Ignat Codrina-Victoria

Master AAIE, anul I

Temă laborator 5 – Interferențe și perturbații

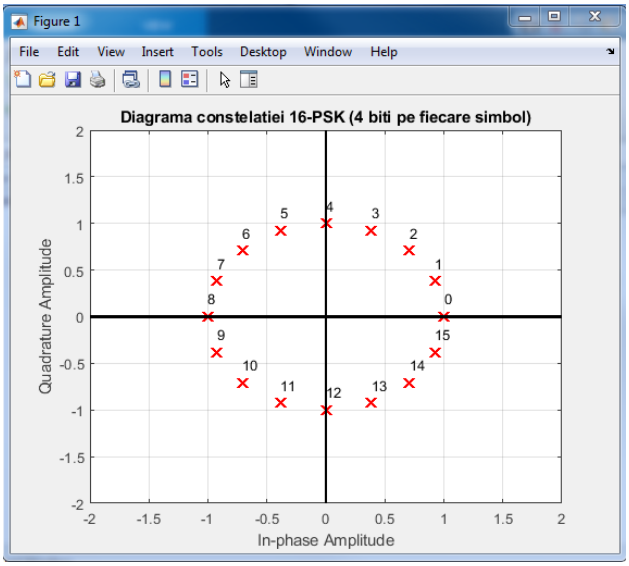
Exercițiul 2

Cerința 1:

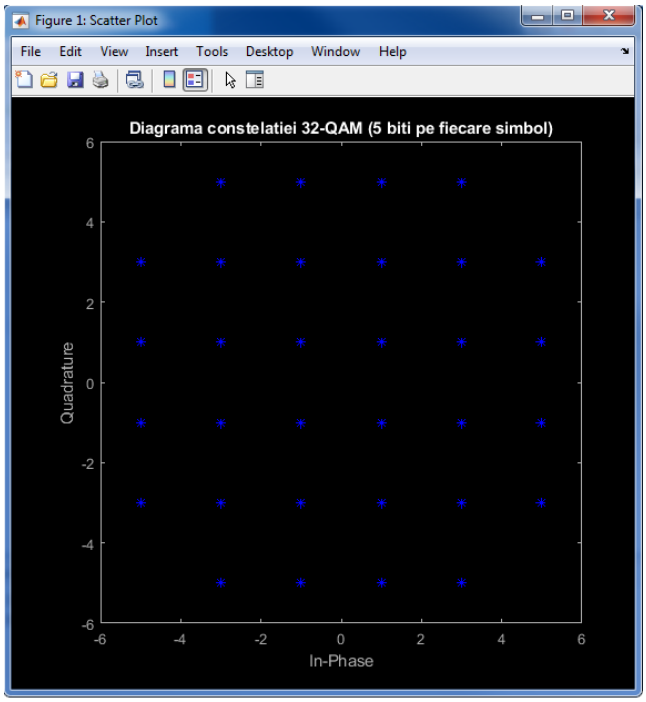
```
%Pasul 1
M = 16; % marimea alfabetului (nr de simboluri)
phOffset = 0; % offsetul de faza
symMap = 'binary'; % maparea de simbol (poate fi 'binary' sau 'gray')
pskModulator = comm.PSKModulator(M,phOffset,'SymbolMapping',symMap);
constellation(pskModulator)
title ('Diagrama constelatiei 16-PSK (4 biti pe fiecare simbol)')


%Pasul 2
M = 32;
data = 0:M-1;
sym = qammod(data,M,'bin');
scatterplot(sym,1,0,'b*');
for k = 1:M
text(real(sym(k))-0.4,imag(sym(k))+0.4,num2str(data(k)));
end
axis([-6 6 -6 6])
title('Diagrama constelatiei 32-QAM (5 biti pe fiecare simbol)')


%Pasul 3
M = 8;
data = 0:M-1;
sym = qammod(data,M);
scatterplot(sym,1,0,'r*');
grid on
title('Diagrama constelatiei 8-QAM codata Gray (3 biti pe fiecare simbol)')
for k = 1:M
text(real(sym(k))-0.4,imag(sym(k))+0.4,num2str(data(k)));
end
axis([-4 4 -2 2])


%Pasul 4
inphase = [1/2 -1/2 1 0 3/2 -3/2 1 -1];
quadr = [1 1 0 2 1 1 2 2];
inphase = [inphase; -inphase];
inphase = inphase(:);
quadr = [quadr; -quadr];
quadr = quadr(:);
refConst = inphase + 1i*quadr;
```

```
constDiagram = comm.ConstellationDiagram('Title', 'Constelatie QAM
personalizata' , ...
'XLimits',[-3 3],'YLimits',[-3 3], ...
'ReferenceConstellation',refConst, ...
'ReferenceMarker','*','ReferenceColor',[0 1 0]);
constDiagram(refConst)
```

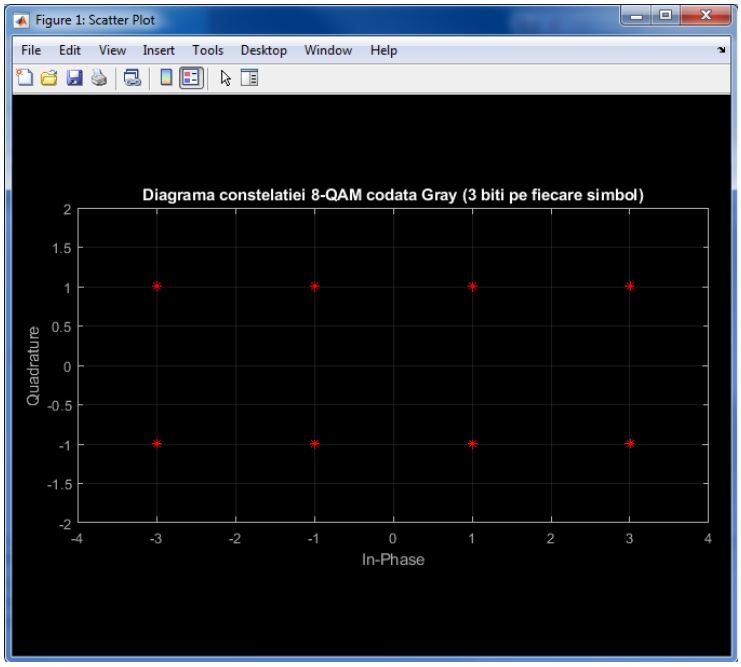
Cerința 2:



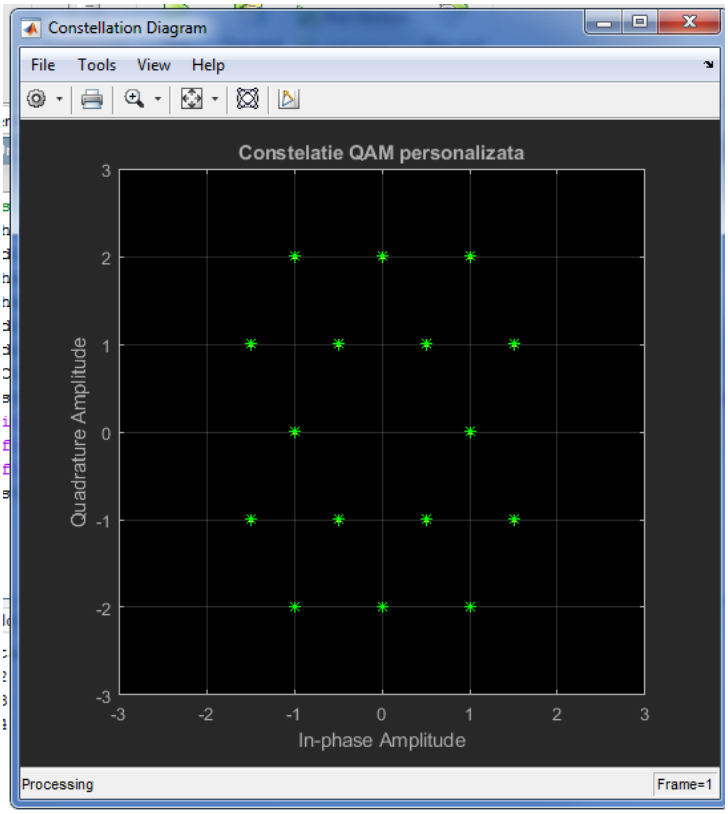
Cerința 3:



Cerința 4:



Cerința 5:



Cerința 6:

```
inphase = [3/2 -3/2 1 -1 1/2 -1/2 1 0];
quadr = [2 2 1 1 1 1 0 2];
```