A Low-Complexity PS Based Radix IFFT Method for PAPR Reduction in OFDM Systems

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(Pr9)Abstract— We have proposed one of the distortion-less PAPR reduction methods which employs the Permutation Sequence (PS) in the frequency domain with embedded side information. However, the proposed PS method has high computation complexity. To improve the computation complexity for the previous proposed PS method, this paper proposes a low-complexity PS method which can keep the better peak-to-average power ratio (PAPR). In the proposed PS method, the signals at the middle stages of an N-point radix IFFT using decimation in frequency (DIF) is considered for PS processing. This paper shows that the proposed method has a lower multiplicative complexity than conventional PS method with keeping the PAPR reduction performance. The proposed method is called PS based radix IFFT, where DIF-IFFT is assigned through different stages of the IFFT transform. This proposed method can reduce the multiplicative complexity relatively with keeping the similar PAPR reduction to other methods such as C-PTS and C-PS. The proposed method also can reduce the side information as compared with the C-PTS. This paper presents the various computer simulation results to verify the effectiveness of proposed method.

(Pr9)Keyword— Peak-to-Average Power Ratio (PAPR); Permutation Sequences (PS); Partial Transmit Sequence (PTS); decimation in frequency (DIF).

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