

CSC352 Fall 2006,
Laboratory 2

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% Lab 2 DSP Fall 2006
% Explain what this code is doing!!!
% Apply this to a signal acquired in the laboratory, explain results.
% May be interesting to acquire data around 10Mhz !!!
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Fs = 25000000;
Ts = 1/Fs;
N = 1024*1024;
w = 2*pi*[1:N]/N-pi;
Freq_RF = 5000000;
RFsignal = cos(2*pi*Freq_RF*Ts*[1:N]);

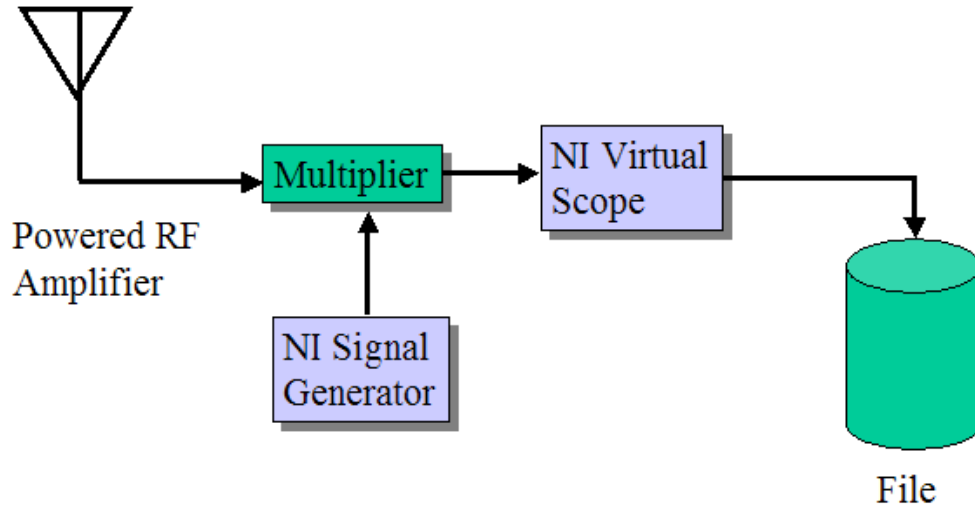
Tone = 1000;
ModRFsignal = (cos(2*pi*Tone*Ts*[1:N])+2) .* RFsignal;
figure(1)
plot(w,abs(fftshift(fft(ModRFsignal))));
title('Hmmmmm');

figure(2)
dm = sin(2*pi*(Freq_RF+10000)*Ts*[1:N]);
shifted = dm .* ModRFsignal;
plot(w,abs(fftshift(fft(shifted))));
title('Huh??');

f1 = fftshift(fft(shifted));
f1(1:N/4) = 0;
f1(3*N/4:N) = 0;
filteredshifted = real(ifft(fftshift(f1)));
figure(3);
plot([1:N]*Ts,(cos(2*pi*Tone*Ts*[1:N])+2),'r');
hold on;
plot([1:N]*Ts,abs(filteredshifted));
title('What');

afs = abs(filteredshifted);
lowpassed = afs + circshift(afs,[1,1024])+ circshift(afs,[1,2*1024])+
...
    circshift(afs,[1,3*1024])+ circshift(afs,[1,4*1024]);
plot([1:N]*Ts,0.5*lowpassed,'g');
title('Pretty');
hold off;
```

Webb 311 Setup



Assignment

Experiment with the laboratory setup and the matlab code and tell me what it does, and what you are able to make it do!!! You can give me a formal laboratory write up or a laboratory notebook.