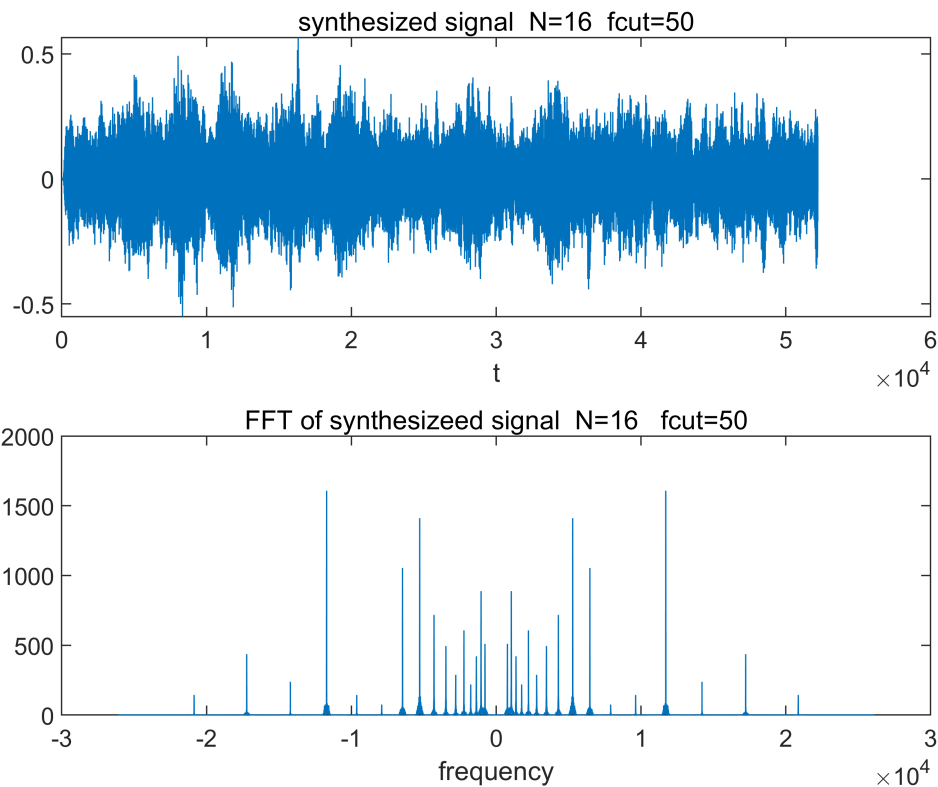


```

filename='D:\MATLABPractice\C_01_01.wav';
[x0,fs]=audioread(filename);
x=x0';
N=length(x);
sig= repmat(x,1,10);
[Pxx1,w1]=periodogram(sig,[],512,fs);
e=fir2(3000,w1/(fs/2),sqrt(Pxx1/max(Pxx1)));
noise=1-2*rand(1,length(e)+N);
SSN=filter(e,1,noise);
SSN=SSN((length(e)+1):end);
normratio=10^(-5/20);
SSN=SSN*norm(x)/norm(SSN)/normratio;
signal=x+SSN;
Nchannel(16,50,fs,signal);

```



```

% SNR=20*log10(norm(x)/norm(SSN))=-5dB

```