A New Partitioning Scheme for PTS Technique to Improve the PAPR Performance in OFDM Systems

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Abstract

A high peak-to-average-power ratio (PAPR) is the primary drawback faced by the orthogonal frequency division multiplexing (OFDM) systems in the practical applications. Meanwhile, Partial Transmit Sequence (PTS) is regarded as one of the efficient PAPR reduction techniques in OFDM systems. PTS technique depends on partitioning the input data into the several subblocks in the frequency-domain and weighting these subblocks by a set of phase factors in the time-domain. As the result, there are three common types of subblocks partitioning schemes have been adopted in the PTS technique, interleaving scheme, adjacent scheme, and pseudo-random scheme. Each one of the conventional partitioning schemes has PAPR reduction performance and a computational complexity level different from others. In this paper, a new subblock partitioning scheme named terminals exchanging segmentation (TE-PTS) scheme has been proposed to improve the PAPR performance in PTS technique better than that of the interleaving scheme. The simulation results and the numerical calculations indicate that the PAPR reduction capacity of the proposed scheme is superior to that of interleaving scheme without increasing the computational complexity.

Keywords: OFDM, PAPR, PTS, IL-PTS, computational complexity

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