

Communication and Information Engineering Program

Digital and Wireless communications (CIE 428)

Assignment 3

It is required to build Matlab simulations to assess BPSK and QPSK passband transmission over AWGN as shown in the figure below.

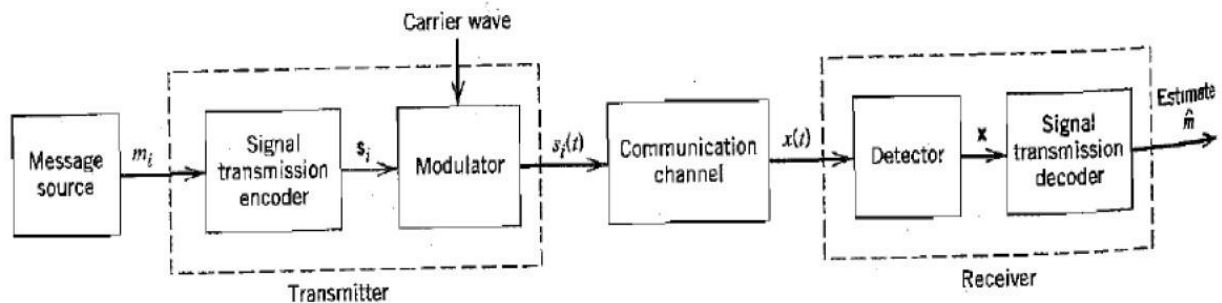


Fig. 1

Description

It is required to generate random binary information stream and send it using **BPSK** once and using **QPSK** once.

At the receiver side, AWGN $\sim \mathcal{N}(0, N_0/2)$ is added to the information stream. The receiver decodes the received signals using the ML rule.

Deliverables

Deliver the following in **one pdf file**:

- 1) Source codes (.m files with proper comments) of the whole project.
- 2) Figure of the constellation of transmitted BPSK symbols.
- 3) Figure of the constellation of received noisy BPSK symbols.
- 4) Figure of the constellation of transmitted QPSK symbols.
- 5) Figure of the constellation of received noisy QPSK symbols.
- 6) Figure of PSD of the transmitted baseband BPSK signal.
- 7) Figure of PSD of the transmitted baseband QPSK signal.
- 8) Figure of BERs of BPSK, QPSK, both theoretical and through simulations.
- 9) Comment on your results.