

Boosted PTS Method with Mu-Law Companding Techniques for PAPR Reduction in OFDM Systems

Zeyid T. Ibraheem · Kawakib K. Ahmed · Yousef Fazea ·

Mohammed Madi · Fathey Mohammed ·

Abdulrazzaq Qasem Ali

Abstract:

This paper proposes an enhanced PAPR reduction technique which combines an enhanced PTS method with Mu-Law companding. The enhanced PTS method improves performances in both the partitioning and phase rotation steps. Enhancement in partitioning is achieved through a judicious incorporation of AP-PTS scheme into the IP-PTS. As for phase rotation, an optimal set of rotation vectors is derived based on the correlation properties of candidate signals. The PAPR reduction of this enhanced PTS method is further improved by annexing Mu-Law companding at the end of the enhanced PTS. This application of Mu-Law characteristic in the time domain of OFDM signal significantly improves the PAPR reduction capability of the approach. Simulation results show that the PAPR performance of the enhanced PTS method with Mu-Law companding technique on various scenarios with different modulation schemes is better than that of the PRP-PTS. This approach can be considered as a very attractive candidate for achieving a significant reduction of PAPR, while maintaining a low computational complexity.