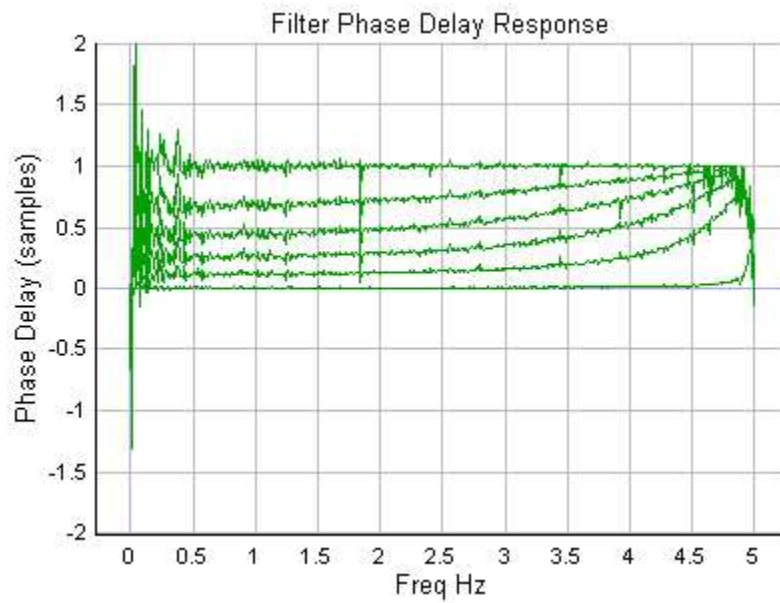


The phase response of 6 different all-pass filters, with alpha values ranging from 0 at the top to 0.99 at the bottom. The APF is a simple 1-pole/1-zero filter with both the pole and zero located on the real axis of the Z-plane. Parameter alpha is the location on the real axis of the filter's pole.

This plot is for hypothetical filters with a sample rate of 10 Hz. The raggedness of the plot stems from the technique used to measure the phase shift, based on a cross-correlation of the filter output against a white noise input signal.

The amplitude response of all of these filters is, of course, entirely flat over the entire spectrum.



Here is a plot of the same filters showing the phase delay, as opposed to the absolute phase response. As you can see, all of them approach a unit delay at the Nyquist frequency.