Abstract

The performance of OFDM system is highly affected by Amplifier nonlinearities. Nonlinearity in power amplifier response leads to nonlinear amplification of OFDM signal. In this paper, the effects of clipping and amplifier nonlinearities are studied for the OFDM system. It is shown that distortion due to these effects is highly related to the digital modulation techniques rather than the clipping level or the saturation level of the nonlinear amplifier. Simulations have been performed for the system with the help of programs in MATLAB 7. Computer simulations of the OFDM system also show the OFDM signal quality metrics such as time spectrum, BER, PAPR for the different type of modulations. Bit error rate and Peak to Average power Ratio have been calculated and then compared for the different modulation techniques.
Non Linearity Analysis of High Power Amplifier in OFDM system

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Index Terms
Computer Science
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Keywords
OFDM (Orthogonal Frequency Division Multiplexing) PAPR (Peak to Average Power Ratio) HPA (High Power Amplifier) SSPA (Solid State Power Amplifier)
PSK (Phase Shift Keying)

QAM (Quadrature Amplitude Modulation)

BER (Bit Error Rate)