Abstract:

In this paper, we present a theoretical analysis for obtaining the minimum Euclidean distance between two nonlinearly distorted OFDM (Orthogonal Frequency Division Multiplexing) signals. This analysis takes advantage of the Gaussian behavior of OFDM signals with a large number of subcarriers and is a key step to get the asymptotic gain of the optimum receiver. We consider both polar and Cartesian memoryless nonlinearities, showing that in general the optimum performance of nonlinear OFDM is better than linear OFDM.

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