Abstract

Multiple Input Multiple Output (MIMO) in combination with Orthogonal Frequency Division Multiplexing (OFDM) is of great interest for researchers and research laboratories all over the world. OFDM is widely used in contemporary communication systems for its good robustness in multipath environment, and its high spectral efficiency. The capacity of wireless system can be increased dramatically by employing Multiple Input Multiple Output, (MIMO) antennas. The combination of MIMO and OFDM system is found to be very beneficial. A major drawback of OFDM-MIMO System is its high Peak to Average Power Ratio (PAPR) Reduction. The peak power of a signal is a critical design factor for band limited communication systems, and it is necessary to reduce it as much as possible. Many PAPR reduction techniques have been used to reduce PAPR. Partial transmit sequence (PTS) is one of the most well-known peak-to-average power ratio (PAPR) reduction techniques proposed for MIMO-OFDM systems. However the computational complexity of traditional PTS method is tremendous. In this paper a new partial transmit sequence (PTS) technique, based on PTS with discrete wavelet transform (DWT) and discrete cosine transform (DCT) technique, for two antennas MIMO-OFDM system,
is proposed which can achieve better PAPR performance at much less bit error rate (BER). Simulation results show that the proposed approach can reduce BER and achieve a better PAPR reduction compared to previous PTS technique.

References


Index Terms

Computer Science          Wireless
Keywords

PTS, DWT, DCT, MIMO-OFDM, PAPR, BER