

ELEG 5693 Project 4

OFDM

I. Objectives

1. Understand the concepts of OFDM.
2. Learn to design the transmitter and receiver of OFDM.
3. Learn to simulate quasi-static frequency selective fading channels.

II. Requirements

1. Perform the simulation of a wireless communication system that experience quasi-static frequency selective fading and additive white Gaussian noise.
 - a) Quasi-static fading: the channel keeps constant in one block, and changes from block to block. The channel in different blocks are independent.
 - b) Fading distribution: Rayleigh fading
 - c) Channel power delay profile: [0.25, 0.25, 0.25, 0.25].
 - d) Modulation: QPSK
 - e) Channel coding: none.
 - f) Number of sub-carriers: $N = 64$
 - g) Number of cyclic prefix: $u = 6$
2. Show the BER v.s. E_b/N_0 . The range of E_b/N_0 : [0:4:24] dB