

Abstract

Ehab Farouk Badran

Semi-Blind Error Resilient SLM for PAPR Reduction in OFDM Using Spread Spectrum Codes

High peak to average power ratio (PAPR) is one of the major problems of OFDM systems. Selected mapping (SLM) is a promising choice that can elegantly tackle this problem. Nevertheless, side information (SI) index is required to be transmitted which reduces the overall throughput. This paper proposes a semi-blind error resilient SLM system that utilizes spread spectrum codes for embedding the SI index in the transmitted symbols. The codes are embedded in an innovative manner which does not increase the average energy per symbol. The use of such codes allows the correction of probable errors in the SI index detection. A new receiver, which does not require perfect channel state information (CSI) for the detection of the SI index and has relatively low computational complexity, is proposed. Simulations results show that the proposed system performs well both in terms SI index detection error and bit error rate.