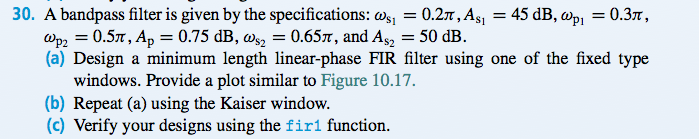
Connor McCullough

EEN 436

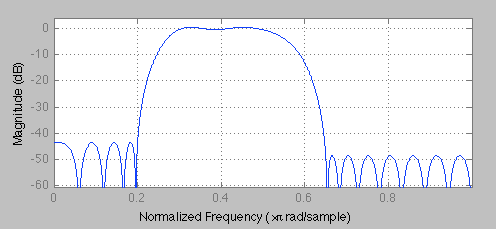
31 March 2014

DSP Homework 4

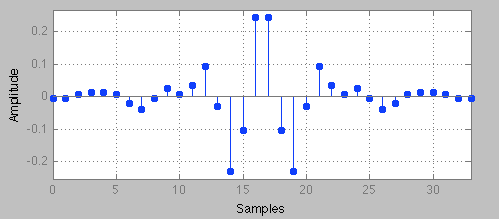


a) Using fixed-type window:

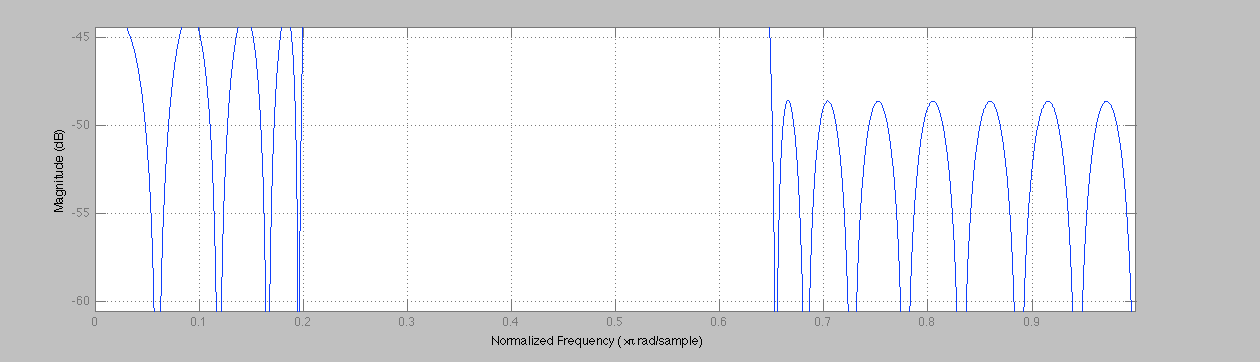
Magnitude Response (dB):



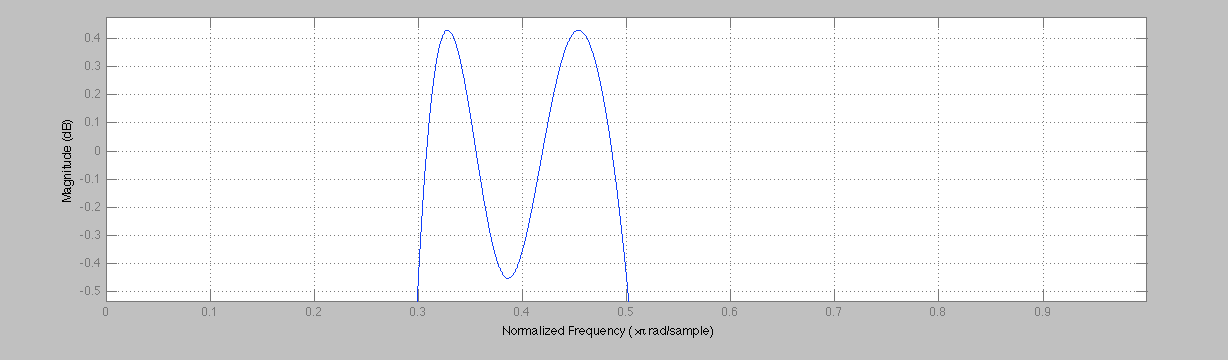
Impulse Response:



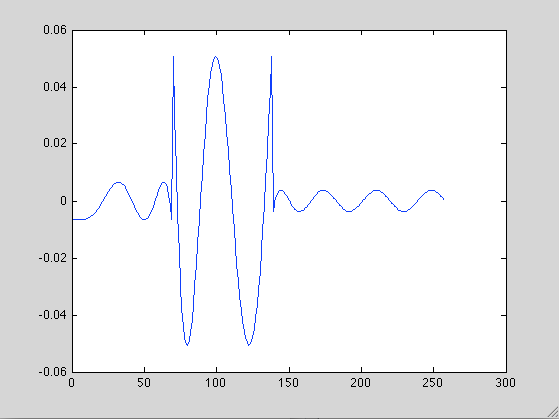
Lower zoom of Magnitude Response (dB):



Upper zoom of Magnitude Response (dB):

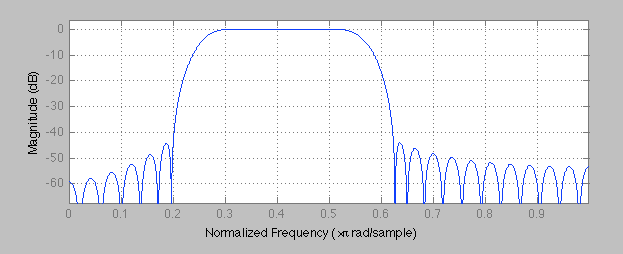


Error function:

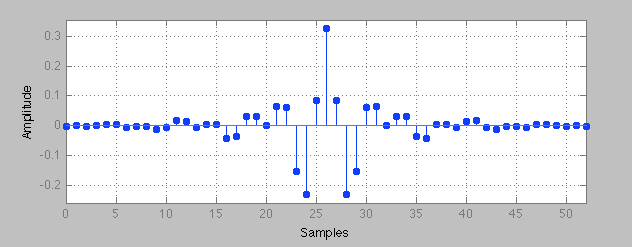


b) Using Kaiser Window:

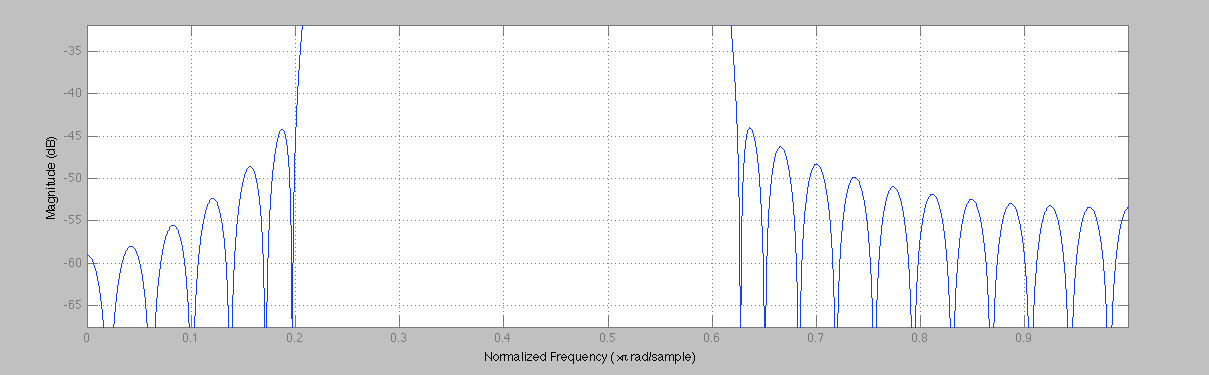
Magnitude Response(dB):



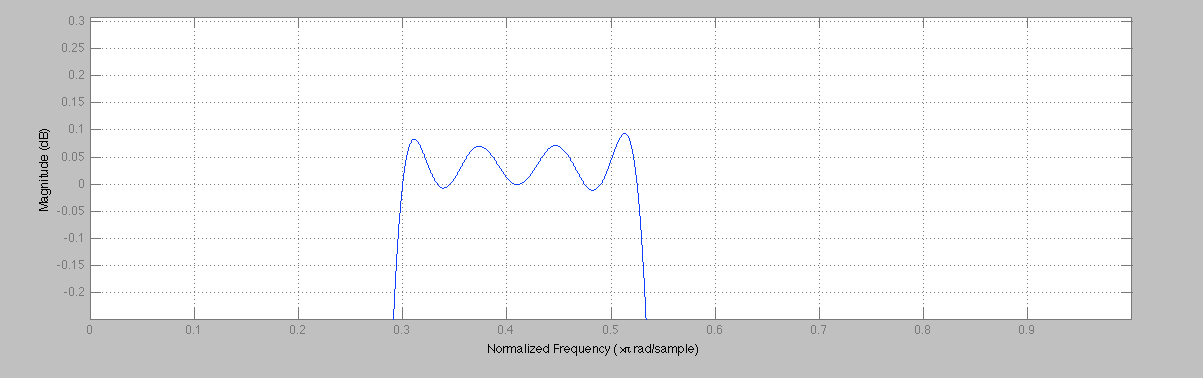
Impulse Response:



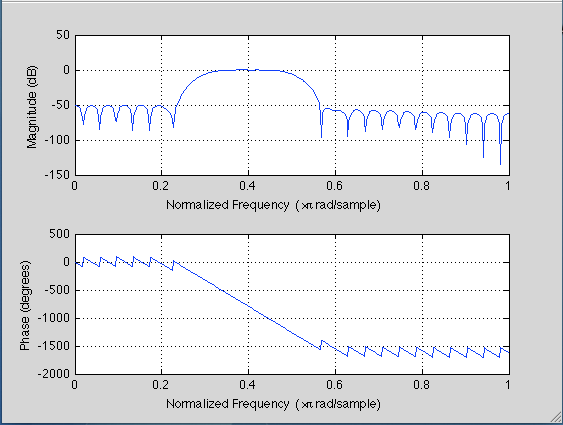
Lower Zoom of Magnitude Response (dB):

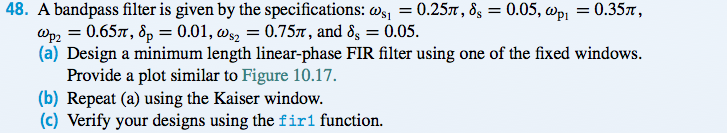


Upper Zoom of Magnitude Response (dB):



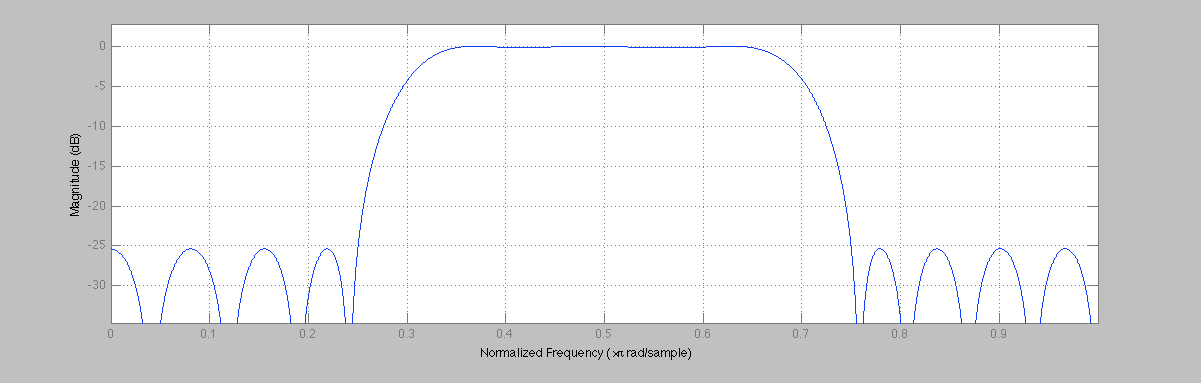
c) Verified with fir1 function:



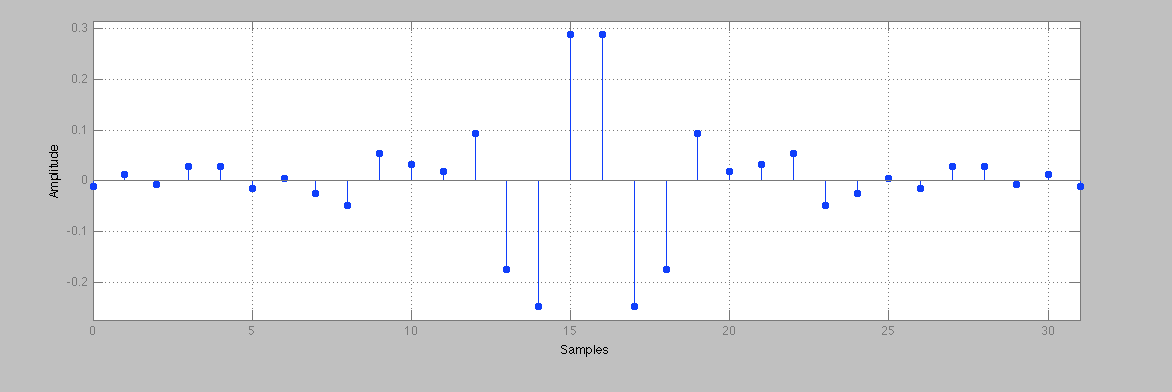


a) Using fixed window:

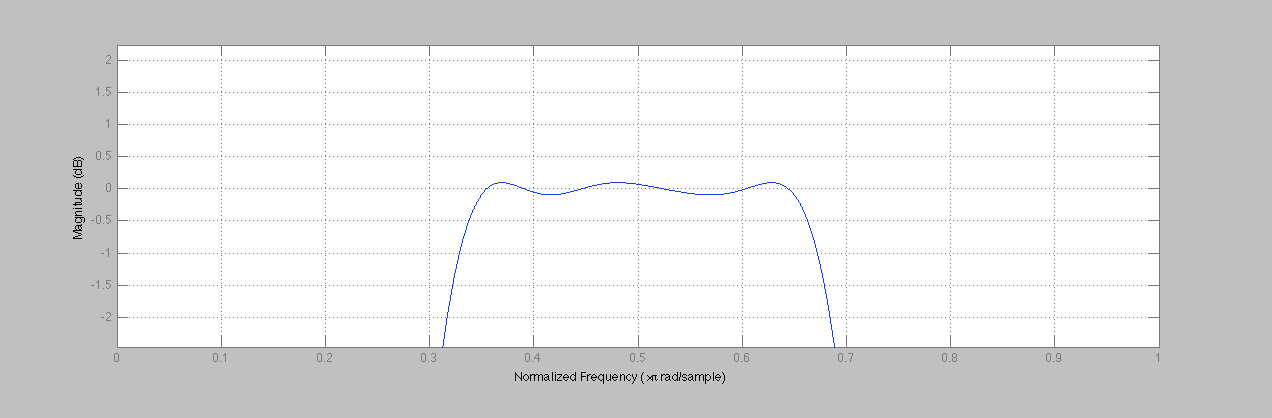
Magnitude Response(dB):



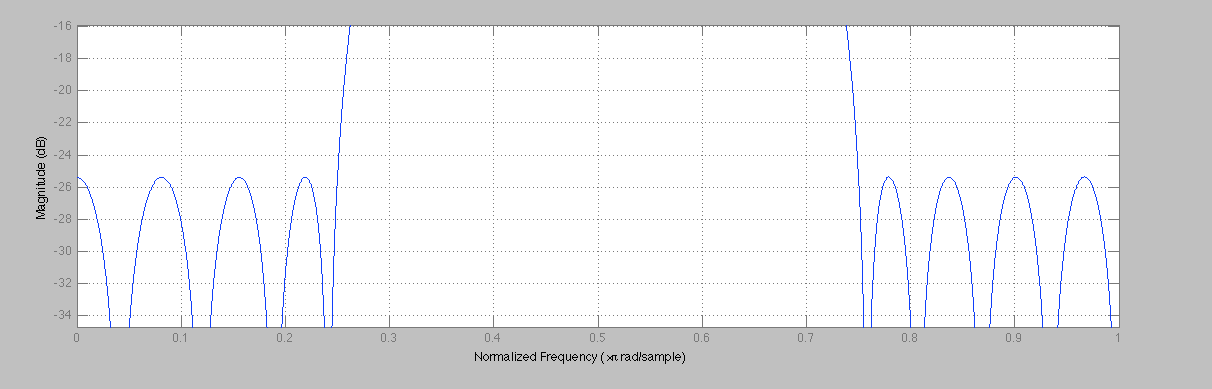
Impulse Response:



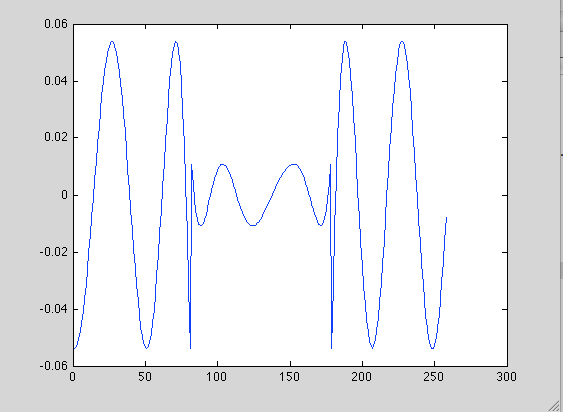
Upper Zoom of Magnitude Response(dB):



Lower Zoom of Magnitude Response (dB):

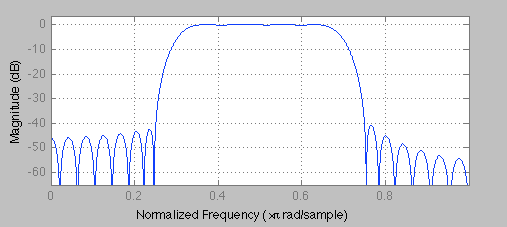


Approximation Error:

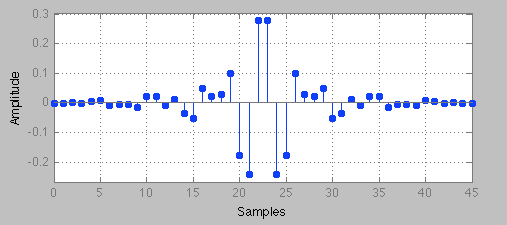


b) With Kaiser window:

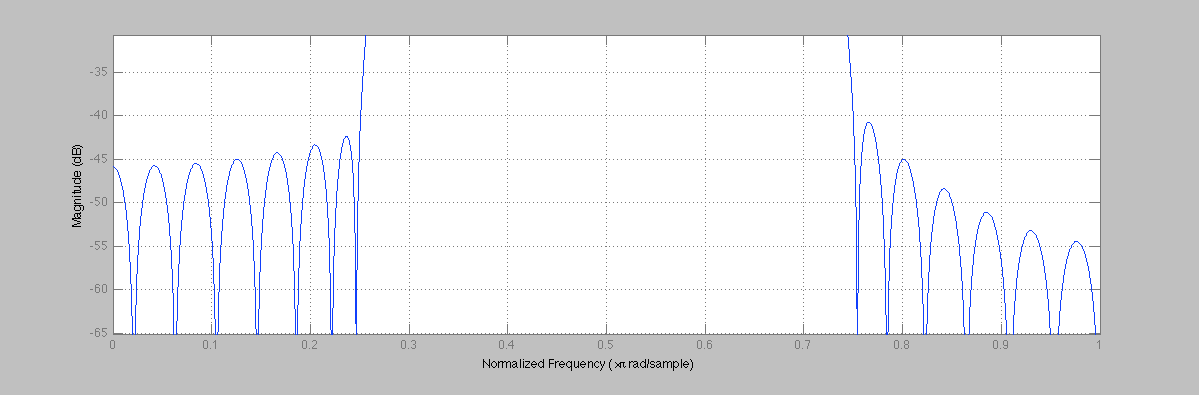
Magnitude Response (dB):



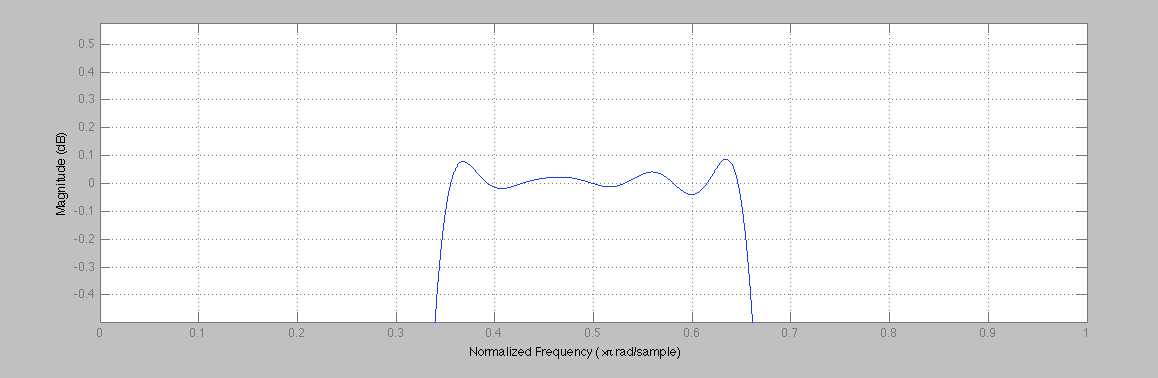
Impulse Response:



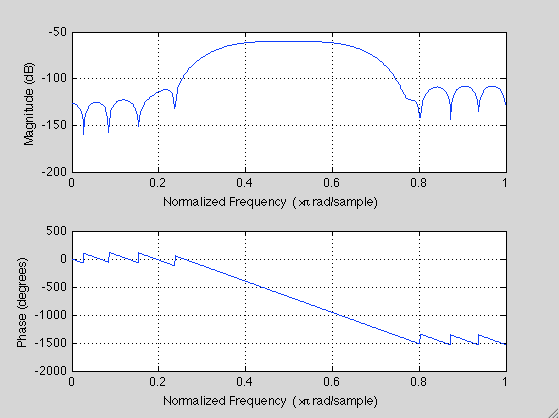
Lower Zoom of Magnitude Response (dB):

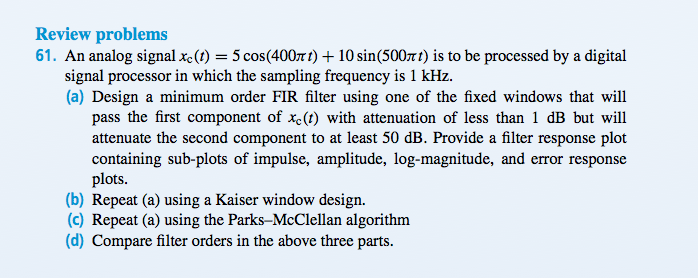


Upper Zoom of Magnitude Response (dB):



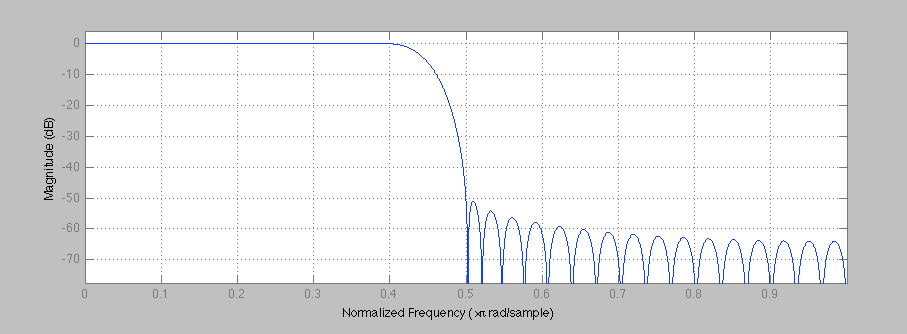
c) Verified with fir1:



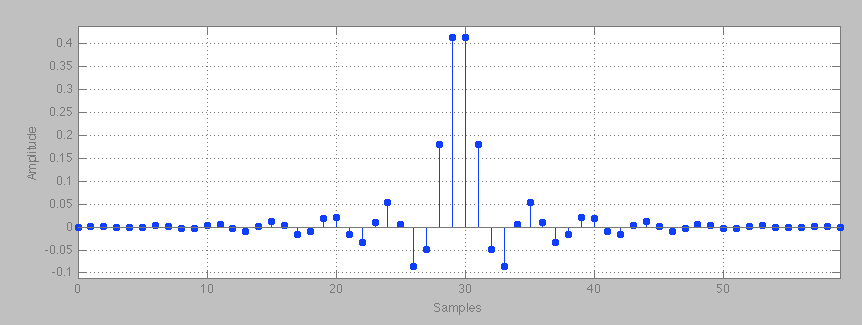


a/b) Using fixed window:

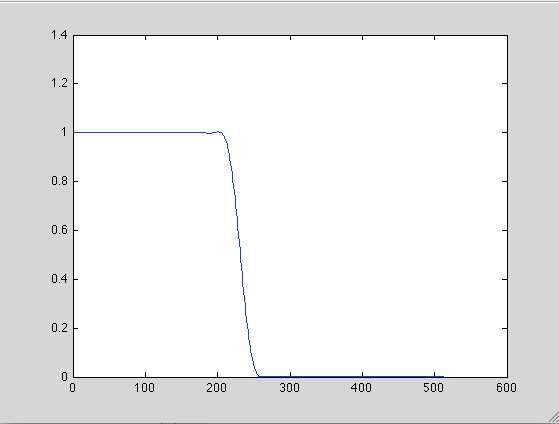
Magnitude Response (dB):



Impulse Response:

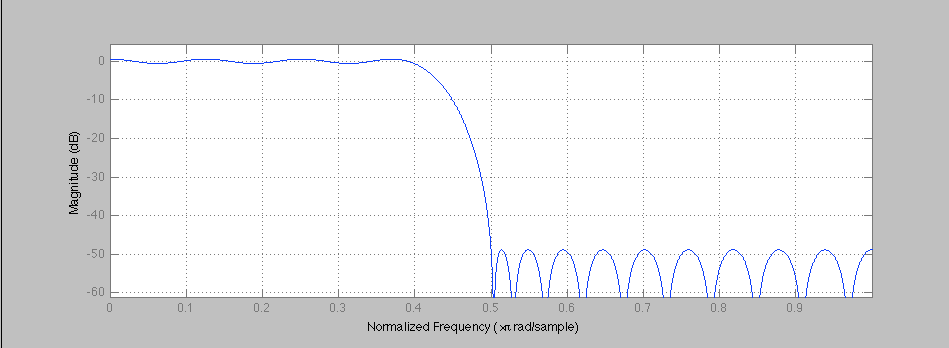


Amplitude:

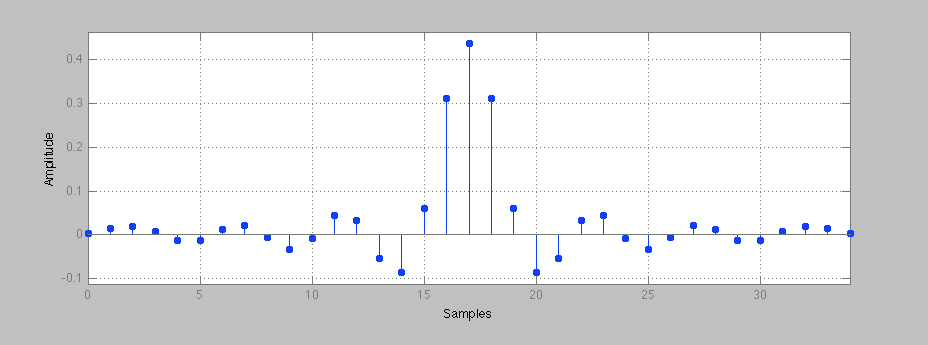


c) Using Parks-McClellan algorithm:

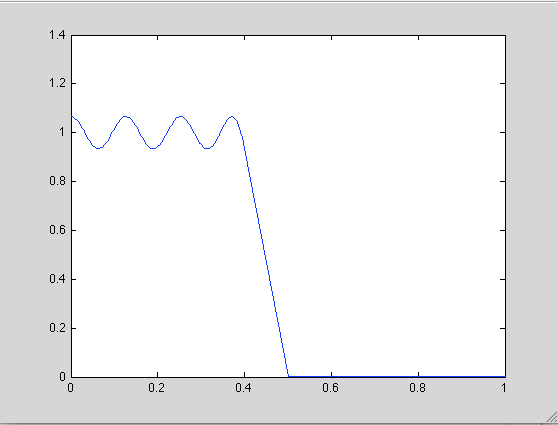
Magnitude Response (dB):



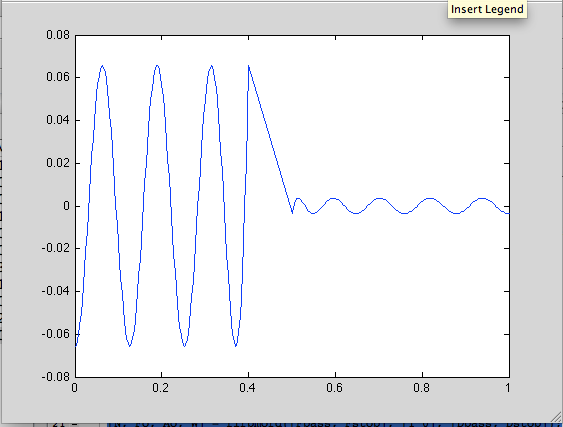
Impulse Response:



Amplitude:



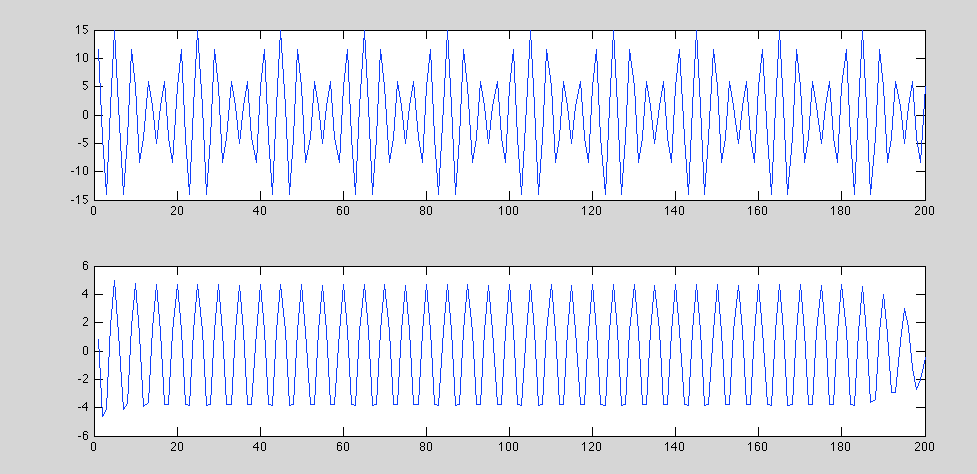
Error Response:



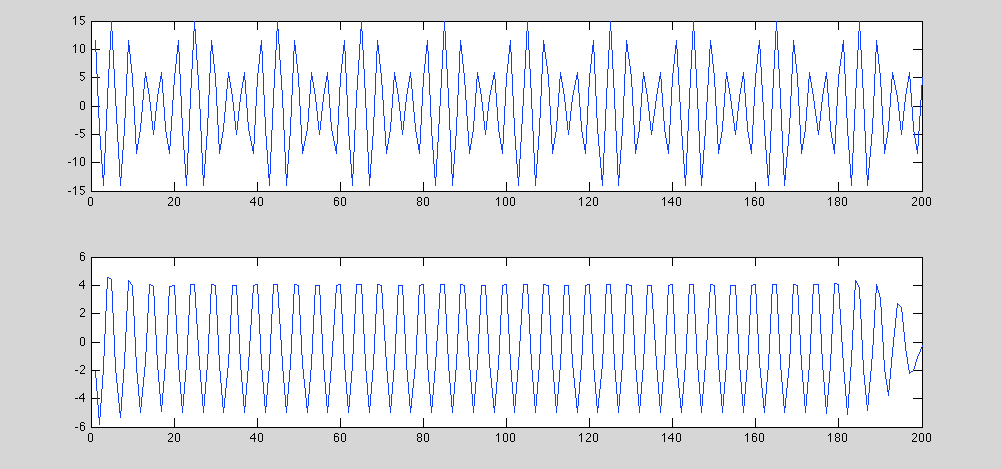
d) PM uses 34th order, Kaiser uses 59th order.

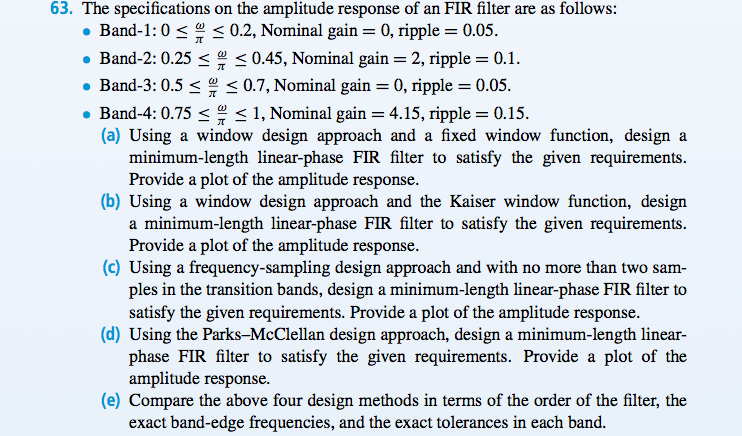


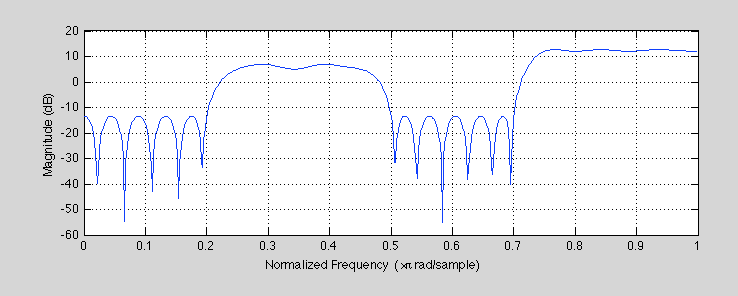
Filtered/Unfiltered using Parks-McClellan:



Filtered/Unfiltered using Kaiser:





d) Using Parks-McClellan:

e) Parks McClellan: 46th order