Birla Institute of Technology & Science, Pilani, Rajasthan
First Semester 2021-2022
Lab-11 BER

Course: EEE F311 Communication Systems
Instructor-in-Charge: S M Zafaruddin

30-11-2021 TUESDAY(P2, P4:): MATLAB/Python

Send your word doc: https://www.dropbox.com/request/FNnok8RtgXe6wLvsqXVh

Objectives

In this task, the objective is to find BER of digital modulations using the constellation.

Task

Transmission of data is occurred using a BPSK/Polar constellations as $[-1, 1]$. This signal is multiplied with a power P. The transmitted signal is corrupted by AWGN of -150 dBm/Hz. Take channel bandwidth 100 Hz. Thus $y = x + n$. Plot the transmitted and received symbols for 10^6 transmissions using Matlab function scatter. Scatter display the constellation. Plot the average BER versus transmit power P. For average calculations, you need to take average over many realizations known as Monte-Carlo simulations. Compare the Monte-Carlo simulations with theoretical BER $Q(\sqrt{\text{SNR}})$. Both simulation and theoretical should be in same figure.