Filter Wizard

Filter Wizard Design

Created on 05/31/2025

ANALOG DEVICES

Filter Wizard Design Report

Filter Requirements for Low-Pass, 4th order Butterworth

Specifications: Optimize: Specific Parts; +Vs: 5; -Vs: -5

Gain: 0 dB

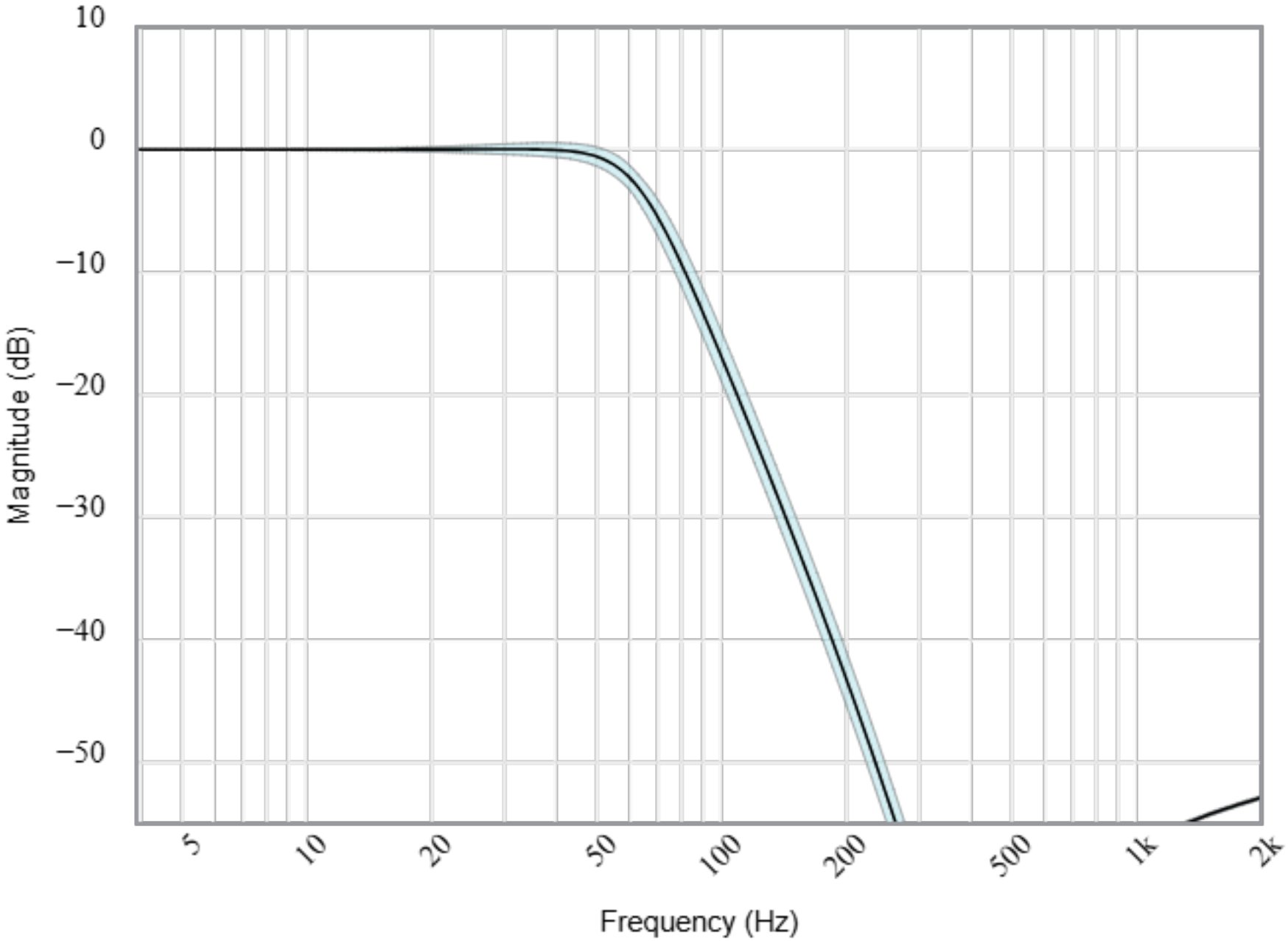
Passband: -0.1dB at 40Hz

Stopband: -35dB at 200Hz

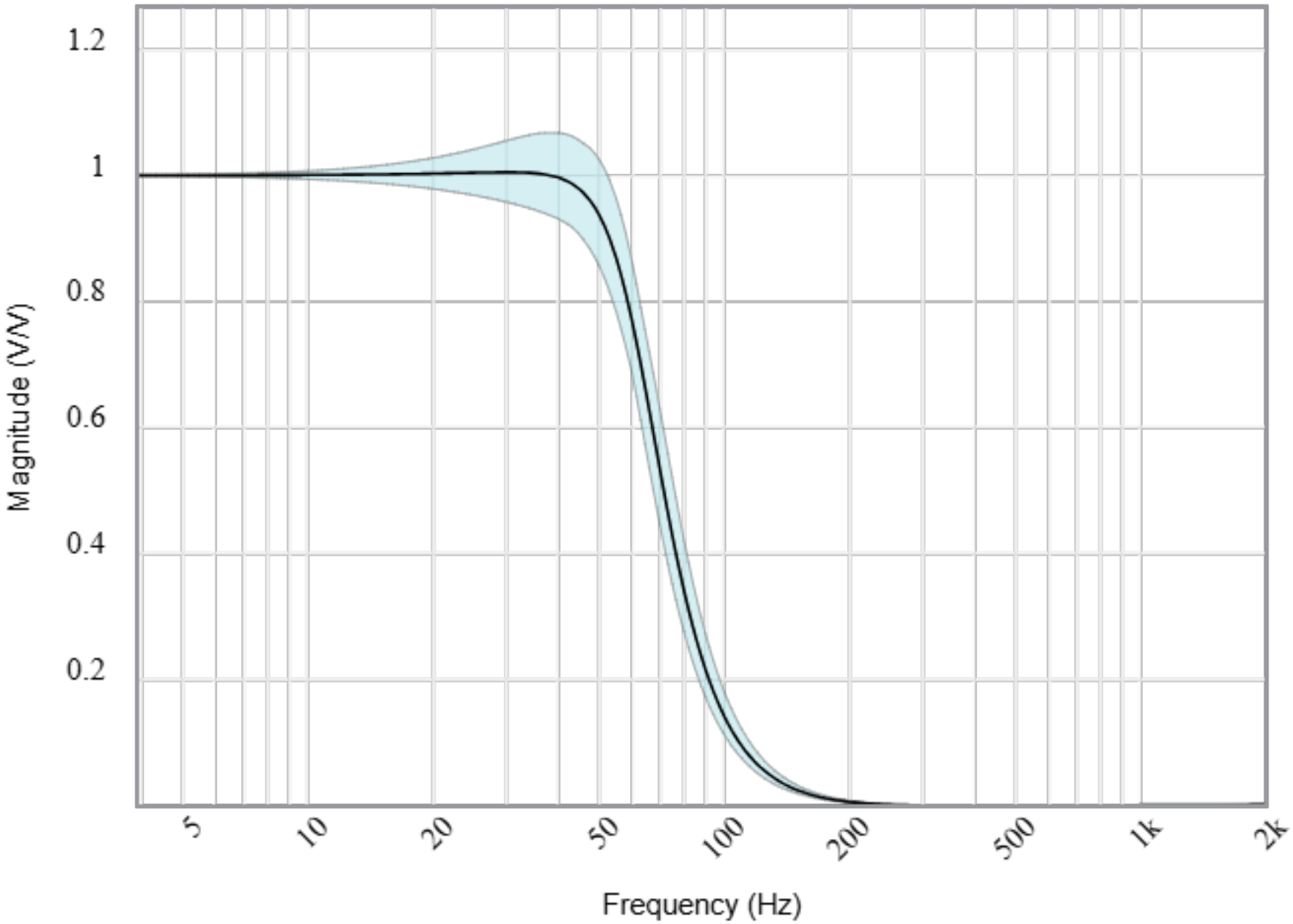
Component Tolerances: Capacitor = 5%; Resistor = 1%; Inductor = 5%; Op Amp GBW = 20%

BOM: refer to BOM.csv file

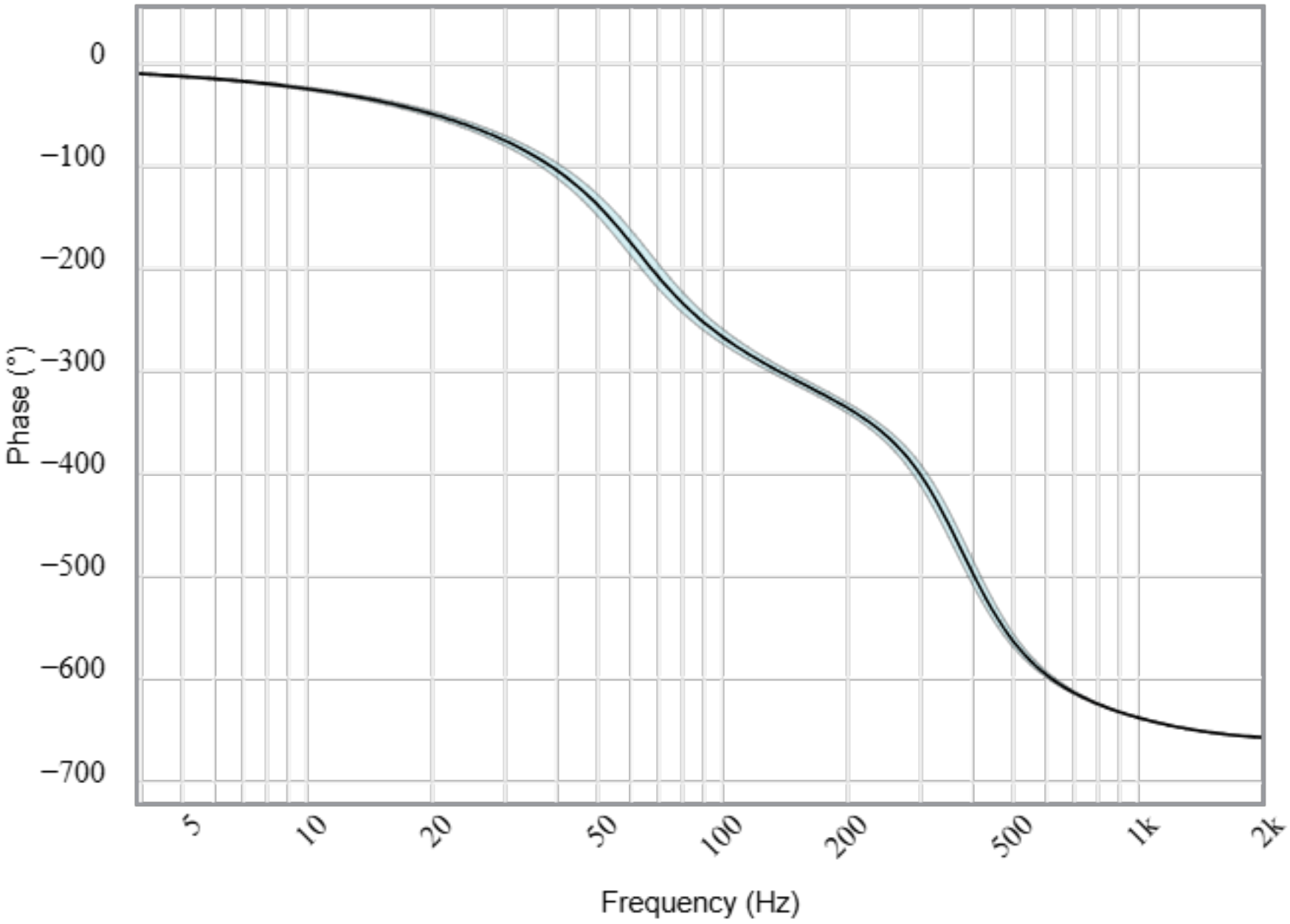
Magnitude(dB)



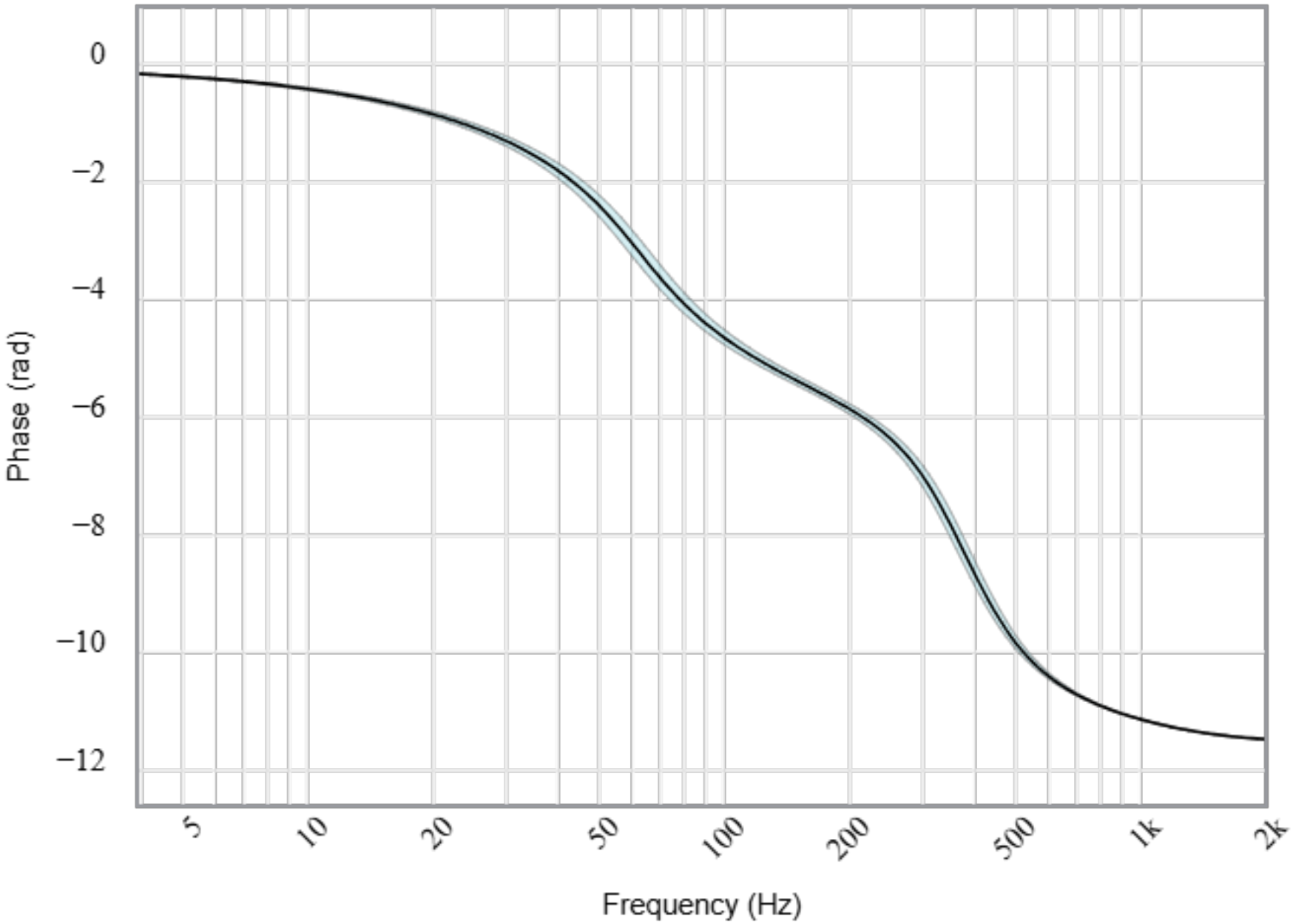
Magnitude(Volts per Volt)



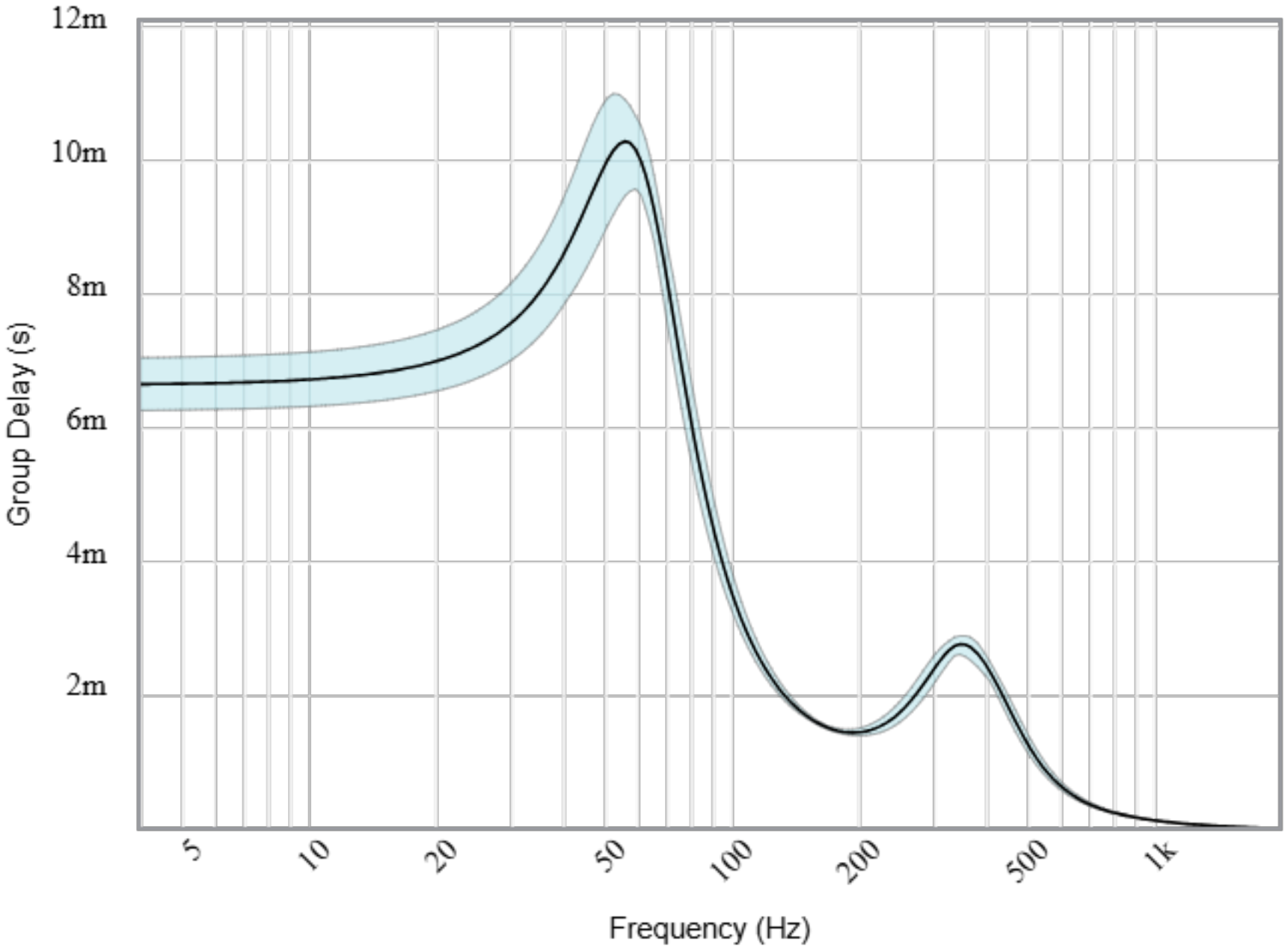
Phase(degrees)



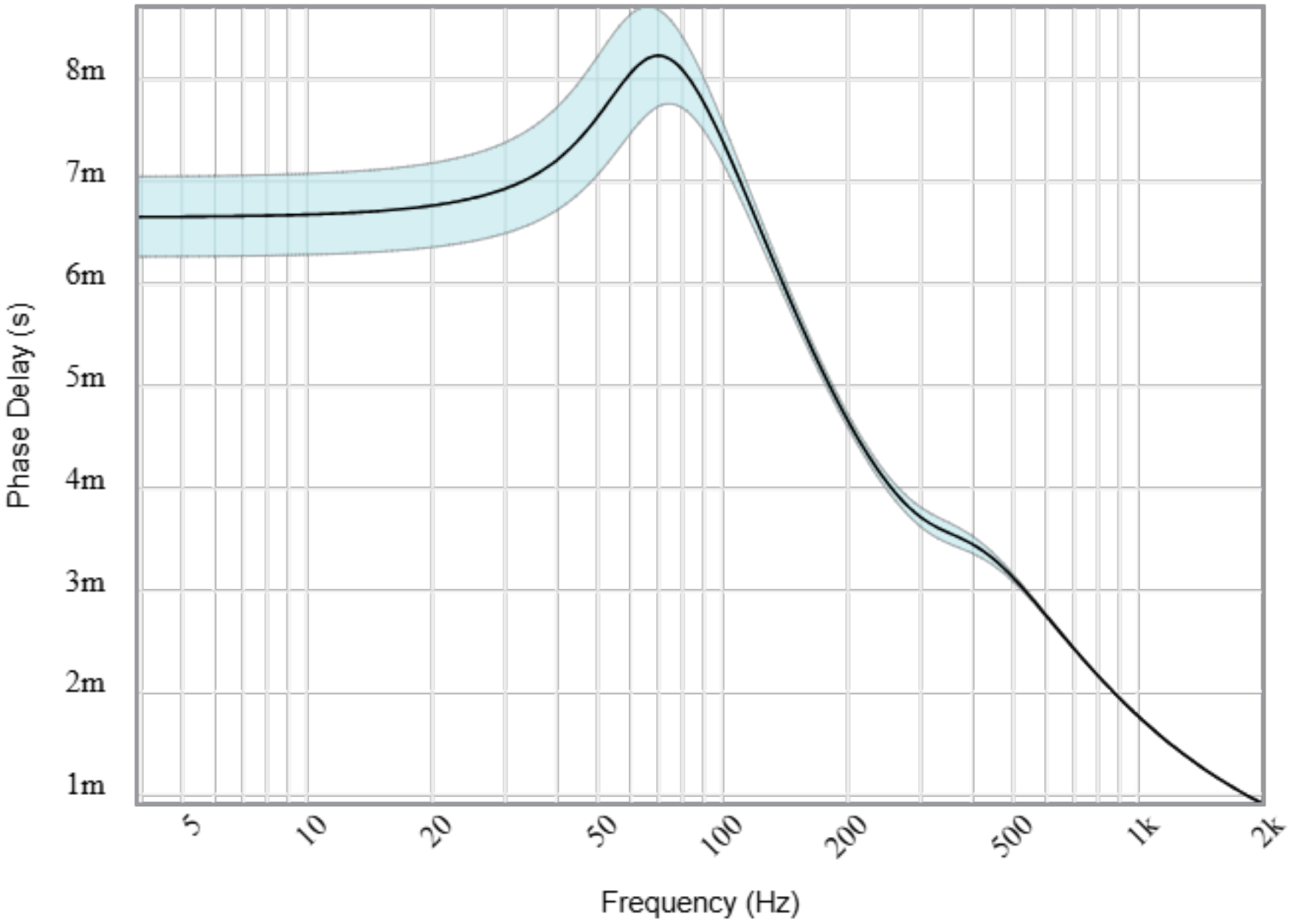
Phase(radians)



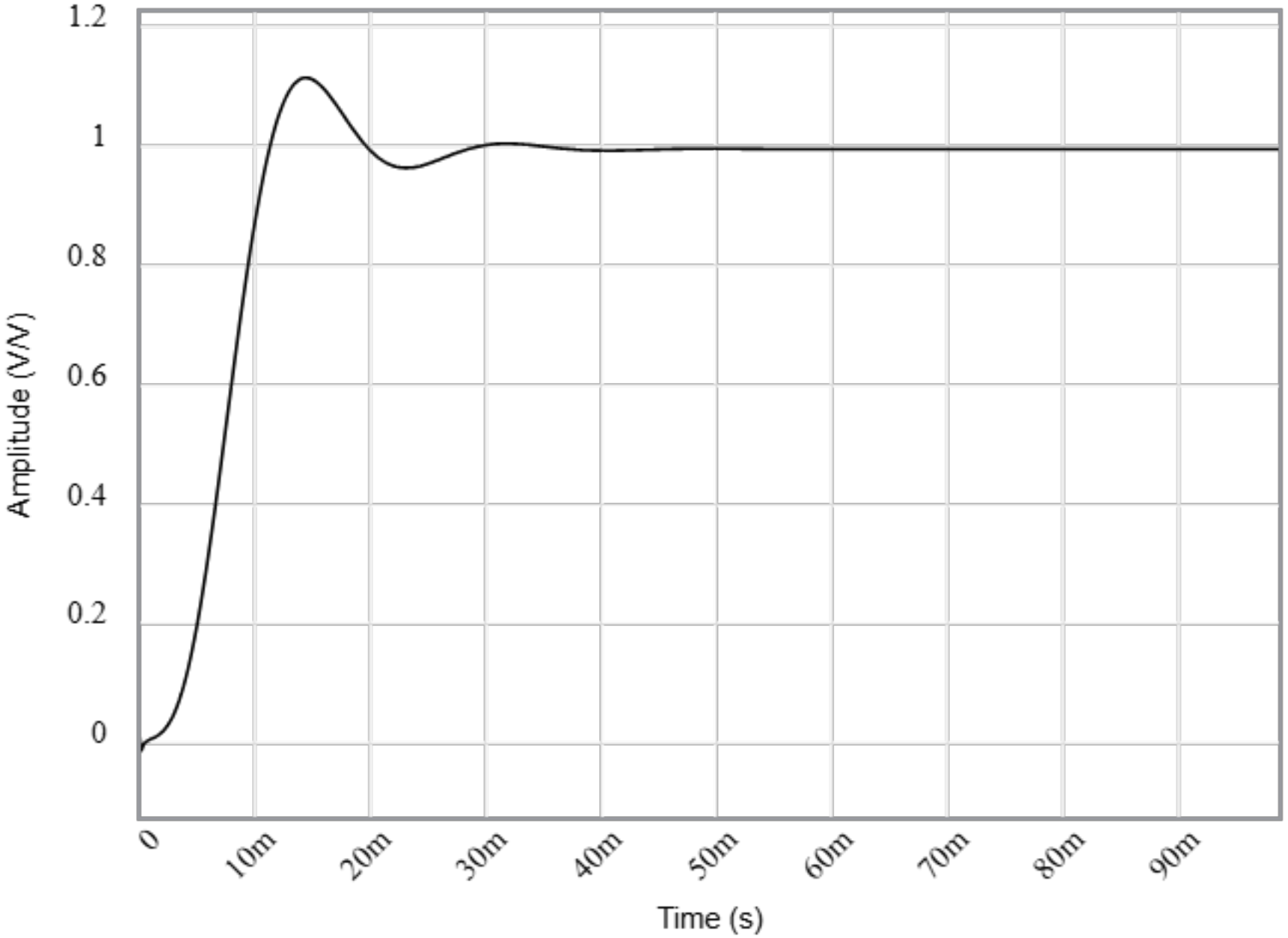
Group Delay


12m
10m
8m
6m
4m
2m
Group Delay (s)
5
10
20
50
100
200
500
1k
Frequency (Hz)

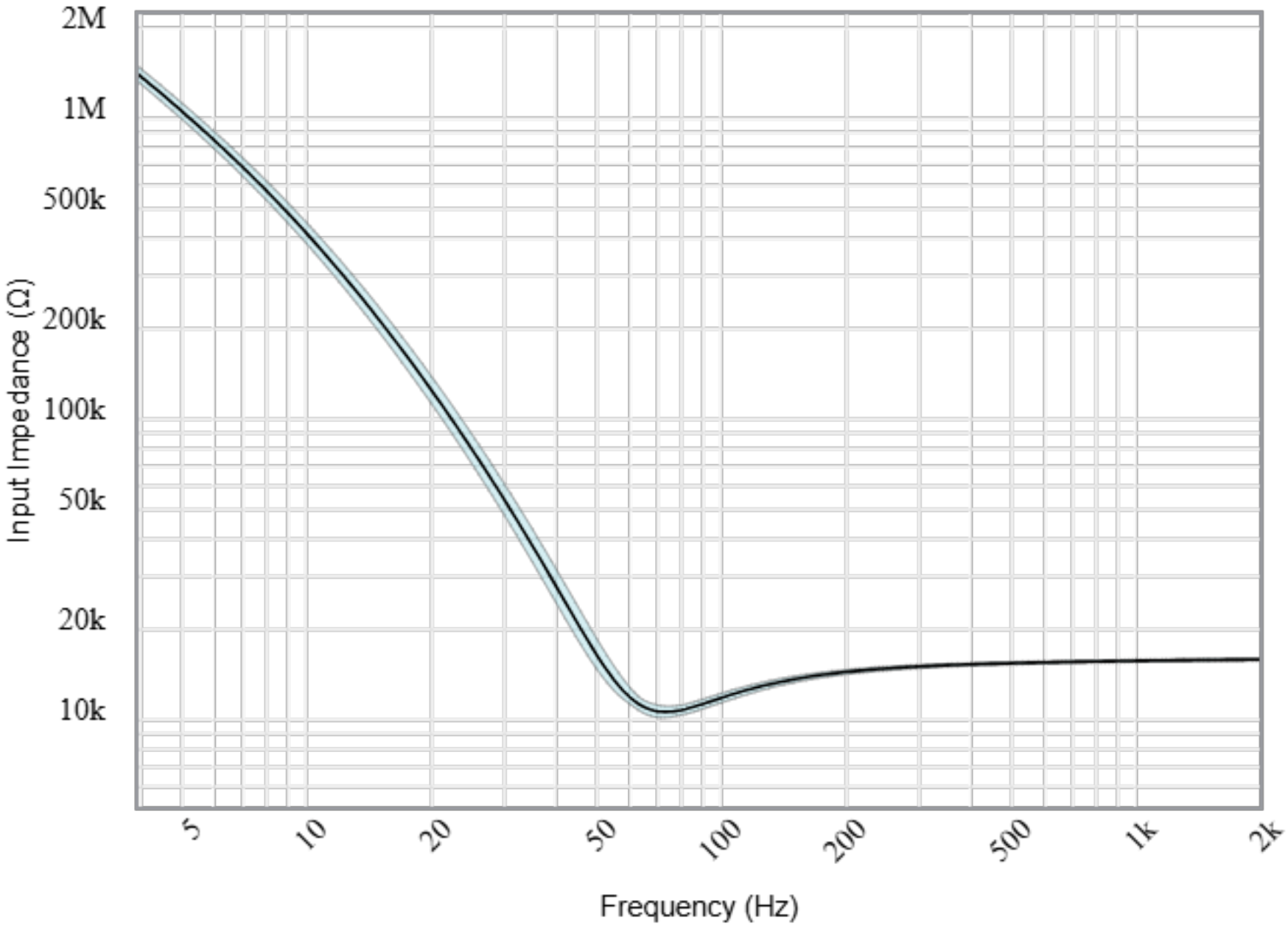
Phase Delay


8m
7m
6m
5m
4m
3m
2m
1m
Phase Delay (s)
5
10
20
50
100
200
500
1k
2k
Frequency (Hz)

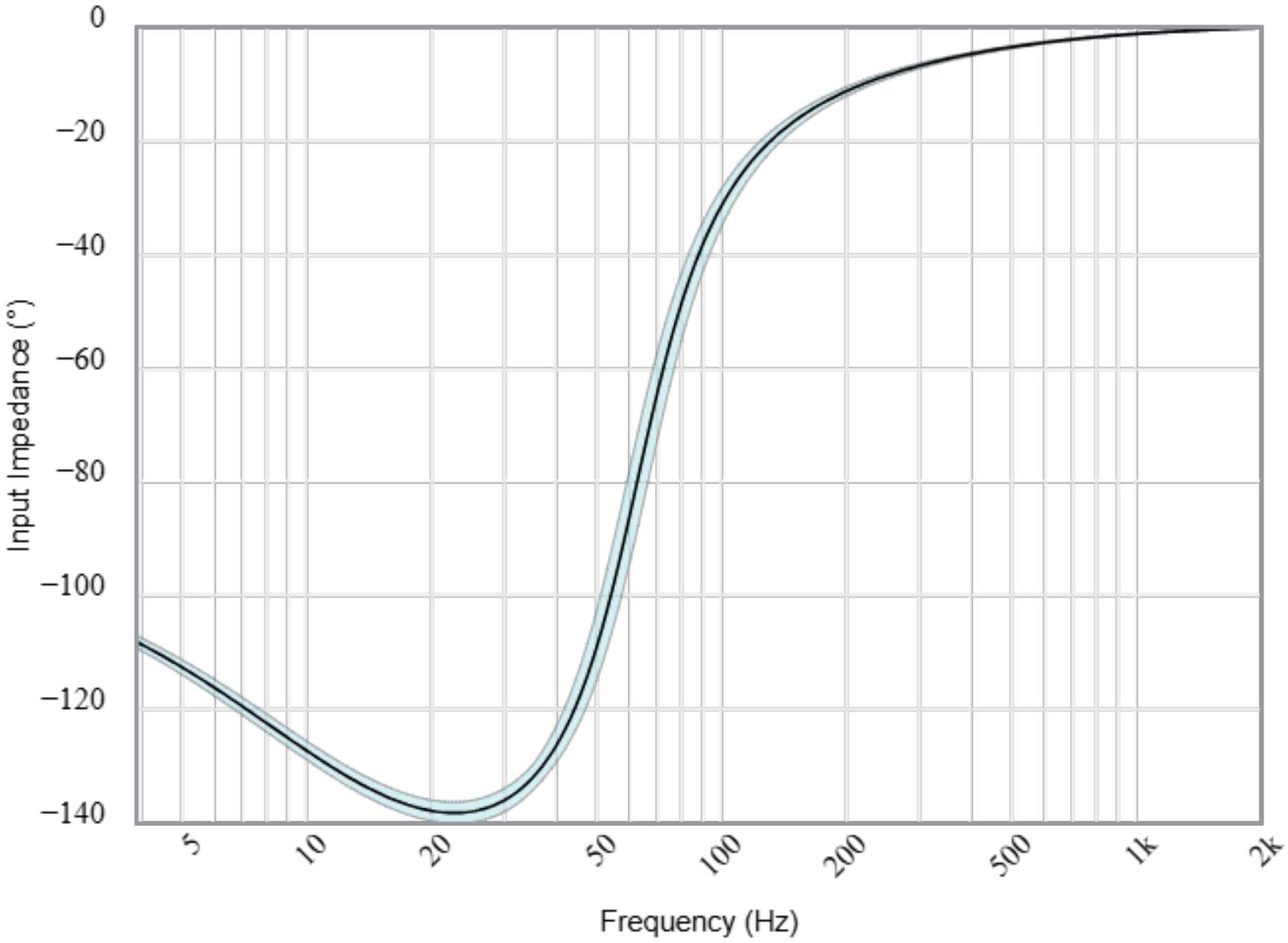
Step Response



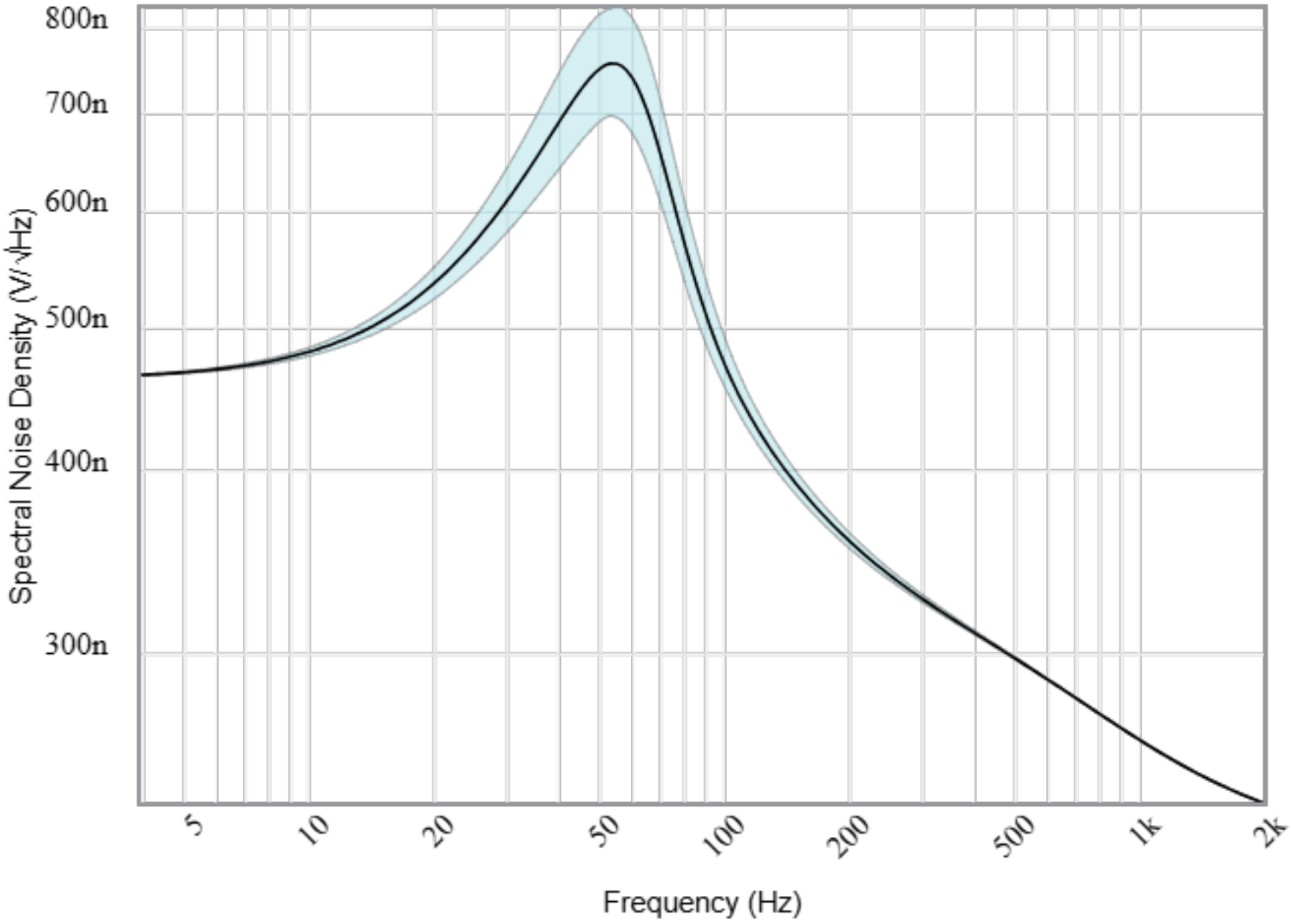
Input Impedance Magnitude



Input Impedance Phase



Noise


800n
700n
600n
500n
400n
300n
Spectral Noise Density (V/√Hz)
5
10
20
50
100
200
500
1k
2k
Frequency (Hz)

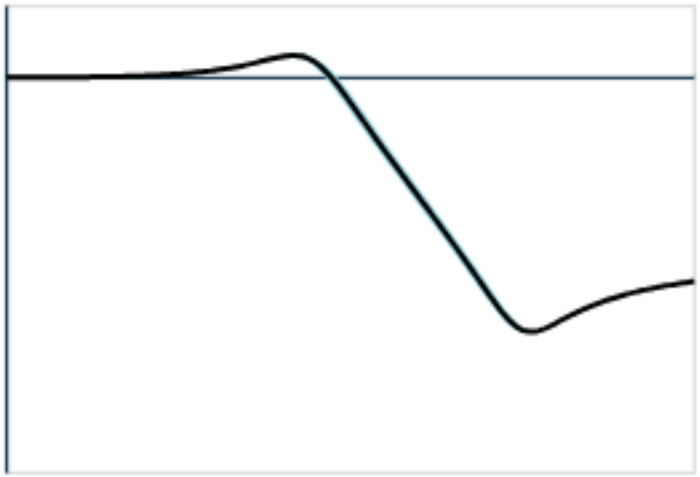
Stages

Your filter requires 2 op amp stage(s) with the following characteristics

A

2nd order Low-Pass Sallen Key

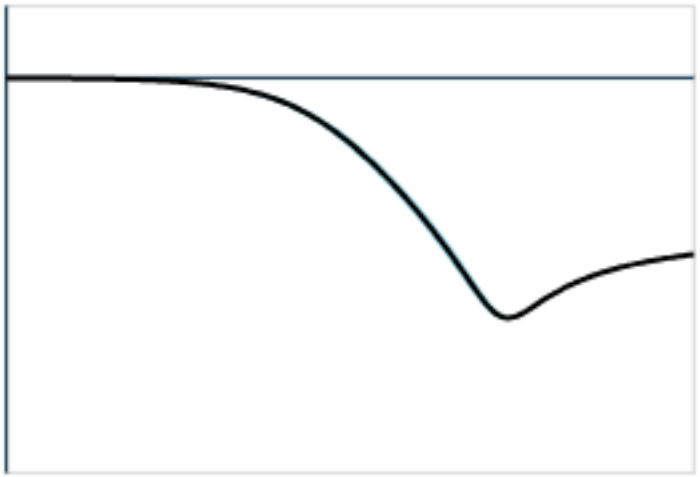
	Target	Simulated
Gain (V/V):	1	0.998 to 0.998
f_p (Hz):	64	58.5 to 65.7
Q:	1.31	1.26 to 1.4



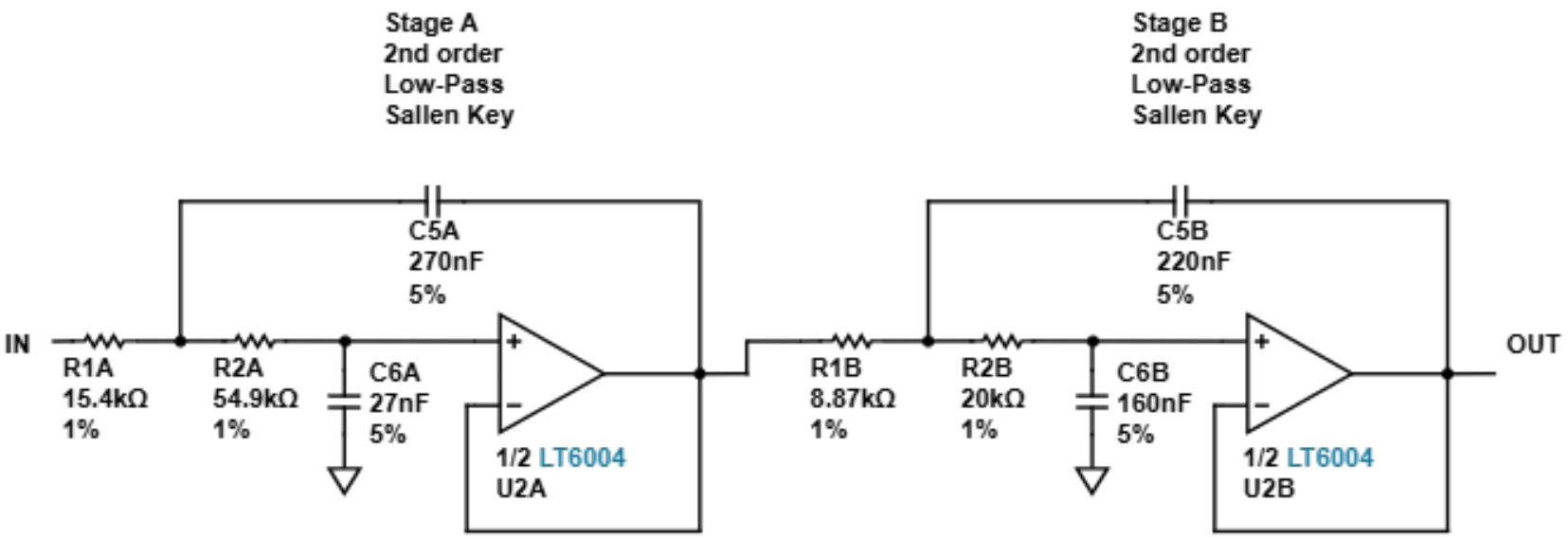
B

2nd order Low-Pass Sallen Key

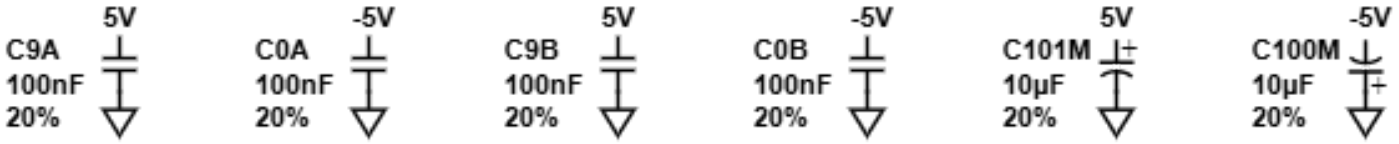
	Target	Simulated
Gain (V/V):	1	0.998 to 0.998
f_p (Hz):	64	56.6 to 63.3
Q:	541m	536m to 592m



Circuit



BYPASS CAPACITORS



SPARES Why The Spares?