

PERFORMANCE COMPARISON OF BPSK AND BFSK MODULATION SCHEMES IN PRESENCE OF PHASE ERROR AND AWGN

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Abstract

In this paper, we have analyzed the performance of the two digital modulation schemes Binary Phase-Shift Keying and Binary Frequency Shift Keying in the presence of following system imperfections:-phase recovery error and AWGN over a single channel (no diversity). The results thus found have been averaged over both the statistics of the carrier phase error and the E_b/N_0 . Although, it is observed through simulations that BPSK system gives better bit error performance as compared to BFSK systems. But BFSK proves better in adjacent channel interference conditions. Also mathematical derivations prove that BFSK approaches MSK (Minimum Shift Keying) and MSK is the most suitable digital modulation scheme for power limited systems.

Keywords: Phase error, Tikhonov distribution, detection loss.