TLEN 5830-AWL
HW-04
Due 02/14/2017

4-1: Given a bit rate of 10 Mbps and a carrier frequency of 20 MHz, draw an ASK signal for the bit sequence 10110.

4-2: Given a bit rate of 10 Mbps and a carrier frequency of 10 MHz or 20 MHz to represent a binary 0 or 1, draw an FSK signal for the bit sequence 10110.

4-3: What SNR ratio is required to achieve a bandwidth efficiency of 1.0 for ASK, FSK, PSK, and QPSK? Assume that the required bit error rate is 10^{-6}.

4-4: Consider an MFSK scheme with f_c = 250 kHz, f_d = 25 kHz, and M = 8.

(a) Make a frequency assignment for each of the 8 possible 3-bit data combinations.
(b) We wish to apply FHSS to this MFSK scheme with *k* = 2; that is, the system will hop among four different carrier frequencies. Expand the results of part (a) to show the 4 x 8 = 32 frequency assignments.