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Abstract

OFDM is a digital transmission method developed to meet the increasing demand for higher data rates in communications which can be used in both wired and wireless environments. This thesis describes the issue of the PAPR in OFDM which is a major drawback, and presents new and variations to existing algorithms to reduce it. The effect on system performance in terms of the BER and Power Spectral Density is simulated for an OFDM transceiver with a saturated High Power Amplifier. A modified SLM approach based on time-domain sub-block conversion matrices to reduce the computational complexity due to multiple IFFTs. This scheme is modified from the conversion matrix scheme. By dividing the frequency-domain signals into multiple sub-blocks, the number of the valid conversion matrices can be increased, and thus

more candidate signals are available for PAPR reduction. By applying proposed scheme, the number of candidate signals can be increased from 12 in the original conversion matrix scheme to 28 and 128 for the two sub block and four-sub block cases, respectively. The scheme will provide improved PAPR reduction performance.

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Computer Science

Index Terms

Communication

Keywords

Orthogonal Frequency Division Multiplexing (ofdm) Peak-to-average Power Ratio (papr)

Selective Mapping (slm)

Inverse Fast Fourier Transformation (ifft)

Modified Slm (mslm)

Time Domain Sub-block Conversion Matrix (tscm-slm).