Department of Electronics ,CUSAT

ELE 3207 SPREAD SPECTRUM LAB

LAB ASSIGNMENTS

1 Write a matlab code to spread and de-spread a voice signal

2 Write a program code to spread and de-spread a signal using Walsh Hadamard code (use minimum number of inbuilt functions)

3 Implement a DSSS AND FHSS and compare their performance

4 An LPI signal is generated by Binary modulation of an m-sequence from a 10 stage shift register (L=1023)(number of chips per information bit is 1023)

C_k =+1 ; if shift register output is 1

C_k = -1 ; if shift register output is 0

The transmitted chip is corrupted by AWGN so the received signal sequences at output of the chip matched filter is

$$r_k = S_{Ck} + n_k \qquad (k=1,2,3\ldots.1023)$$

where binary bit S is +1 and -1 for entire sequence($0 \leq k \leq 1023$)

a. Generate m-sequence
b. Use the above m-sequence to construct the received signal sequence(r_k)and plot it for k=1,2,3,4….1023 when variance of Gaussian noise sample is 10
c. Compute cross correlation of $\{r_k\}$ with $\{c_k\}$ and plot the output
   $y_n = \sum_{k=1}^{n} r_k c_k$ where n=1,2,3….1023
   Comment on the result

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