EE469-969 Tutorial

A radar transmits a signal of duration 0.1 ms with 10MHz bandwidth with a PRF of 1kHz

- sketch the data matrix when the received signal is sampled at 4 times the Nyquist rate and acquires data for 0.5 seconds
- what is the total number of samples acquired ?
- What is the receiver duty cycle ?
- If the signal is a linear chirp from 0 to 10MHz, sketch the spectrogram of 3 consecutive pules.
- If the signal is an up and down chirp from 0 to 10 MHz and from 10MHz to 0, sketch the spectrogram of 3 consecutive pulses.

Hint: the radar records the signal from t = 0.1 ms to 1 PRI for each pulse