

Dec 05, 04 20:58

lpfilt.m

Page 1/1

```
clf
fs = 44e3;
fc = 2e3;
B = 2*pi*fc/fs;
M = 100;
n = 0:2*M;
h = (B/pi)*sinc(B*(n-M)/pi);
subplot(311)
stem(n,h)
grid
xlabel('n');
ylabel('h[n]');
title('Low-pass filter, f_s = 44 kHz, f_c = 2 kHz')

% Take to 1000-point DFT to find frequency response of filter
N = 1000;
k = 0:N-1;
Wk = 2*pi*k/N;
fk = Wk*fs/(2*pi);
H = fft(h,N);
subplot(312)
% Plot filter gain vs CT freq in kHz
plot(fk/1000,abs(H))
grid
% Set axis to show freqs from 0 to fs/2
axis([0 (fs/2)/1000 0 1.2])
xlabel('f (kHz)');
ylabel('|H(f)|');
subplot(313)
plot(fk/1000,unwrap(angle(H))*180/pi)
grid
axis([0 (fs/2)/1000 -2000 0])
xlabel('f (kHz)');
ylabel('\angle H(f)');
```