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ECE-408 Project 1 Proposal

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This project aims to simulate the core features of the IEEE 802.11ac wireless networking standard released in 2013. The core features that will be focused on are:

1. Modulation: 256 QAM
2. Binary convolutional coding of rate 3/4 or 5/6
3. Channel bandwidth: 80 MHz

These are the mandatory features of 802.11ac taken from: <https://en.wikipedia.org/wiki/IEEE_802.11ac>

A feature that is not covered by the Wikipedia article that I think should also be included is equalization of some sort, such as a Decision Feedback equalizer using certain algorithms.

The simulation will go as follows:

1. Some sort of channel that causes inter-signal interference should be appropriately chosen.
2. A sequence of symbols that results in a bit rate of 80 MHz is coded using BCC and then modulated using 256 QAM. Then the output sequence is filtered using the channel
3. AWGN is added to the sequence, then equalize, demod, decode, and plot BER.