

Abstract:

Orthogonal frequency division multiplexing (OFDM) modulations are very popular in wireless communications due to their flexibility and good performance over severely time-dispersive channels. However, OFDM signals have large peak-to-average power ratio (PAPR), which leads to amplification problems. Constant envelope OFDM (CE-OFDM) techniques use an OFDM signal to modulate the phase of a given carrier, allowing a 0 dB PAPR, with all inherent advantages. However, the phase modulator is a nonlinear device that can lead to performance degradation. In this paper, we take advantage of the Gaussian characteristics of OFDM signals to characterize analytically CE-OFDM signals, both in terms of power spectral density (PSD) and optimum asymptotic performance.

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