Filter Wizard

Filter Wizard Design

Created on 06/20/2025

ANALOG DEVICES

Filter Wizard Design Report

Filter Requirements for Low-Pass, 4th order Chebyshev

Specifications: Optimize: Specific Parts; +Vs: 12; -Vs: -12

Gain: 0 dB

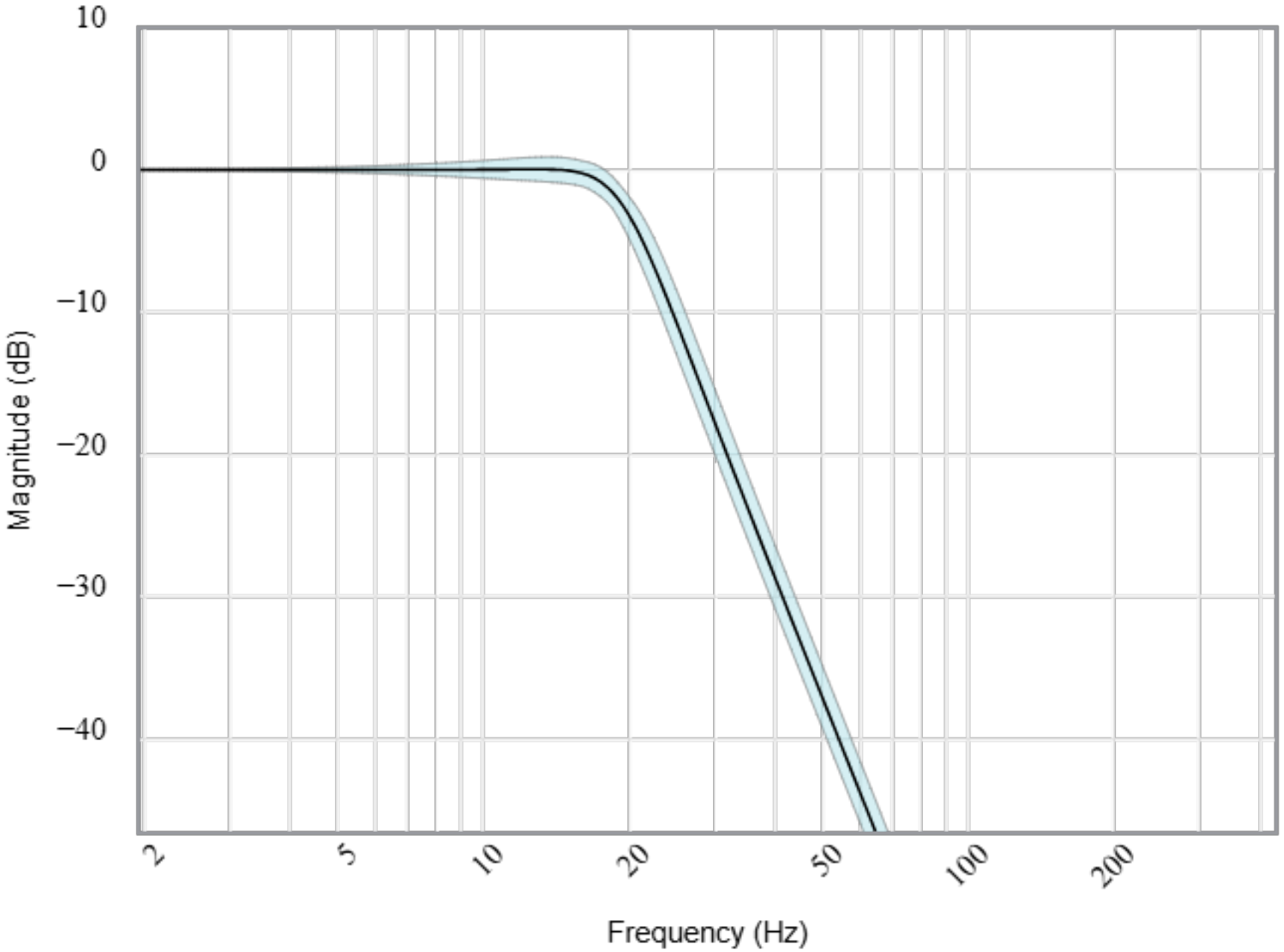
Passband: -3dB at 20Hz

Stopband: -26.6dB at 42.5Hz

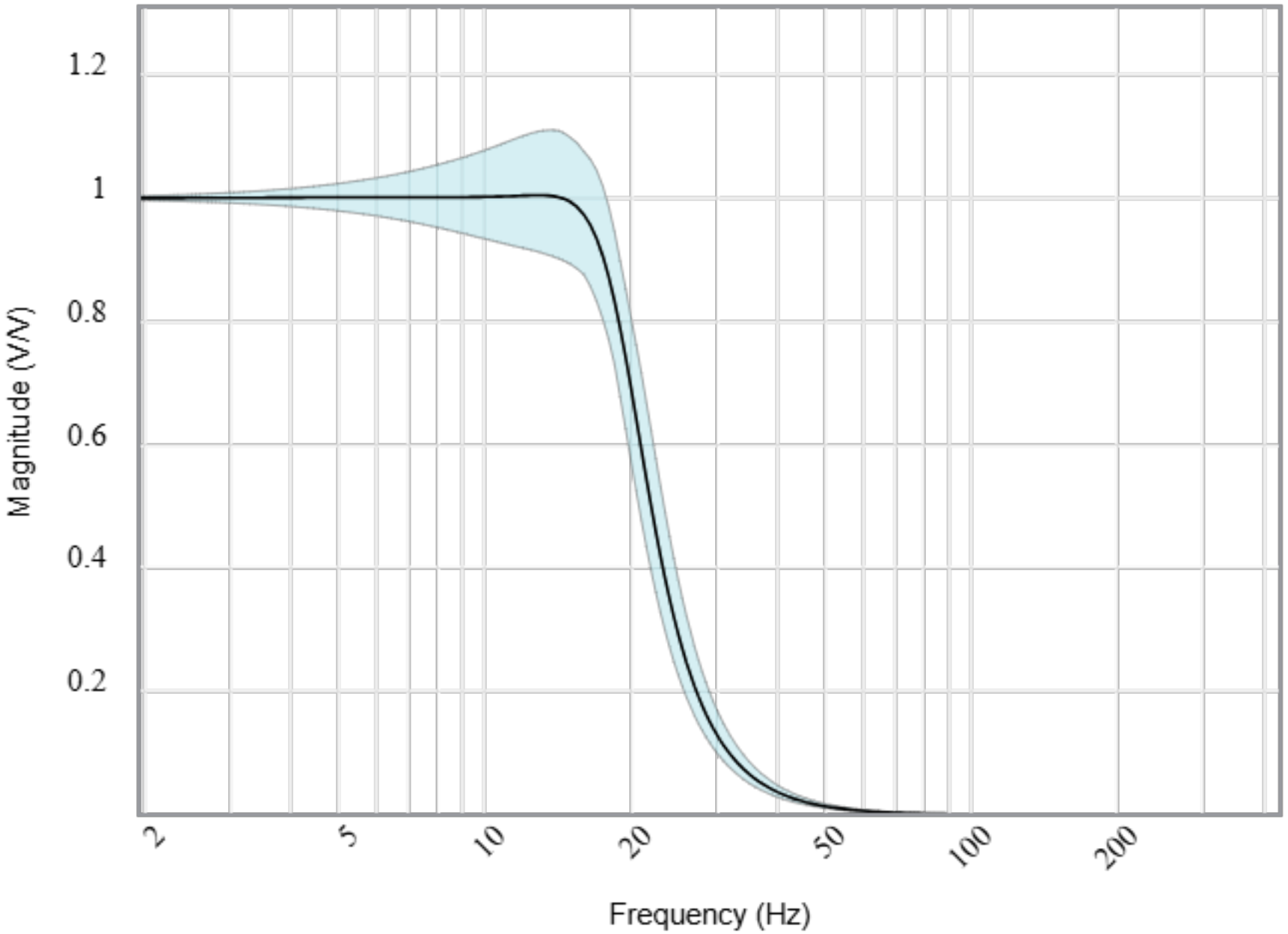
Component Tolerances: Capacitor = 5%; Resistor = 1%; Inductor = 5%; Op Amp GBW = 20%

BOM: refer to BOM.csv file

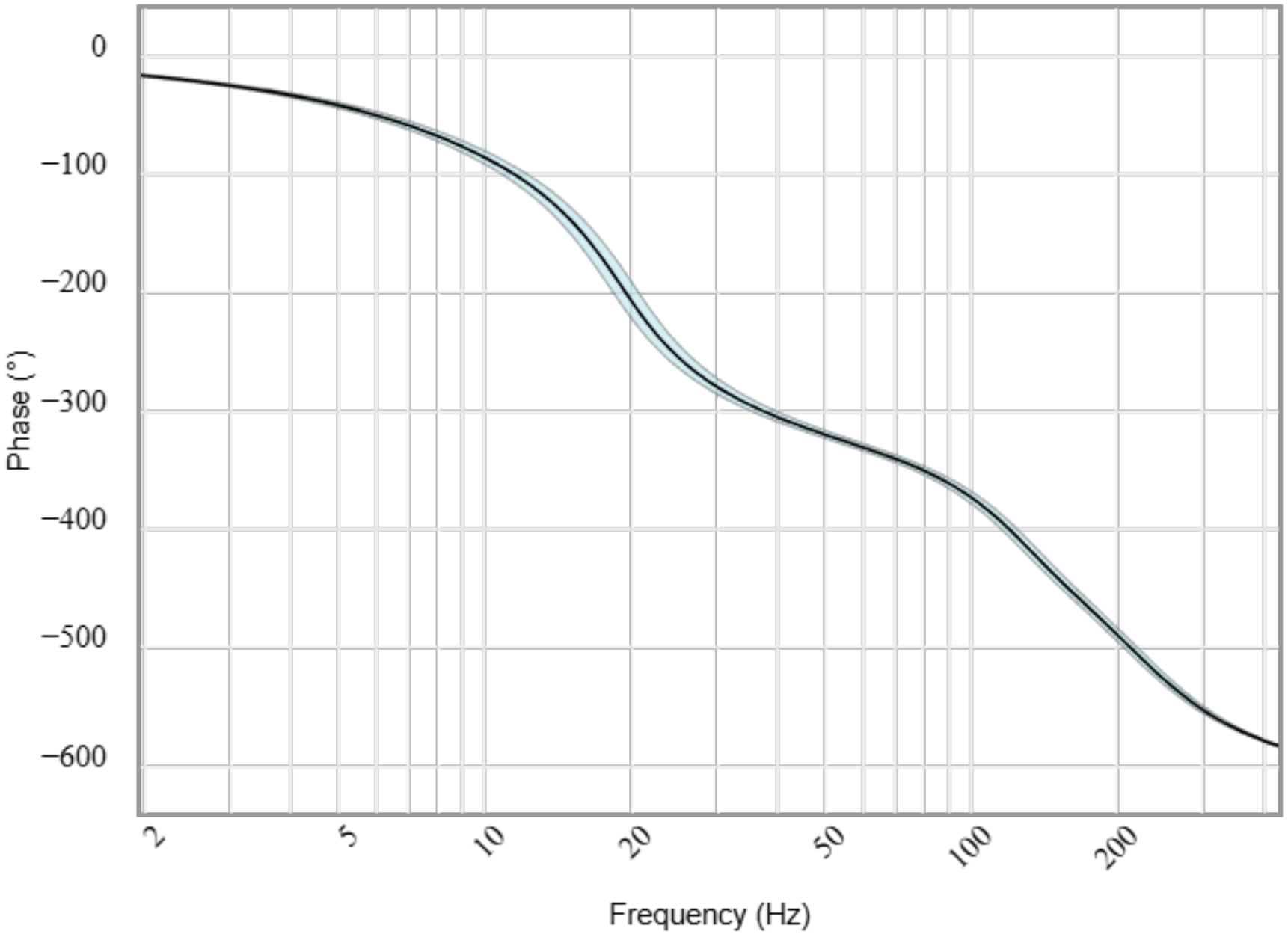
Magnitude(dB)



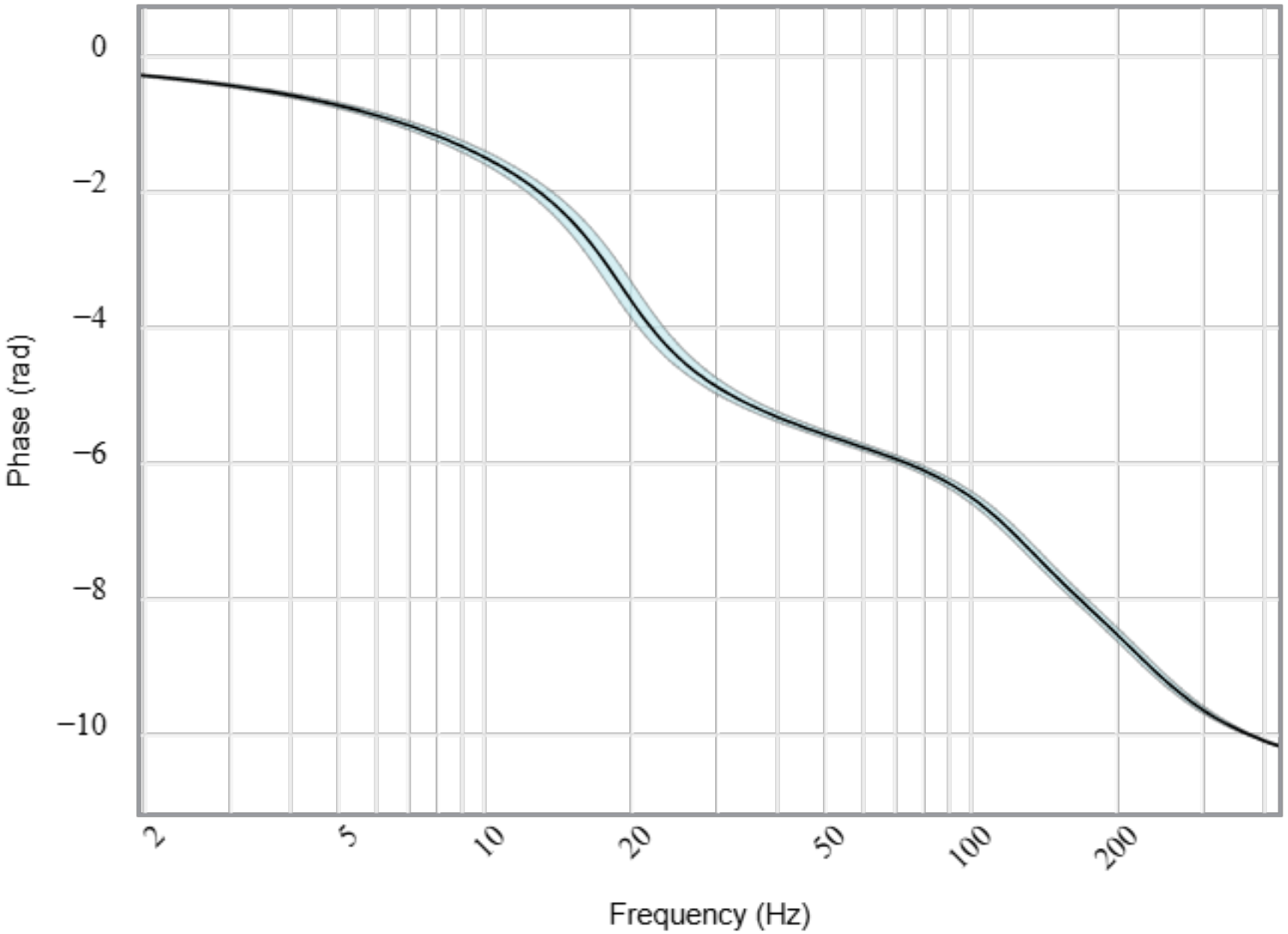
Magnitude(Volts per Volt)



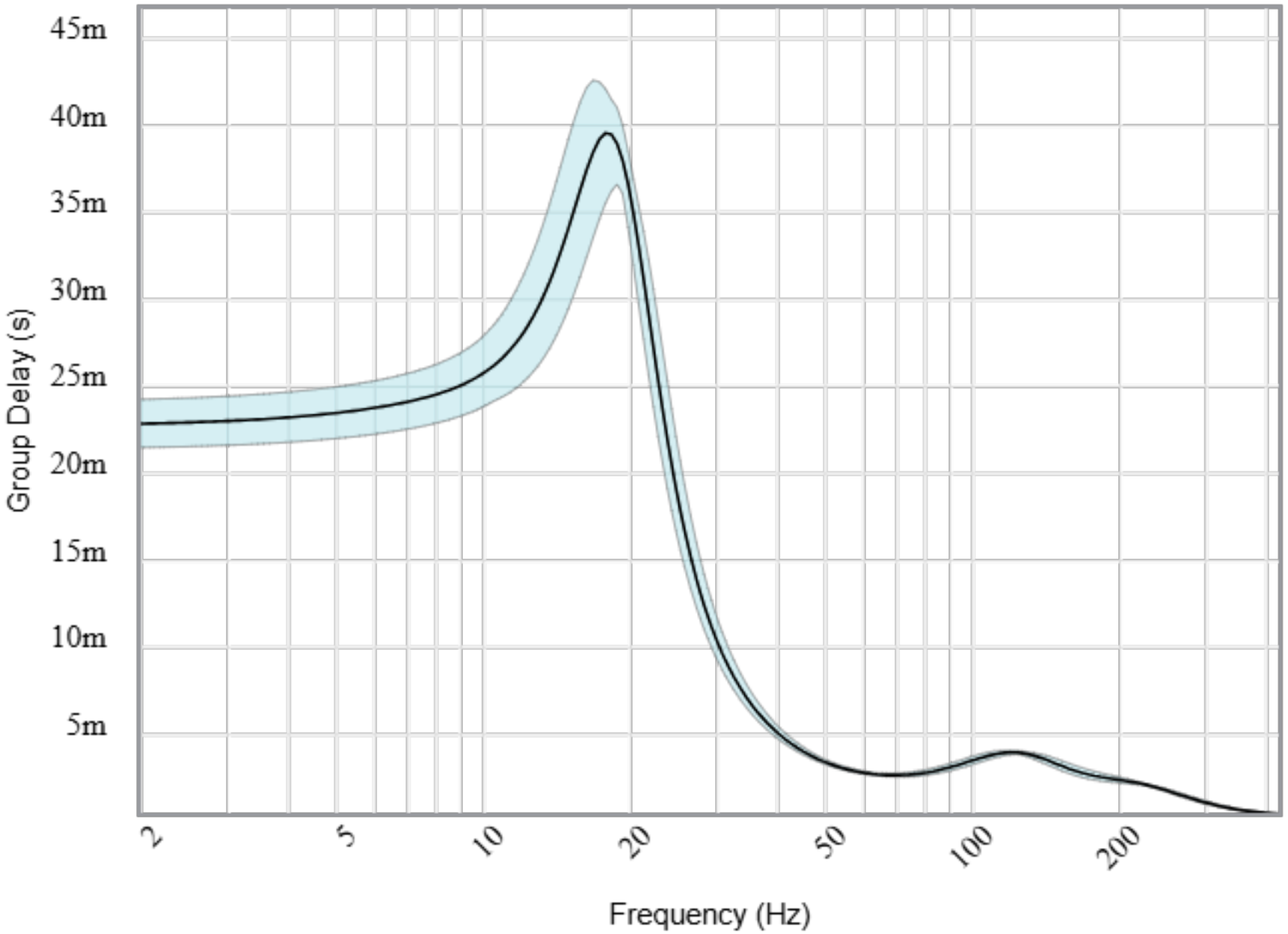
Phase(degrees)



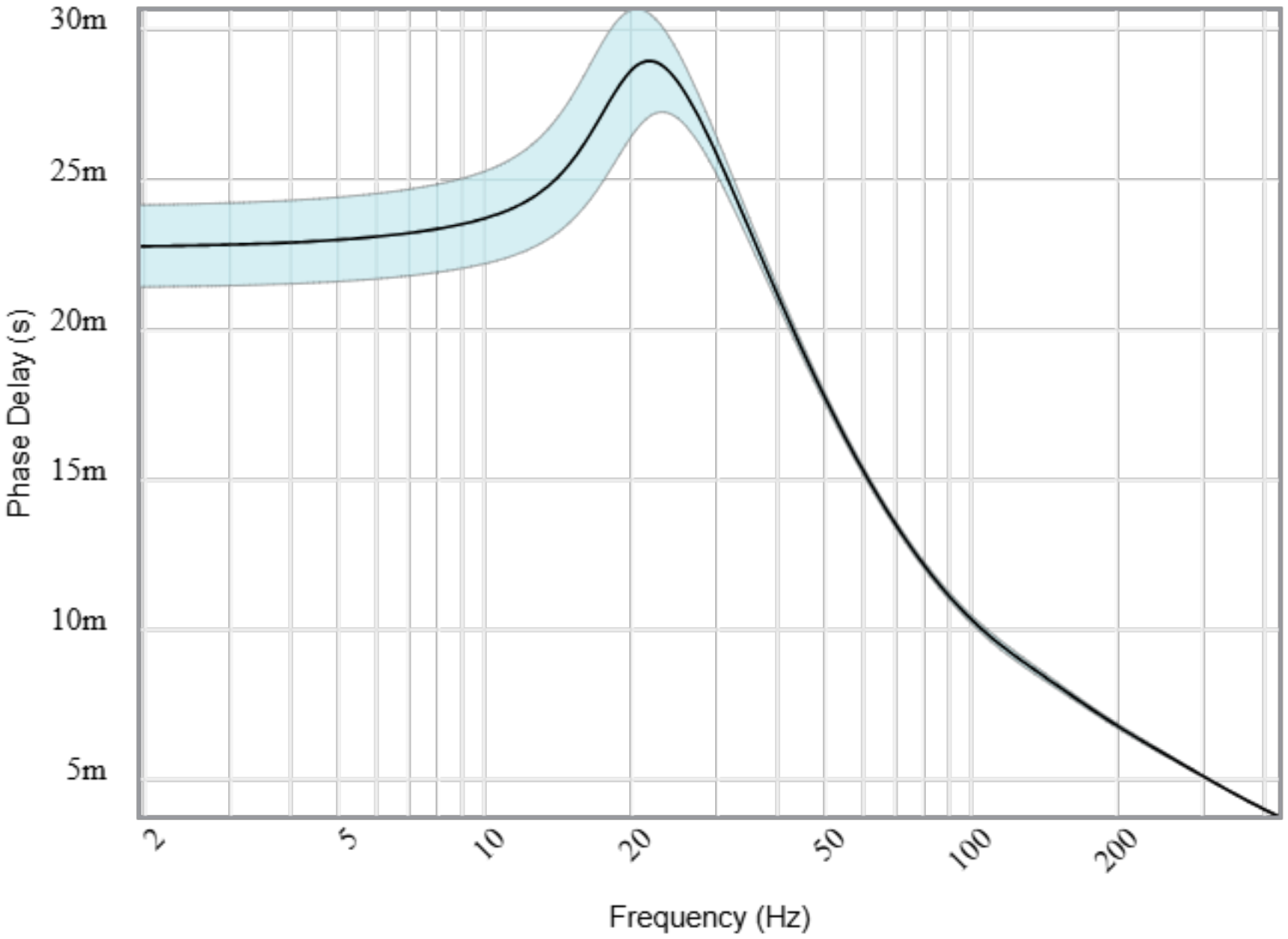
Phase(radians)



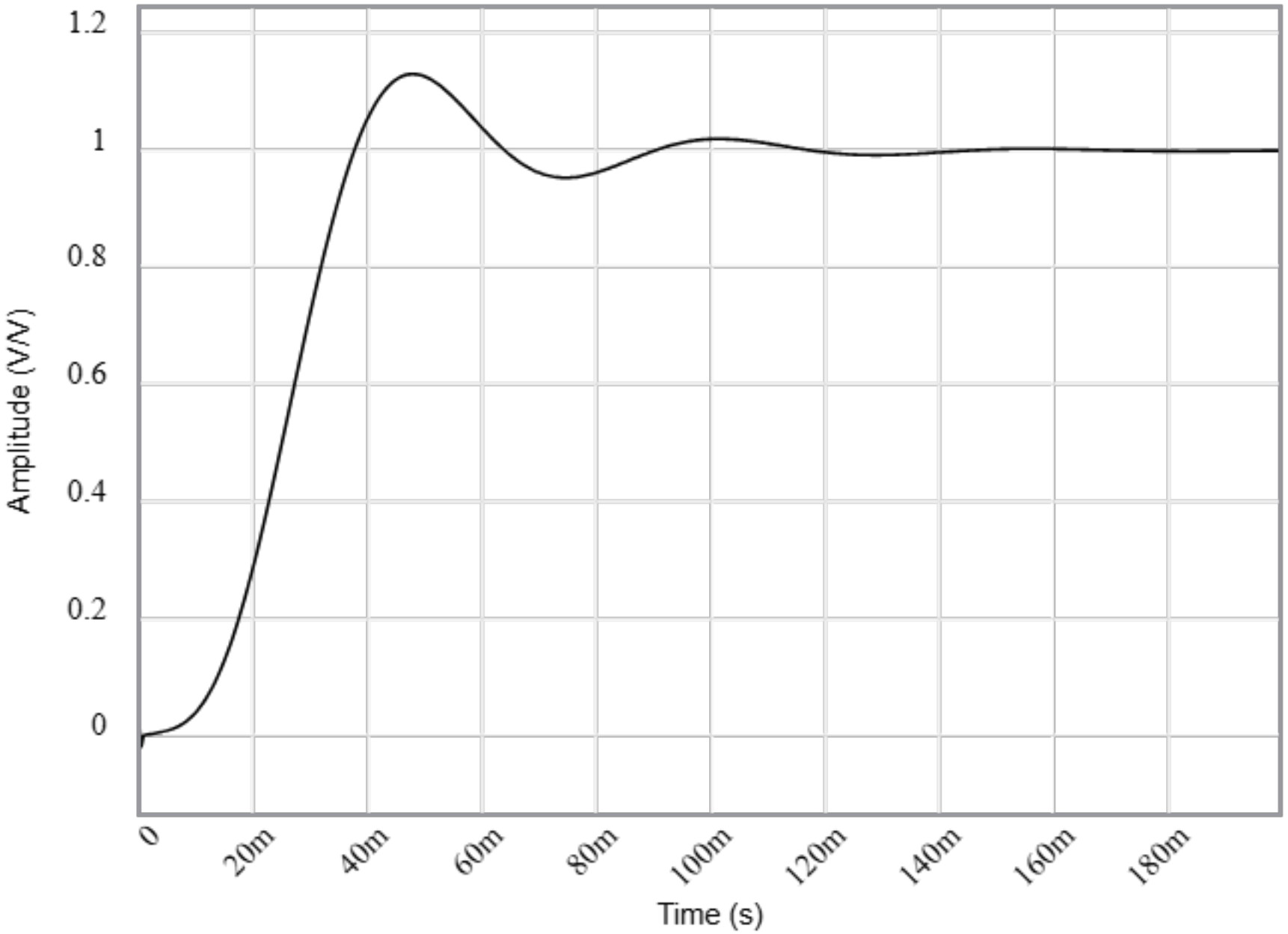
Group Delay


45m
40m
35m
30m
25m
20m
15m
10m
5m
Group Delay (s)
2
5
10
20
50
100
200
Frequency (Hz)

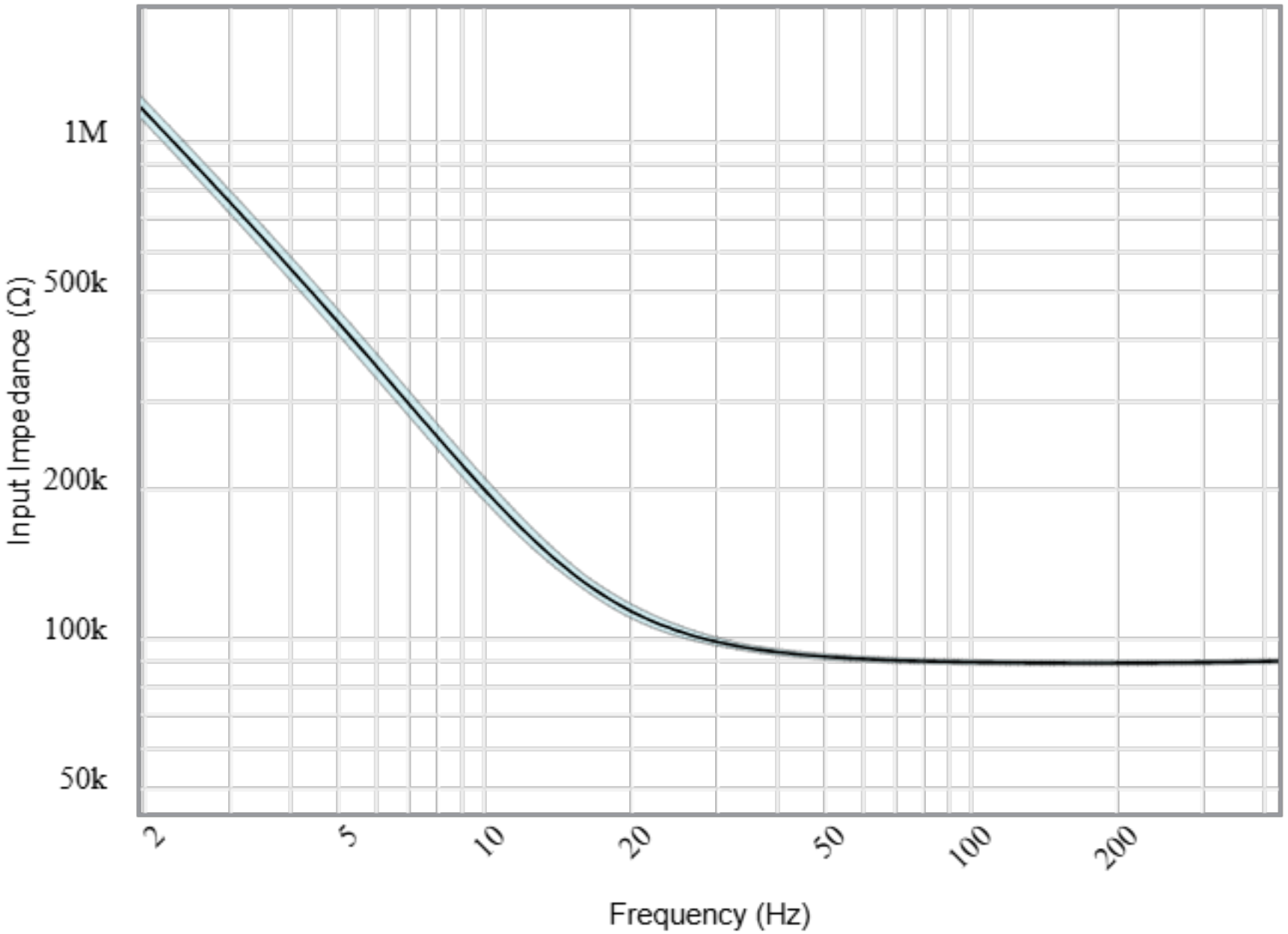
Phase Delay


30m
25m
20m
15m
10m
5m
Phase Delay (s)
2
5
10
20
50
100
200
Frequency (Hz)

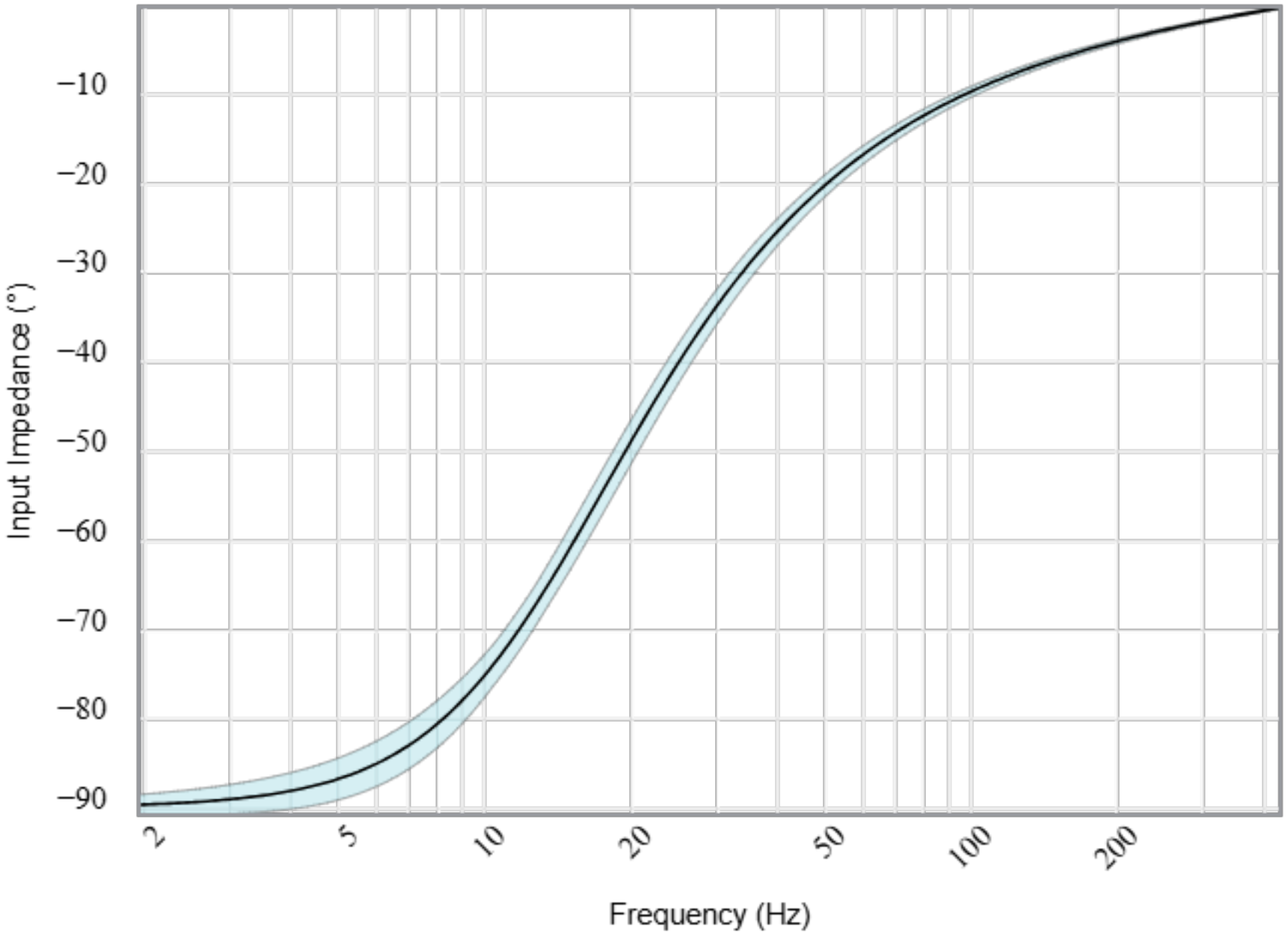
Step Response



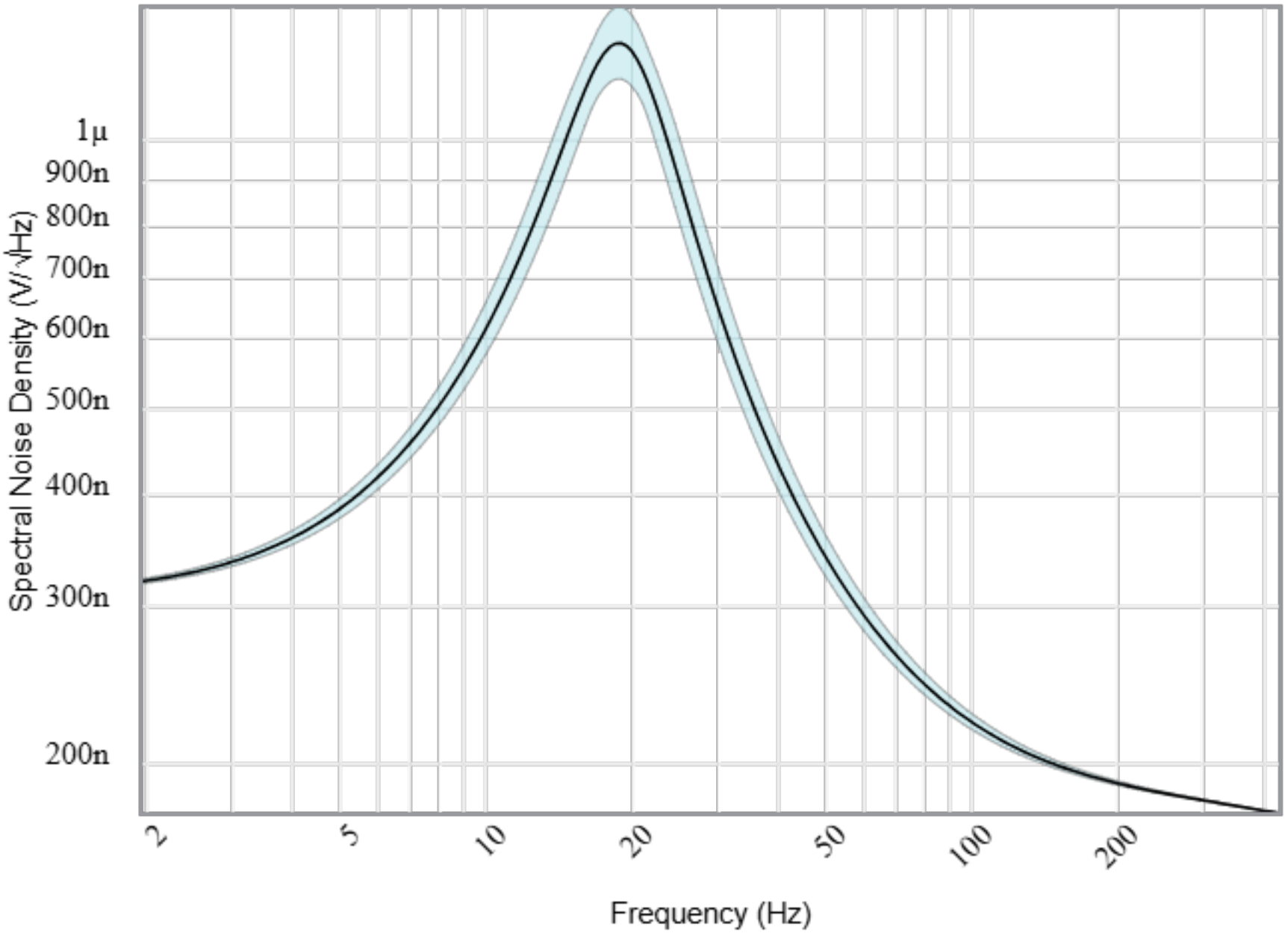
Input Impedance Magnitude



Input Impedance Phase



Noise

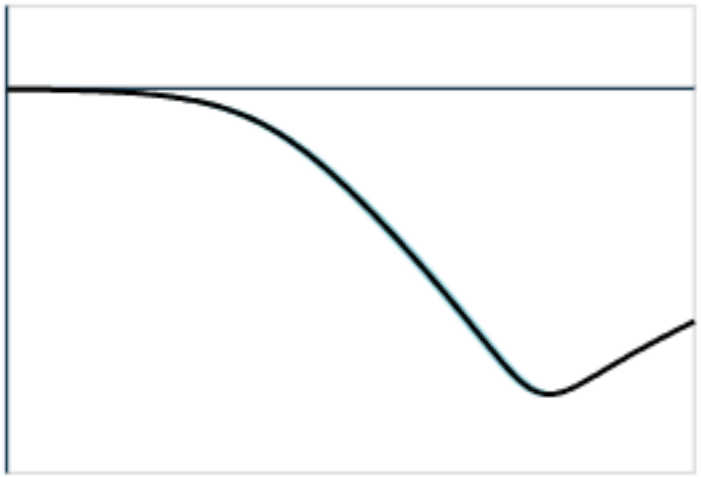

1µ
900n
800n
700n
600n
500n
400n
300n
200n
Spectral Noise Density (V/√Hz)
2
5
10
20
50
100
200
Frequency (Hz)

Stages

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

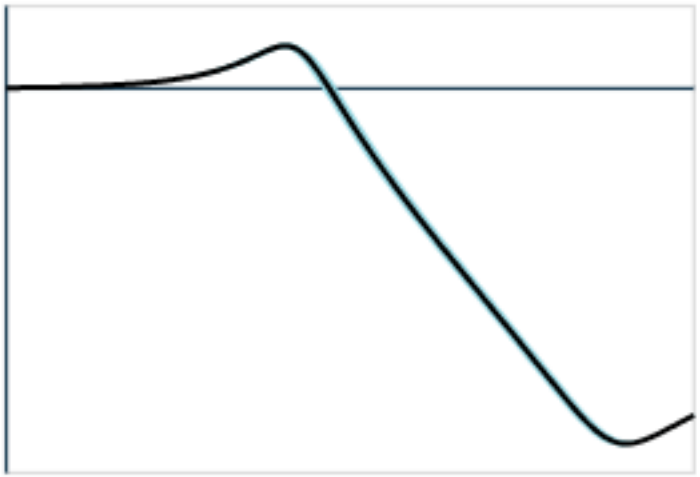
A — 2nd order Low-Pass Sallen Key

	Target	Simulated
Gain (V/V):	1	0.999 to 0.999
f_p (Hz):	15.5	14.4 to 16.2
Q:	575m	550m to 611m

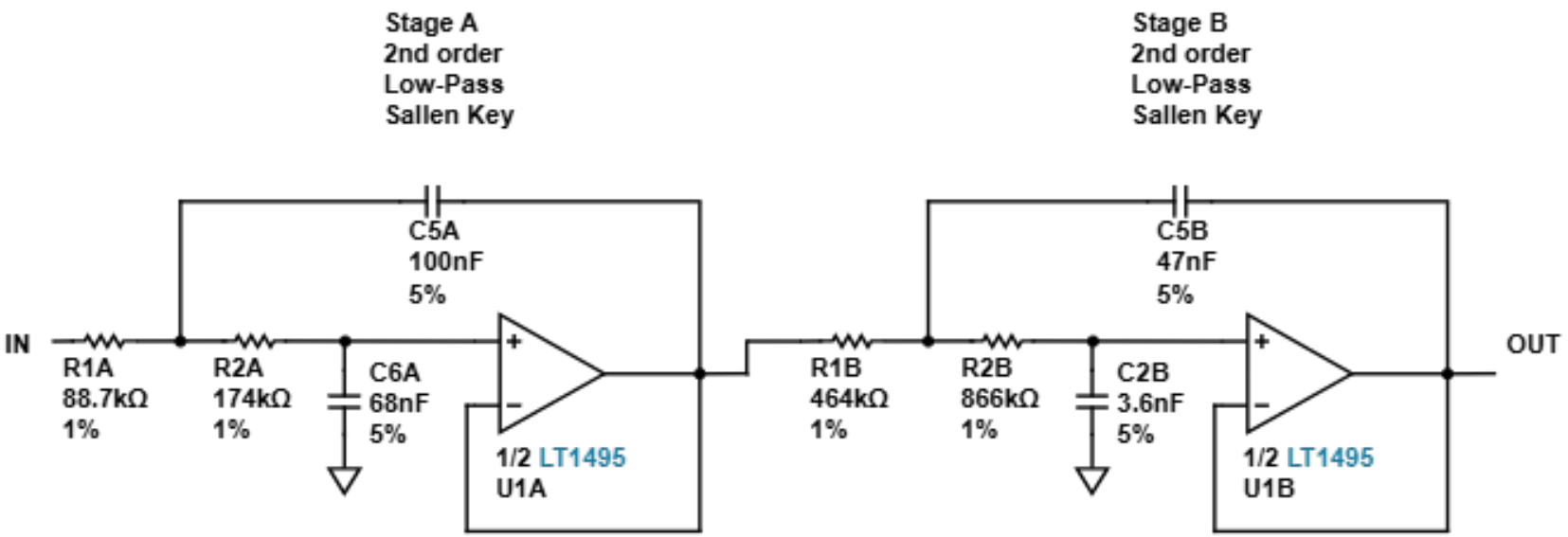


B — 2nd order Low-Pass Sallen Key

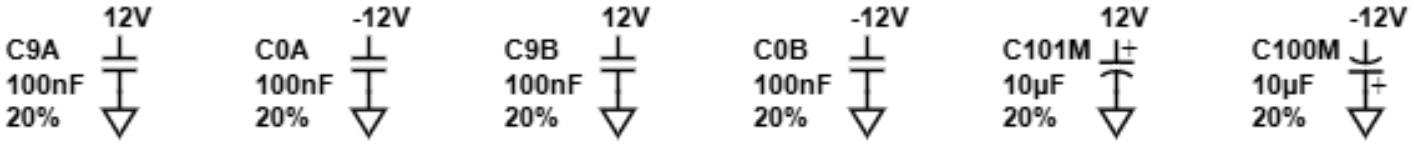
	Target	Simulated
Gain (V/V):	1	0.999 to 0.999
f_p (Hz):	19.3	18 to 20.3
Q:	1.72	1.65 to 1.83



Circuit



BYPASS CAPACITORS



SPARES Why The Spares?