clc;

clear all;

close all;

n=8;

x=randi([0,1],1,n); %random bit generator

bp=.000001; % bit period

disp(' Binary information at Trans mitter :');

disp(x);

% representation of transmitting binary information as digital signal

bit=[];

for n=1:1:length(x)

if x(n)==1;

se=ones(1,100);

else

se=zeros(1,100);

end

bit=[bit se];

end

t1=bp/100:bp/100:100\*length(x)\*(bp/100);

subplot(4,1,1);

plot(t1,bit,'lineWidth',2.5);grid on;

axis([ 0 bp\*length(x) -.5 1.5]);

ylabel('amplitude(volts)');

xlabel(' time(sec)');

title('Binary data in the form of a digital signal');

%XXXXXXXXXXXXXXXXXXXXXXX Binary-PSK modulation XXXXXXXXXXXXXXXXXXXXXXXXXXX

A=5; % Amplitude of carrier signal

br=1/bp; % bit rate

f=br\*2; % carrier frequency

t2=bp/99:bp/99:bp;

ss=length(t2);

m=[];

kl=[];

for i=1:1:length(x)

wave=A\*sin(2\*pi\*f\*t2);

kl=[kl wave];

end

for i=1:1:length(x)

if (x(i)==1)

y=A\*sin(2\*pi\*f\*t2);

else

y=A\*sin(2\*pi\*f\*t2+pi); %-A\*sin(2\*pi\*f\*t)

end

m=[m y];

end

t3=bp/99:bp/99:bp\*length(x);

subplot(4,1,2);

plot(t3,kl);grid on;

xlabel('time(sec)');

ylabel('amplitude(volt)');

title('Carrier Signal');

subplot(4,1,3);

plot(t3,m);grid on;

xlabel('time(sec)');

ylabel('amplitude(volt)');

title('PSK modulated wave coresponding to binary information at the transmitter');

%XXXXXXXXXXXXXXXXXXXX Binary PSK demodulation XXXXXXXXXXXXXXXXXXXXXXXXXXXXX

mn=[];

for n=ss:ss:length(m)

t=bp/99:bp/99:bp;

y=sin(2\*pi\*f\*t); % carrier siignal

mm=y.\*m((n-(ss-1)):n);

t4=bp/99:bp/99:bp;

z=trapz(t4,mm); % intregation

zz=round((2\*z/bp));

if(zz>0) % logic level = (A+A)/2=0

%becouse A\*sin(2\*pi\*f\*t+pi) means -A\*sin(2\*pi\*f\*t)

a=1;

else

a=0;

end

mn=[mn a];

end

disp(' Binary data at Reciver :');

disp(mn);

%Representation of binary information as digital signal which is acheived

%after PSK demodulation

bit=[];

for n=1:length(mn)

if mn(n)==1;

se=ones(1,100);

else

se=zeros(1,100);

end

bit=[bit se];

end

t4=bp/100:bp/100:100\*length(mn)\*(bp/100);

subplot(4,1,4);

plot(t4,bit,'LineWidth',2.5);grid on;

axis([ 0 bp\*length(mn) -.5 1.5]);

ylabel('amplitude(volt)');

xlabel(' time(sec)');

title('PSK demodulated wave corresponding to binary information at the receiver ');

%>>>>>>>>>>>>>>>>>>>>>>>>>> end of program >>>>>>>>>>>>>>>>>>>>>>>>>>>>>>%

OUTPUT:

Binary data at Reciver :  
1 1 0 1 1 0 1 0

