**EXPT NO. : SIMULATION OF AMPLITUDE SHIFT KEYING**

**DATE :**

**AIM:**

To implement ASK using MATLAB.

**SOFTWARE REQUIRED:**

MATLAB

**PROGRAM**

**AMPLITUDE SHIFT KEYING**

clc;

clear all;

close all;

x=[1 0 0 1 1 0 1]; % Binary Information

bp=0.000001; % bit period

disp('Binary information at Transmitter :');

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);

elseif x(n)==0

se=zeros(1,100);

end

bit=[bit se];

end

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

subplot(3,1,1);

plot(t1,bit,'r','linewidth',2.5);

grid on;

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

ylabel('amplitude(volt)');

xlabel('time(sec)');

title('transmitting information as digital signal');

%% ASK modulation

A1=10; % Amplitude of carrier signal for information 1

A2=0; % Amplitude of carrier signal for information 0

br=1/bp; % bit rate

f=br\*10; % carrier frequency

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

ss=length(t2);

m=[];

for i=1:1:length(x)

if x(i)==1

y=A1\*cos(2\*pi\*f\*t2);

else

y=A2\*cos(2\*pi\*f\*t2);

end

m=[m y];

end

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

subplot(3,1,2);

plot(t3,m,'b','linewidth',2.5);

xlabel('time(sec)');

ylabel('amplitude(volt)');

title('ASK modulated waveform');

%% ASK demodulation

mn=[];

for n=ss:ss:length(m)

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

y=cos(2\*pi\*f\*t); % carrier signal

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

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

z=trapz(t4,mm); % integration

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

if(zz>5) % logic level = (A1+A2)/2=5

a=1;

else

a=0;

end

mn=[mn a];

end

disp('Binary information at Receiver :');

disp(mn);

%% Representation of binary information as digital signal which achieved after ASK 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(3,1,3)

plot(t4,bit,'g','linewidth',2.5);

grid on;

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

ylabel('amplitude(volt)');

xlabel('time(sec)');

title('ASK demodulated waveform');

**OUTPUT**

**RESULT**

Thus the generation of ASK was implemented using MATLAB.