pulse (SP) and Improved sinc power pulse (ISP)