Options
Title: Filter Introduction
Author: Jay Patel; GNURadio
Description: Filte...oduction
Output Language: Python
Generate Options: QT GUI

Variable
Id: len_taps
Value: 77

Display the number
of taps (coefficients)

Low-pass Filter Taps
Id: lp_taps
Gain: 1
Sample Rate (Hz): 32k
Cutoff Freq (Hz): 14k
Transition Width (Hz): 1k
Window: Hamming
Beta: 6.76

High-pass Filter Taps
Id: hp_taps
Gain: 1
Sample Rate (Hz): 32k
Cutoff Freq (Hz): 2k
Transition Width (Hz): 1k
Window: Hamming
Beta: 6.76

Band-pass Filter Taps
Id: bp_taps
Tap Type: Real
Gain: 1
Sample Rate (Hz): 32k
Low Cutoff Freq (Hz): 6k
High Cutoff Freq (Hz): 10k
Transition Width (Hz): 1k
Window: Hamming
Beta: 6.76

Band-reject Filter Taps
Id: br_taps
Tap Type: Real
Gain: 1
Sample Rate (Hz): 32k
Low Cutoff Freq (Hz): 6k
High Cutoff Freq (Hz): 10k
Transition Width (Hz): 1k
Window: Hamming
Beta: 6.76

QT GUI Range
Id: transition
Label: transition_width
Default Value: 1k
Start: 500
Stop: 15k
Step: 100

transition_width

QT GUI Range
Id: lp_cutoff
Label: lp_cutoff
Default Value: 14k
Start: 10k
Stop: 16k
Step: 1k

Low-pass cutoff

QT GUI Range
Id: hp_cutoff
Label: hp_cutoff
Default Value: 2k
Start: 1k
Stop: 6k
Step: 1k

High-pass cutoff

QT GUI Range
Id: bp_high
Label: bp_high
Default Value: 10k
Start: 9k
Stop: 13k
Step: 1k

BP_lower_cutoff

QT GUI Range
Id: bp_low
Label: bp_low
Default Value: 6k
Start: 2k
Stop: 8k
Step: 1k

BP_lower_cutoff

Variable
Id: samp_rate
Value: 32k

Variable
Id: sym_rate
Value: 16k

Variable
Id: sps
Value: 2

Fast Noise Source
Noise Type: Gaussian
Amplitude: 1
Seed: 0
Variate Pool Size: 8.192k

Signal Source

Low Pass Filter
Decimation: 1
Gain: 1
Sample Rate: 32k
Cutoff Freq: 14k
Transition Width: 1k
Window: Hamming
Beta: 6.76

Low-pass filter

High Pass Filter
Decimation: 1
Gain: 1
Sample Rate: 32k
Cutoff Freq: 2k
Transition Width: 1k
Window: Hamming
Beta: 6.76

High-pass filter

Band Pass Filter
Decimation: 1
Gain: 1
Sample Rate: 32k
Low Cutoff Freq: 6k
High Cutoff Freq: 10k
Transition Width: 1k
Window: Hamming
Beta: 6.76

Band-Pass Filter

Band Reject Filter
Decimation: 1
Gain: 1
Sample Rate: 32k
Low Cutoff Freq: 6k
High Cutoff Freq: 10k
Transition Width: 1k
Window: Hamming
Beta: 6.76

Band-Reject Filter

QT GUI Frequency Sink
FFT Size: 4.096k
Center Frequency (Hz): 0
Bandwidth (Hz): 32k

GUI

Throttle
Sample Rate: 32k

Null Source

Null Sink

Note
Note: Note:

the number of taps is not dependent on
the center frequency but only on the
transition width (or more accurately, on the
ratio of the sampling rate to the transition width).

No. of Taps	Transition BW	Cut off
77	1000	14000
51	1500	14000
39	2000	14000
25	3000	14000
19	4000	14000
11	6500	14000
09	8000	14000
05	1300	15500