Inverse Chebyshev filter - bandpass and bandstop case

In a sequel, we design a type II Chebyshev filter for both bandpass and bandstop cases. In this case cheby2band function is used, it has following arguments: integer filter order, string or integer filter type ("pass"=0, or "stop"=1), lower stopband edge in Hz and upper stopband edge in Hz, and a sampling rate in Hz. We design the bandpass case first with, order 6, attenuation in stopband equal to 80dB, lower stopband edge at 600Hz, upper stopband edge at 1200Hz and sampling frequency at 3000Hz.

CFIIpass := cheby2band(6 , "pass" , 600 , 1200 , 80 , 3000) Filter design

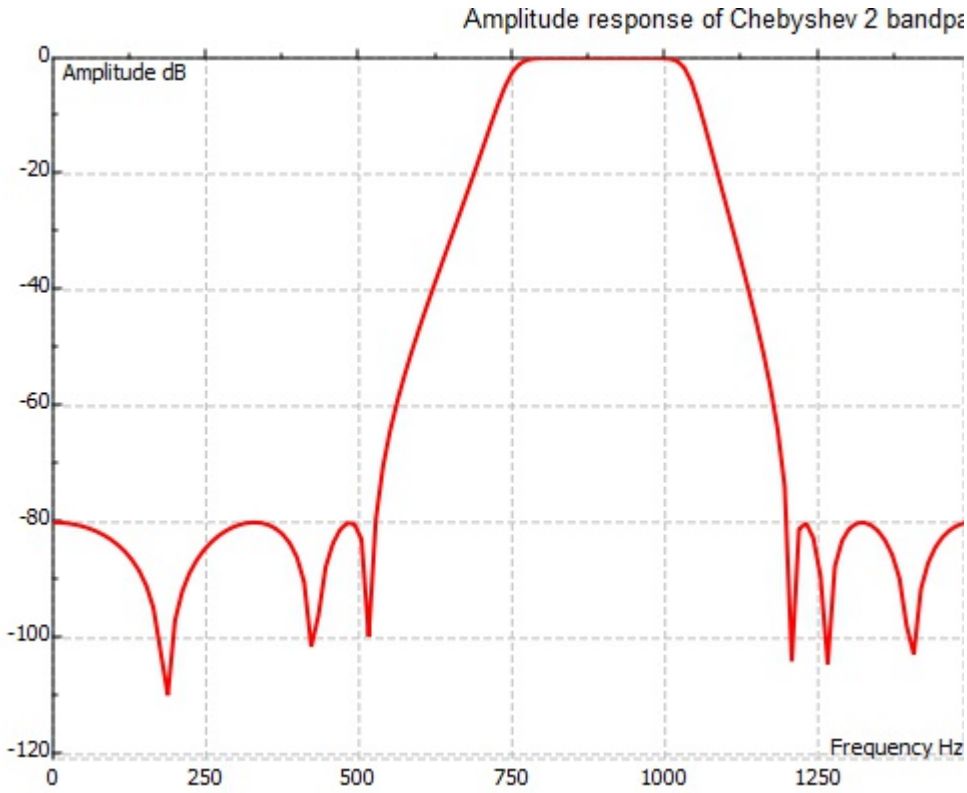
A1 := col2vec(CFIIpass , 1) Denominator coefficients

B1 := col2vec(CFIIpass , 0) Nominator coefficients

Fpass := iirfreqres(A1 , B1 , 128 , 1) Frequency response of designedfilter

fre := ynodes(z , 0 , 1 - 1/128 , 128)

Fpassg := join mat cols(1500 fre , 20 log10(fabs(Fpass))) Graph of amplitude response



Bandstop Chebyshev type II filter

Next, we design a bandstop filter of order 6, attenuation in stopband equal to 80dB, lower stopband edge at 600Hz, upper stopband edge at 1200Hz and sampling frequency at 3000Hz.

CFIIstop := cheby2band(6 , "stop" , 600 , 1200 , 80 , 3000) Filter design

A2 := col2vec(CFIIstop , 1)

B2 := col2vec(CFIIstop , 0)

Fstop := iirfreqres(A2 , B2 , 128 , 1)

Fstopg := join mat cols(1500 fre , 20 log10(fabs(Fstop))) Graph of amplitude response