PAPR Reduction of OFDM Systems using 2D Inverse Discrete Fourier Transform

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Abstract

A two-dimensional (2D) orthogonal frequency division multiplexing (OFDM) system with peak-to-average power ratio (PAPR), a multicarrier system, is an important part of wireless communications engineering. Since these signals divide the bandwidth into other sub channels, so the OFDM signals accomplish top data rates. Although, High peak-to-average power ratio (PAPR) of the transmit signal is a major problem of multicarrier transmission such as orthogonal frequency division multiplexing (OFDM). To make fewer the PAPR values, There are many of techniques have been introduced, including selected mapping and amplitude clipping. The method that produces the least bit-error rate (BER) performance, its method is Amplitude clipping and filtering which is the simplest method. And from the other side, SLM although it presents a computational complexity, it is considered the most suitable and distortion less. In this research, a new technique is proposed based on two-dimensional discrete Fourier transform (2D–DFT). In this paper we present a new method that reduces the computational complexities and distortion less compared to the SLM method. The M-PSK mapping types show
from theoretical analysis that the PAPR can be reduced to something like 0.0 dB, as proven mathematically and by computer simulations.

References

Asia-Pacific Conference on, pp. 688-691.


Index Terms

Computer Science                                           Signal Processing

Keywords

2D-DFT; CCDF; Orthogonal frequency division multiplexing modulation; PAPR reduction, SLM technique, complexity.