Principles of Wireless Communications

Lab 3(b): *OFDM*

Overview

In this exercise, you will continue building on your simulated OFDM system. You can work individually or in teams for this portion, but you will need to work in teams for the final part with hardware.

Your task is to generate a vector of OFDM modulated data samples (including any training samples you may need), and transmit it through a simulated channel, by calling the function nonflat_channel_timing_error(x).

You need to then decode the received signal and check if you can recover your transmitted bits.

Some suggestions:

- You should build on the code you wrote for Lab 3 (a).
- You use the Schmidl-Cox algorithm for timing synchronization, and use three repeated, 64 sample, pseudo-random, time domain training samples, to estimate the carrier frequency offset. You can then correct for this carrier frequency offset in the remaining samples.

What is due?

Your working code and a few scatter plots of your received, processed data.