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ECE408 Wireless Communications

HW #4 Simple CDMA

The string that I decoded is 'KHHHHAAAAAAAAN!'. This is from the Star Trek, from the character Captain James T. Kirk. It is a big shame that I didn’t see the series. Maybe I should do that over the summer.

The frequency shift was 0.0028 radians per chip, which I believe translates to about 445Hz if my math is correct. I have 3 functions: myBPSK, myparse, and pngen. myBPSK does what BPSK encoder and decoder do, and it also has a special mode of decoding 1 and -1 as 1 and 0 while ignoring 0. myparse function converts data that has the pilot PN sequence removed into a human readable form. This function does XOR with PN sequence, dispreads using the 6th channel Hadamard transform, and converts to ascii characters. pngen function generates pn sequence given a polynomial and initial state. It should work for any polynomial and initial state.

My script parses through the data provided, and outputs a single line that has the decoded string. I wasn’t thinking about correlation when I started this assignment so my detecting the start of the signal is kind of hand wavy.