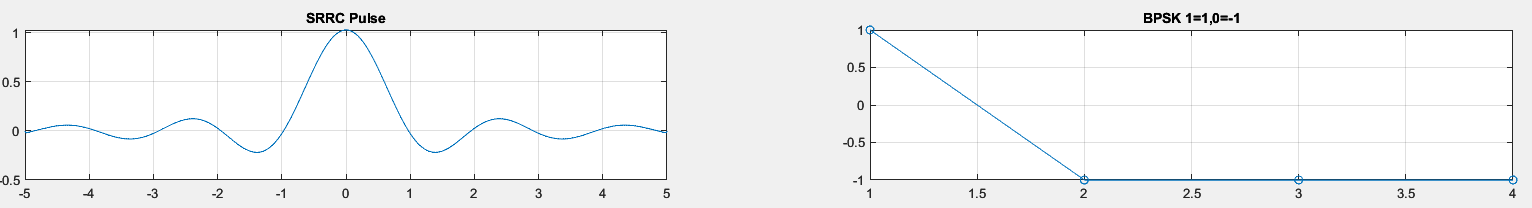


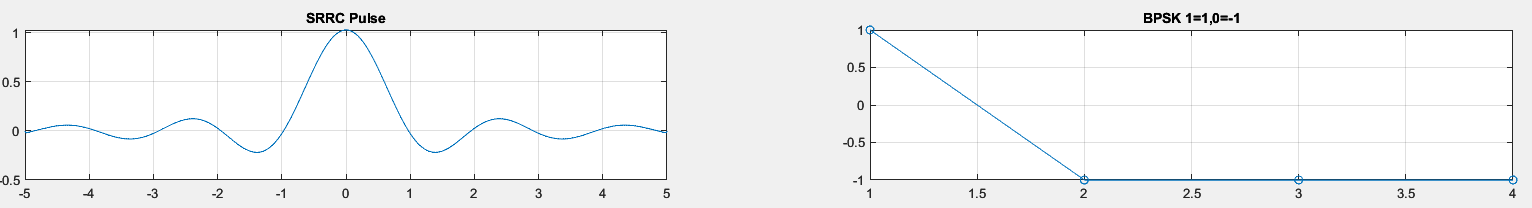
1.generate SRRC

|  |
| --- |
| M = 100; % number of sampling point in a T(symbol)  n = linspace(-fs/2, fs/2, fs); % sampling point interval  alpha = 0.1;  srrc\_pulse = SRRC(alpha,n,M); |



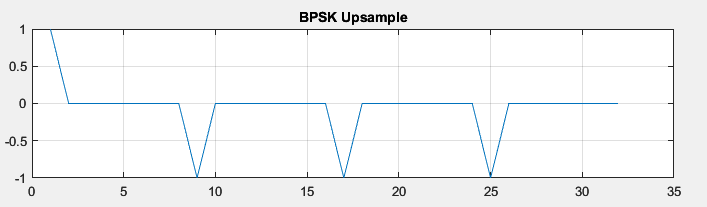
2.generate BPSK

|  |
| --- |
| numBits = 4; % number of symbol  multiple = 8; % sampling rate  bpsk = randi([0 1],1,numBits); % binary  bpsk\_enc = BPSK\_enc(bpsk); |



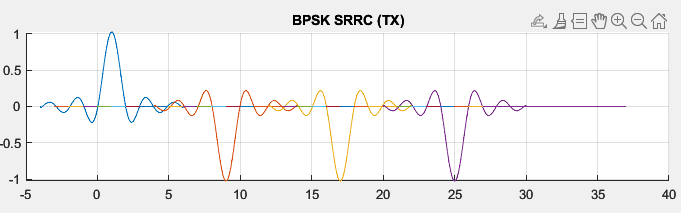
3.Upsample BPSK

|  |
| --- |
| multiple = 8; % sampling rate  bpsk\_up = upsample(multiple,bpsk\_enc); |



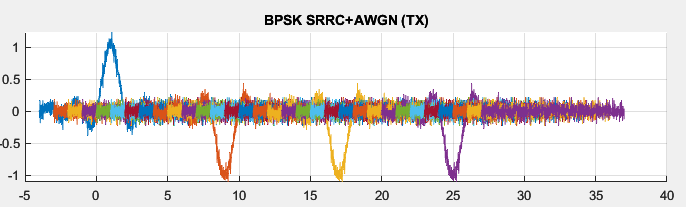
4.BPSK + SRRC (Tx)

|  |
| --- |
| bpsk\_srrc = bpsk\_up.' .\* srrc\_pulse; % combination SRRC |



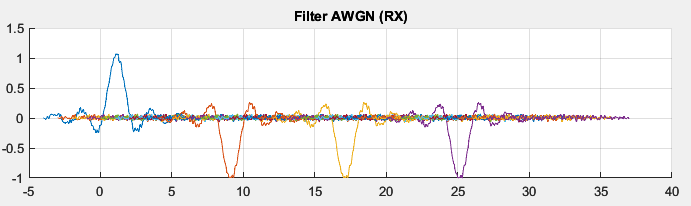
5.BPSK signal + Noise signal (AWGN)

|  |
| --- |
| SNR = 10; % SNR(dB)  fs = 1000;  [Eavg,sigma,noise] = AWGN(SNR,bpsk\_enc,fs);  bpsk\_tx = bpsk\_srrc + noise; % add to Tx signal |



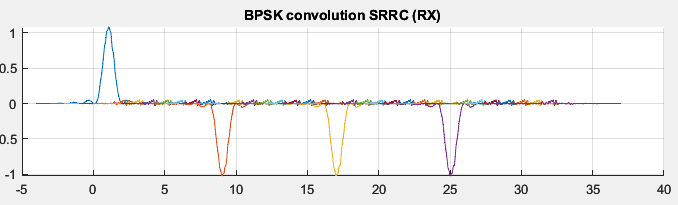
6.Using FIR Filter to remove noise in RX side

|  |
| --- |
| filternoise(x,:) = filter(fir,bpsk\_tx(x,:)); % filter Noise |



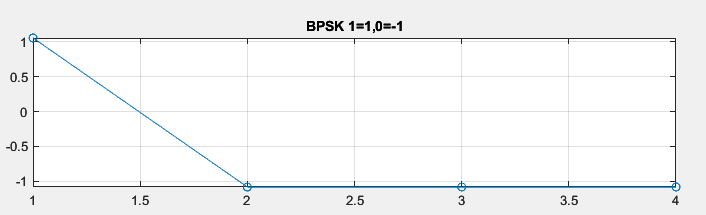
7.doing convolution to get BPSK signal

|  |
| --- |
| bpsk\_rx = filternoise .\* srrc\_pulse; % convolution SRRC |



8.Downsampling BPSK

|  |
| --- |
| numBits = 4; % number of symbol  multiple = 8; % sampling rate  bpsk\_down(:,:) = bpsk\_rx(1:multiple:multiple\*numBits,:);% Downsampling |



9.decode BPSK signal

|  |
| --- |
| bpsk\_dec = BPSK\_dec(bpsk\_enc\_rx,1,-1); |

