

Current Filter Information

Structure: Direct-Form FIR

Order: 50

Stable: Yes

Source: Designed

Store Filter ...

Filter Manager ...

Filter Specifications

Mag (dB) vs f (Hz). The plot shows a low-pass filter response with a passband edge at F_{pass} and a stopband starting at F_{stop} . The passband attenuation is A_{pass} and the stopband attenuation is A_{stop} . The Nyquist frequency is marked as $F_s/2$.

Response Type

☒ Lowpass
 ☐ Highpass
 ☐ Bandpass
 ☐ Bandstop
 ☐ Differentiator

Design Method

☐ IR Butterworth
 ☒ FIR Equipple

Filter Order

☐ Specify order: 10
 ☒ Minimum order

Options

Density Factor: 20

Frequency Specifications

Units: Hz

F_s : 48000

F_{pass} : 9600

F_{stop} : 12000

Magnitude Specifications

Units: dB

A_{pass} : 1

A_{stop} : 60

Design Filter

Current Filter Information

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Source: Designed

Store Filter ...

Filter Manager ...

Filter Specifications

$|H(\omega)|$ vs ω (normalized). The plot shows a low-pass filter response with a sharp cutoff at the normalized cutoff frequency ω_c .

Response Type

☒ Lowpass
 ☐ Highpass
 ☐ Bandpass
 ☐ Bandstop
 ☐ Differentiator

Design Method

☐ IR Butterworth
 ☒ FIR Window

Filter Order

☒ Specify order: 10
 ☐ Minimum order

Options

☒ Scale Passband
 Window: Rectangular

View

Frequency Specifications

Units: Normalized (0 to 1)

F_s : 48000

ω_c : 0.5

Magnitude Specifications

The attenuation at cutoff frequencies is fixed at 6 dB (half the passband gain)

Design Filter

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Order: 10

Stable: Yes

Source: Designed

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Filter Manager ...

Magnitude Response (dB) and Phase Response

The plot shows the magnitude response (blue line) and phase response (green line) of the filter. The magnitude response shows a sharp cutoff at the normalized cutoff frequency, and the phase response shows a corresponding phase shift. The x-axis is Normalized Frequency (ω rad/sample) from 0 to 1. The left y-axis is Magnitude (dB) from 0 to -60. The right y-axis is Phase (radians) from 0.0268 to -8.6481.

Response Type

☒ Lowpass
 ☐ Highpass
 ☐ Bandpass
 ☐ Bandstop
 ☐ Differentiator

Design Method

☐ IR Butterworth
 ☒ FIR Window

Filter Order

☒ Specify order: 10
 ☐ Minimum order

Options

☒ Scale Passband
 Window: Rectangular

View

Frequency Specifications

Units: Normalized (0 to 1)

F_s : 48000

ω_c : 0.5

Magnitude Specifications

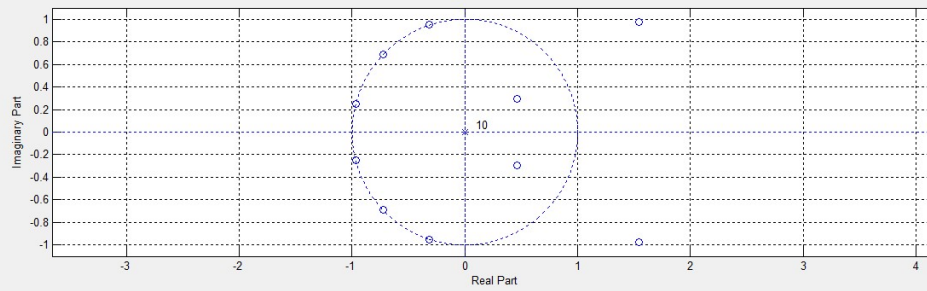
The attenuation at cutoff frequencies is fixed at 6 dB (half the passband gain)

Filter Coefficients

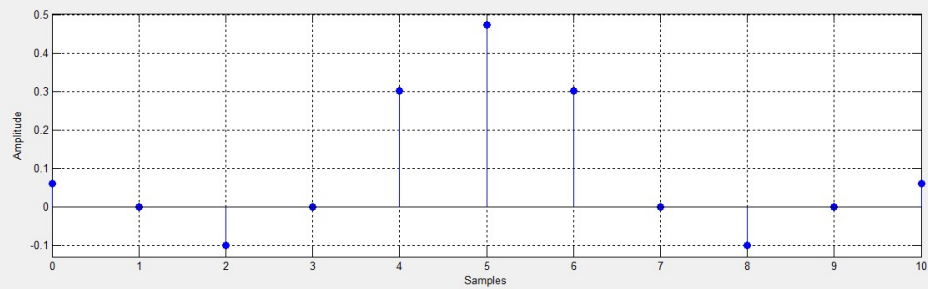
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Numerator
0.060530912237274064
-0.0000000000000000018532063283191087
-0.10098985372879011
0.0000000000000000018532063283191087
0.30265156118637032
0.47640396061029139
0.30265156118637032
0.0000000000000000018532063283191087
-0.10098985372879011
-0.0000000000000000018532063283191087
0.060530912237274064
    
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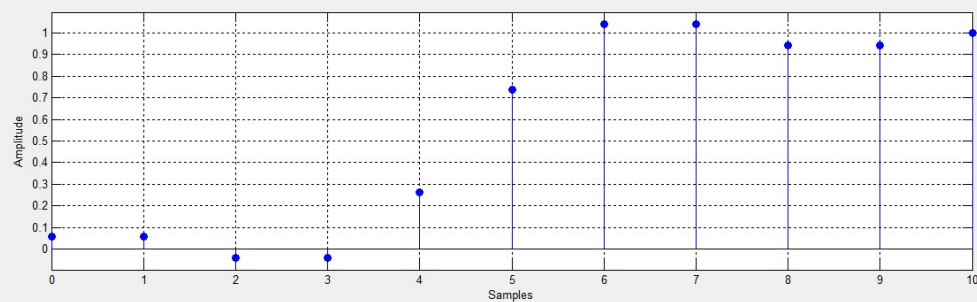
Pole/Zero Plot

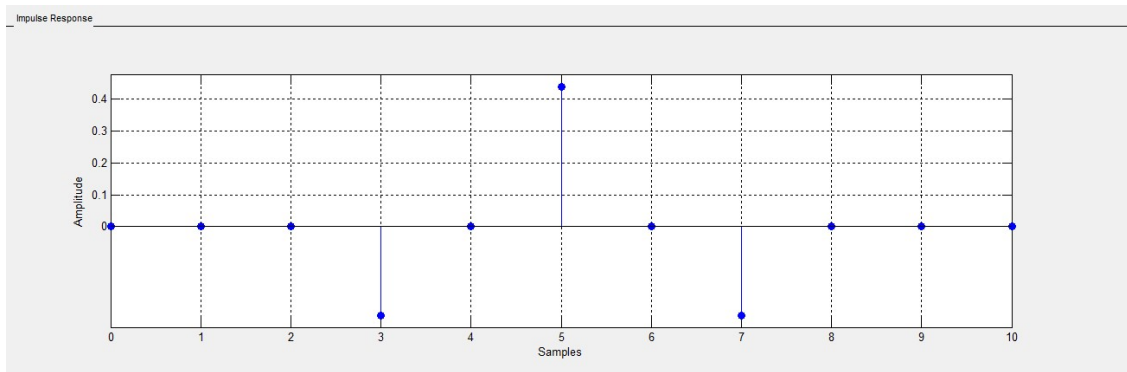
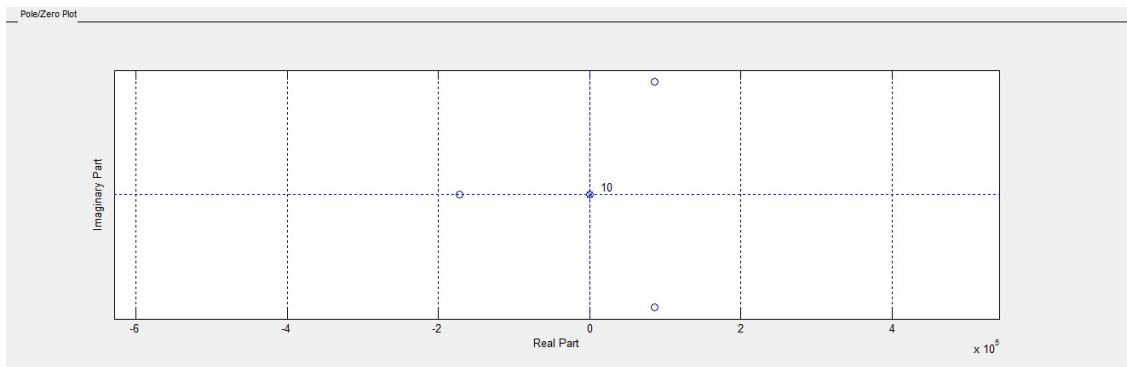
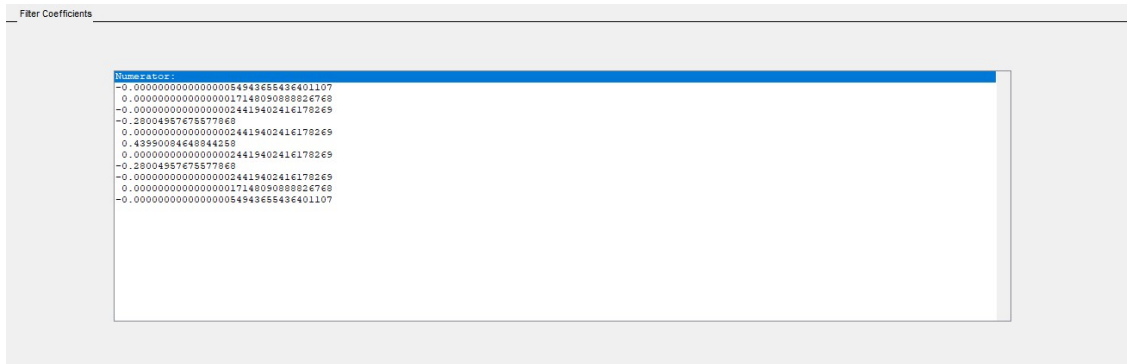
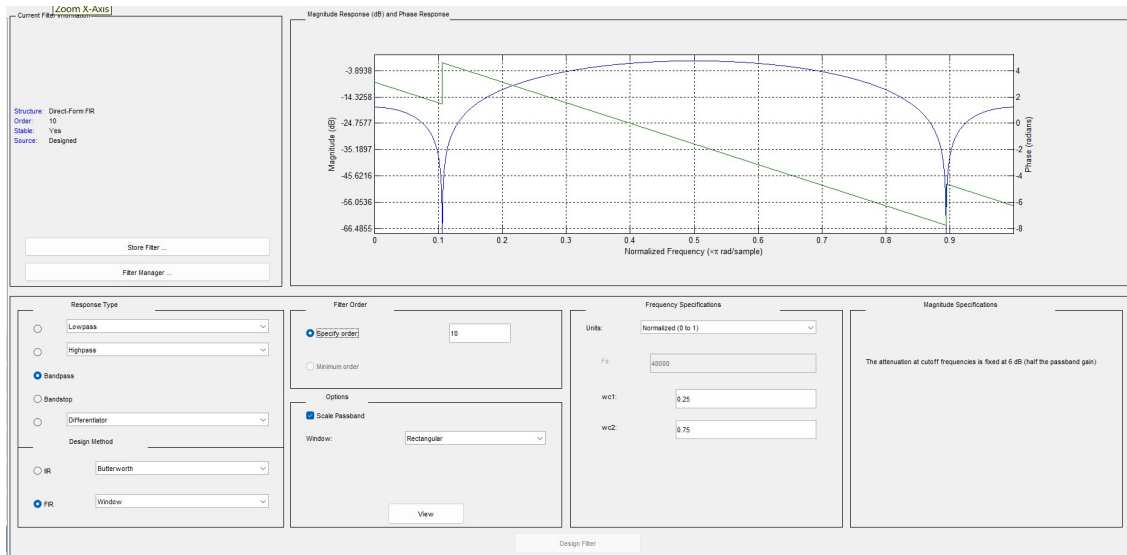


Impulse Response



Step Response





Step Response

