Filter Wizard

Filter Wizard Design

Created on 05/30/2025

ANALOG DEVICES

Filter Wizard Design Report

Filter Requirements for Band-Pass, 6th order Chebyshev

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

Gain: 0 dB

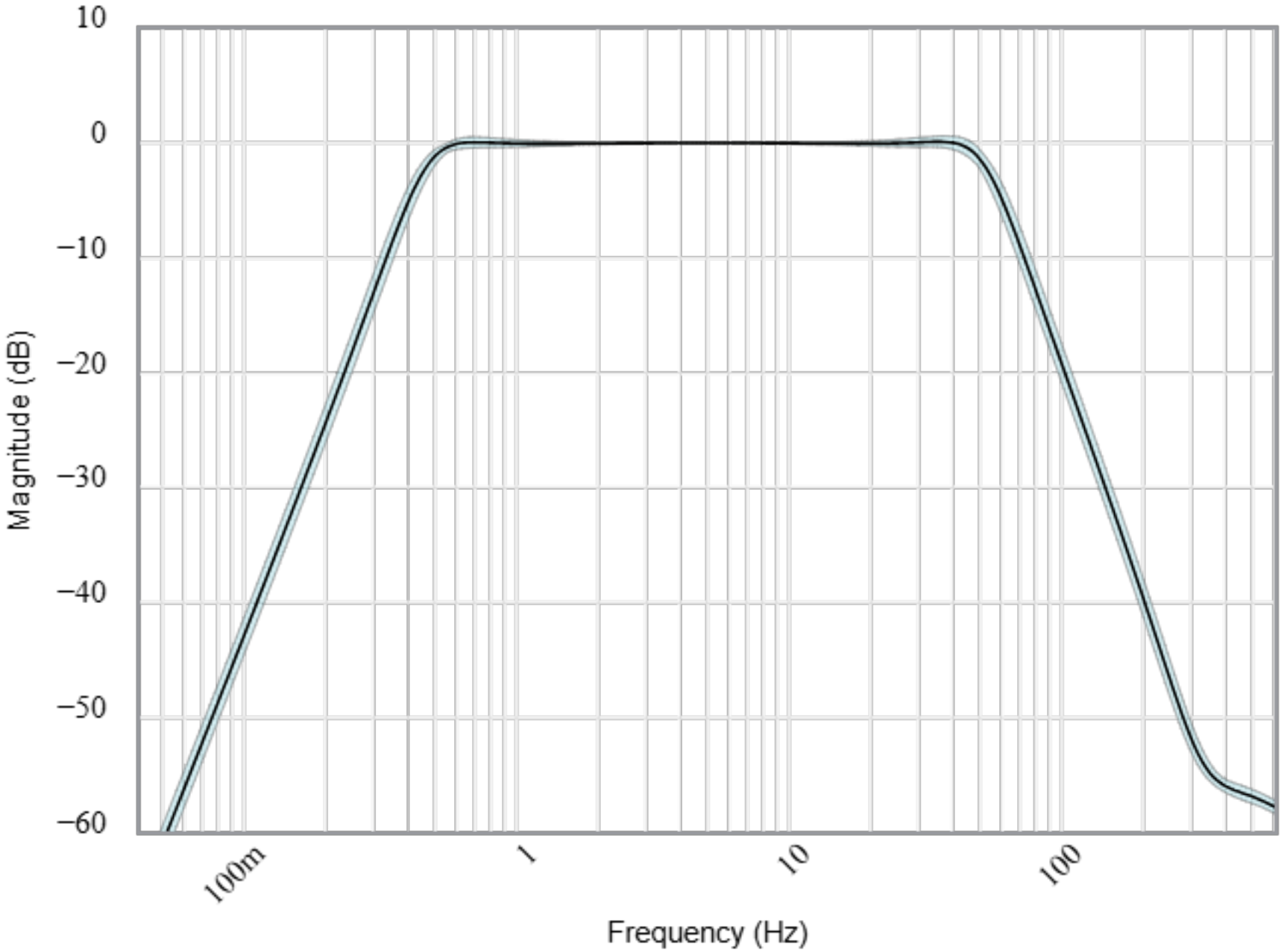
Passband: -0.1dB at 40Hz

Stopband: -40dB at 300Hz

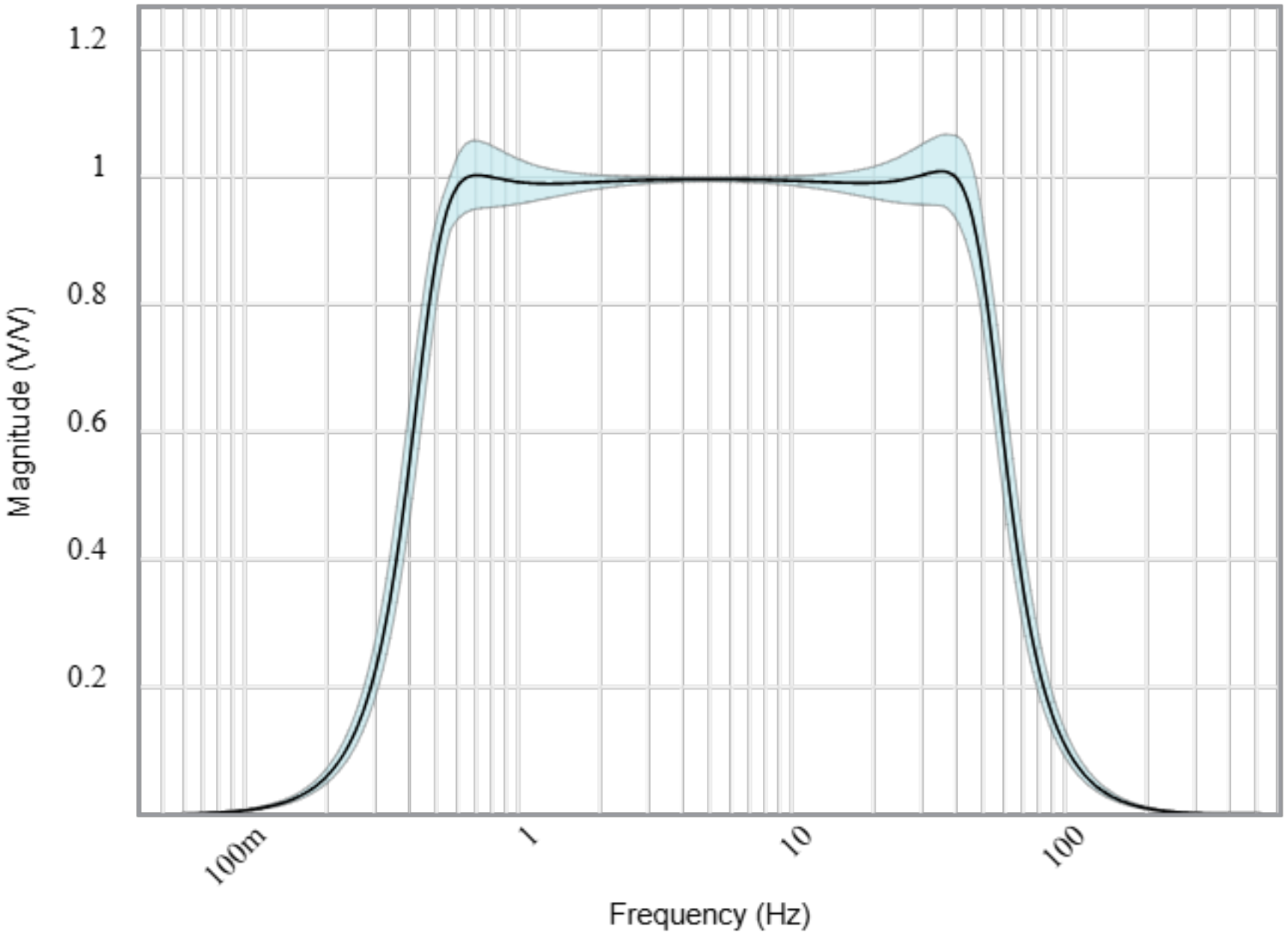
Component Tolerances: Capacitor = 5%; Resistor = 1%; Inductor = 5%; Op Amp GBW = 20%

BOM: refer to BOM.csv file

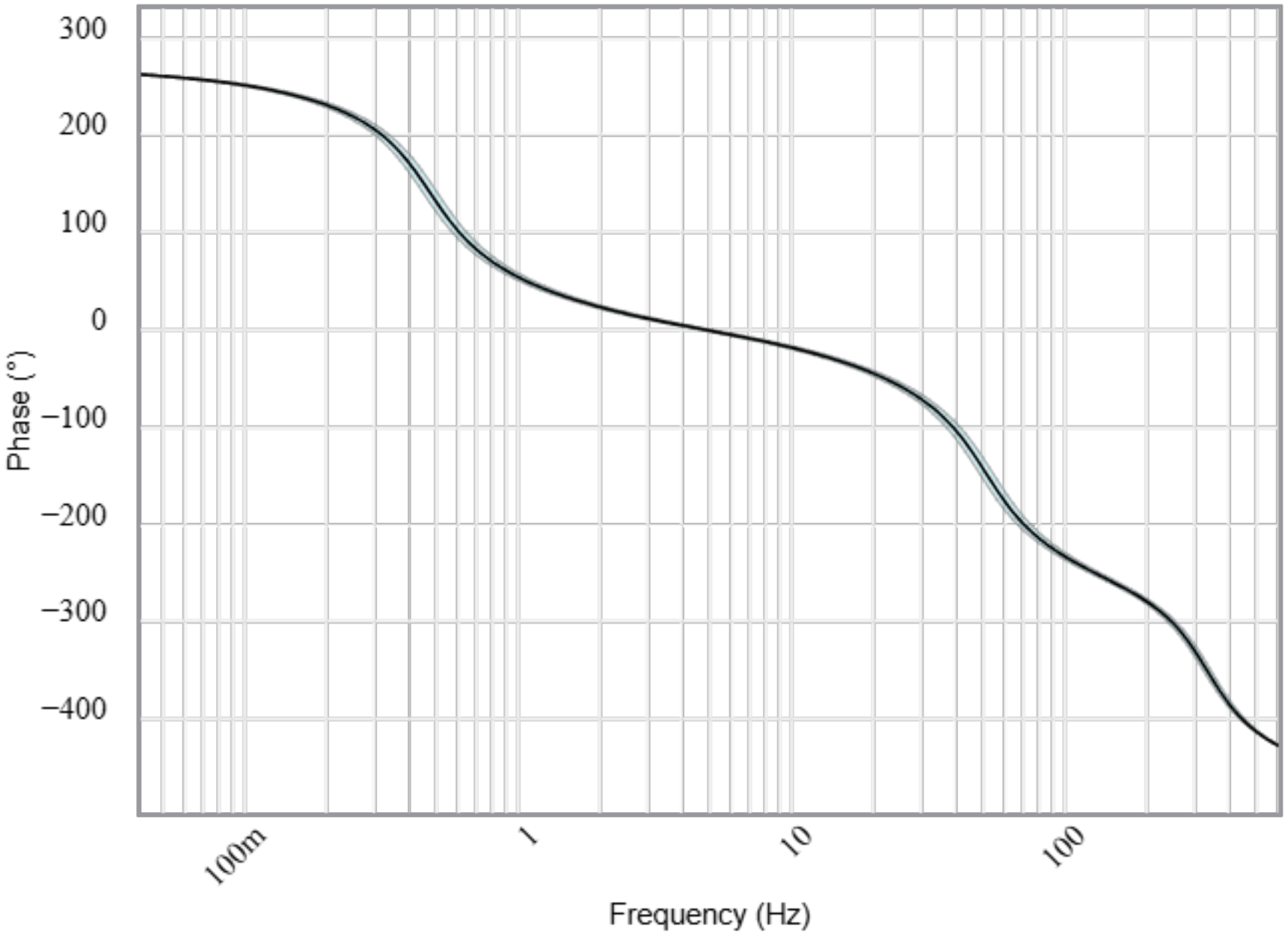
Magnitude(dB)



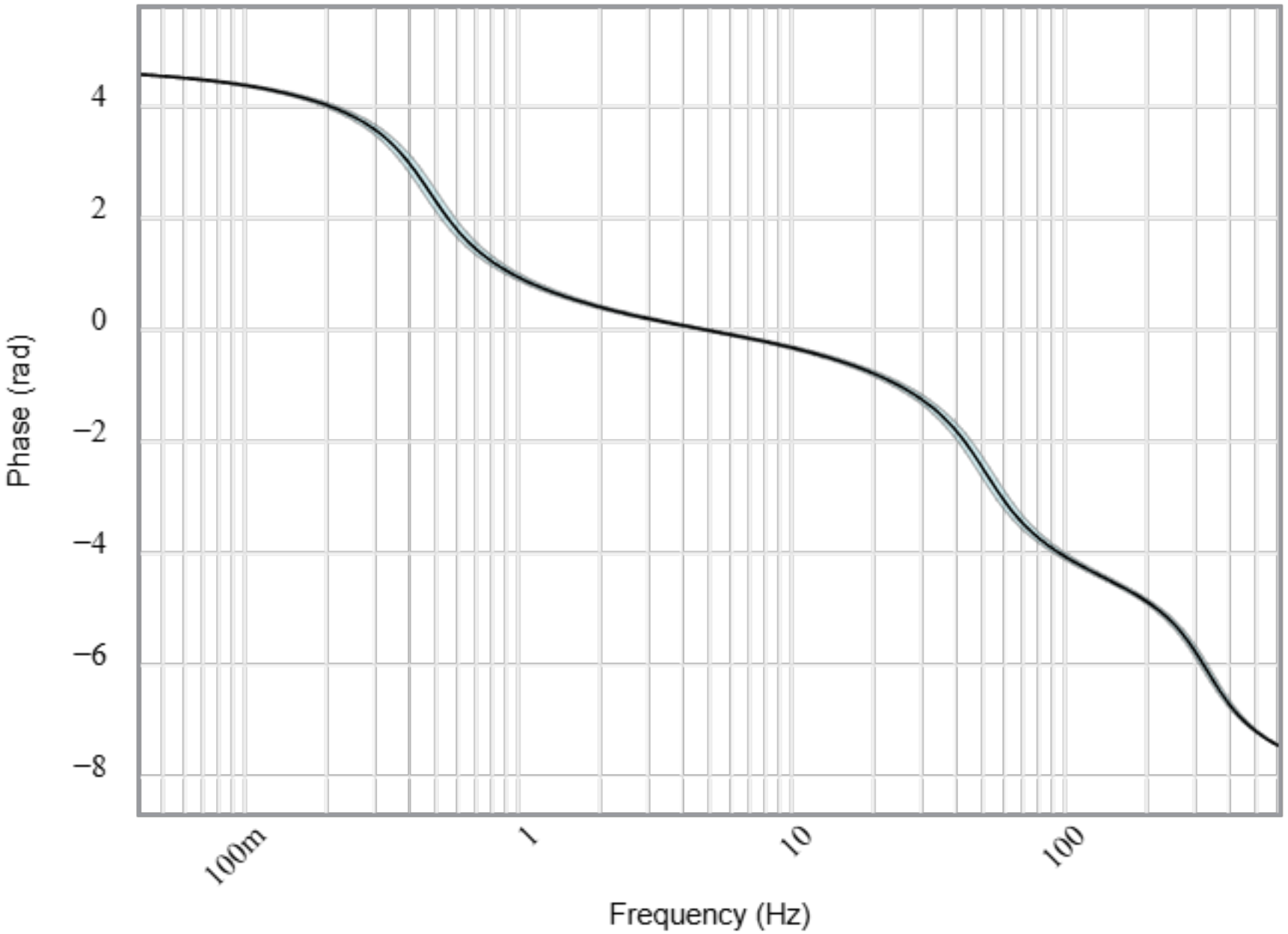
Magnitude(Volts per Volt)



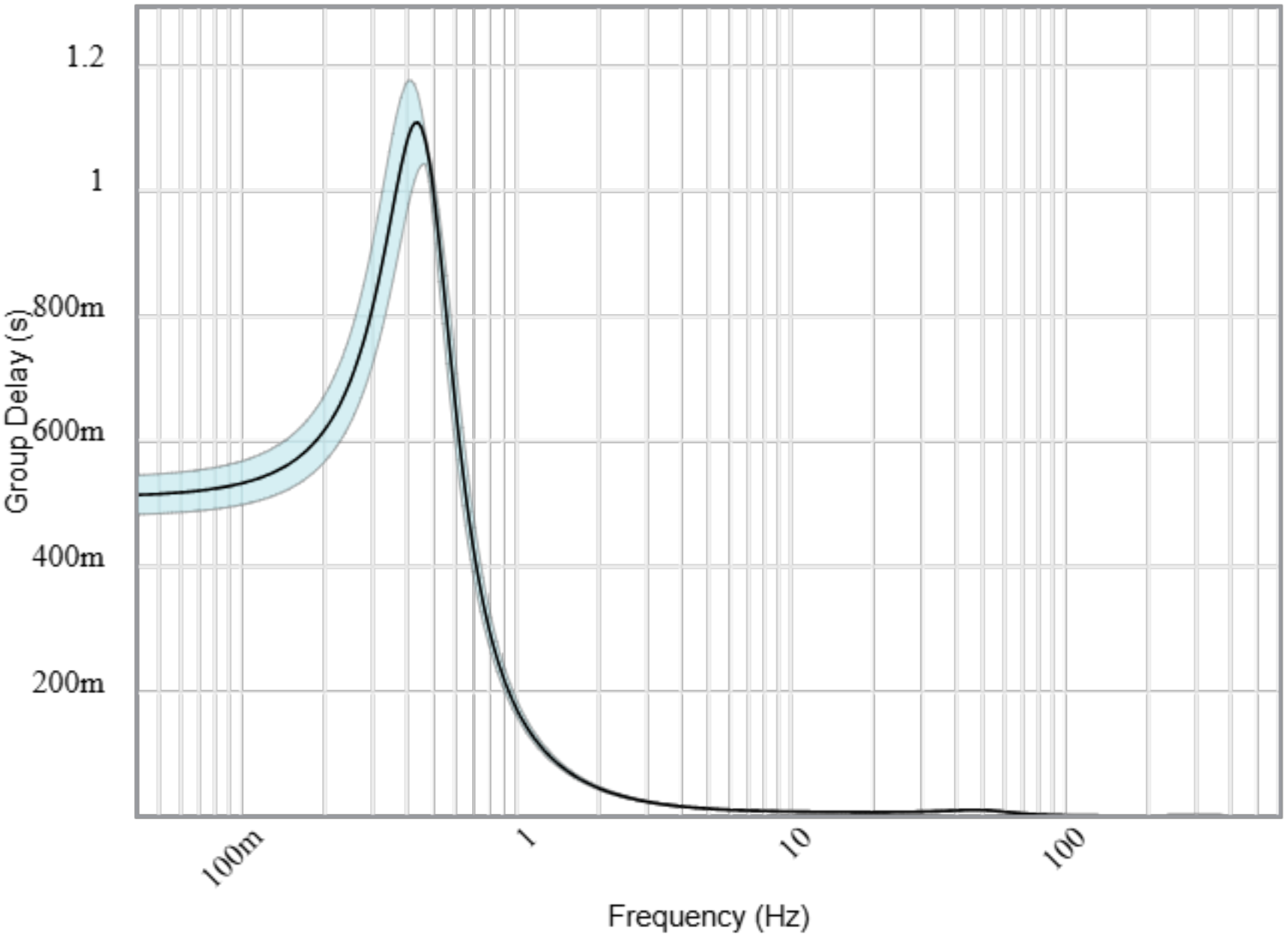
Phase(degrees)



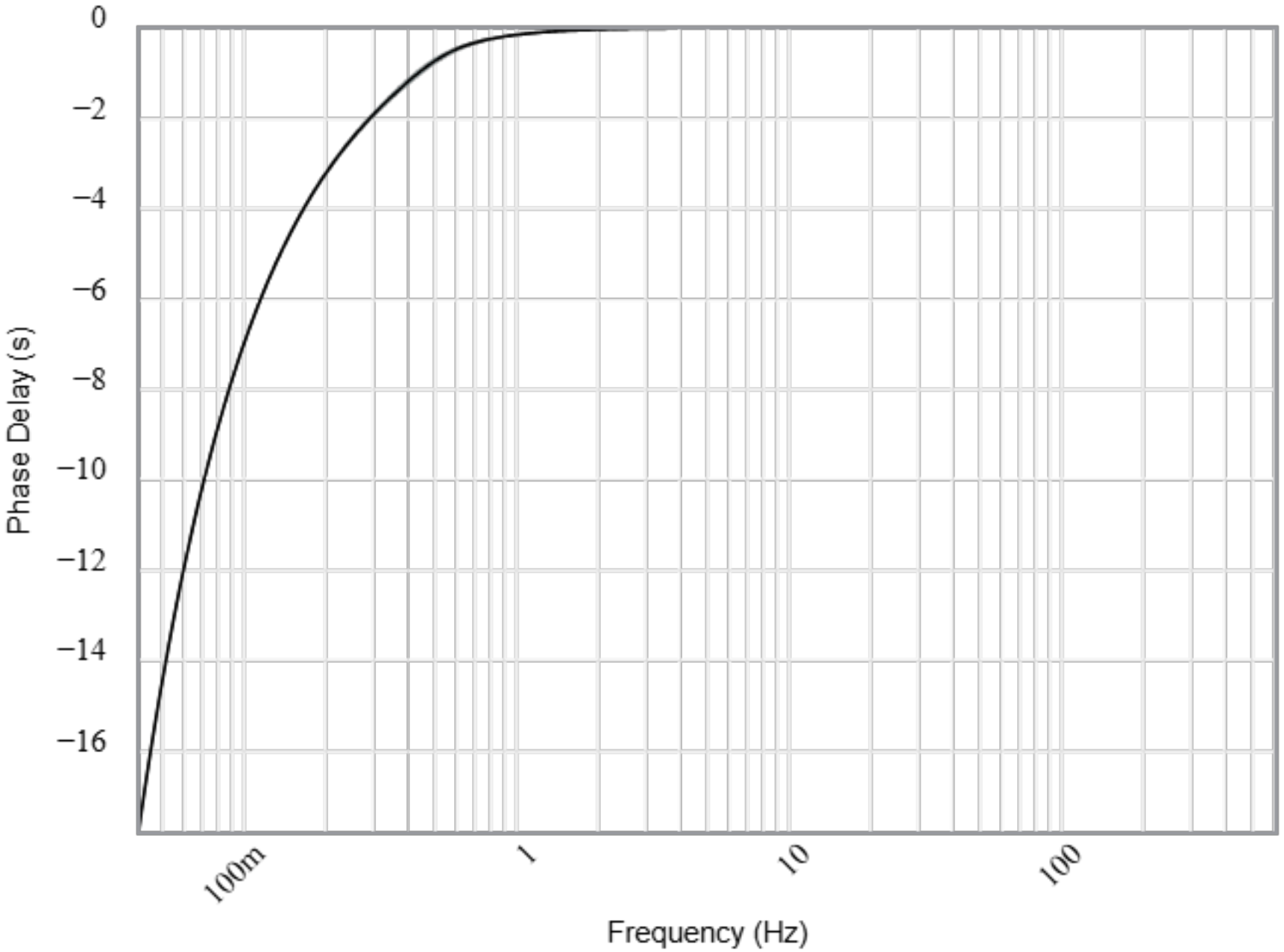
Phase(radians)



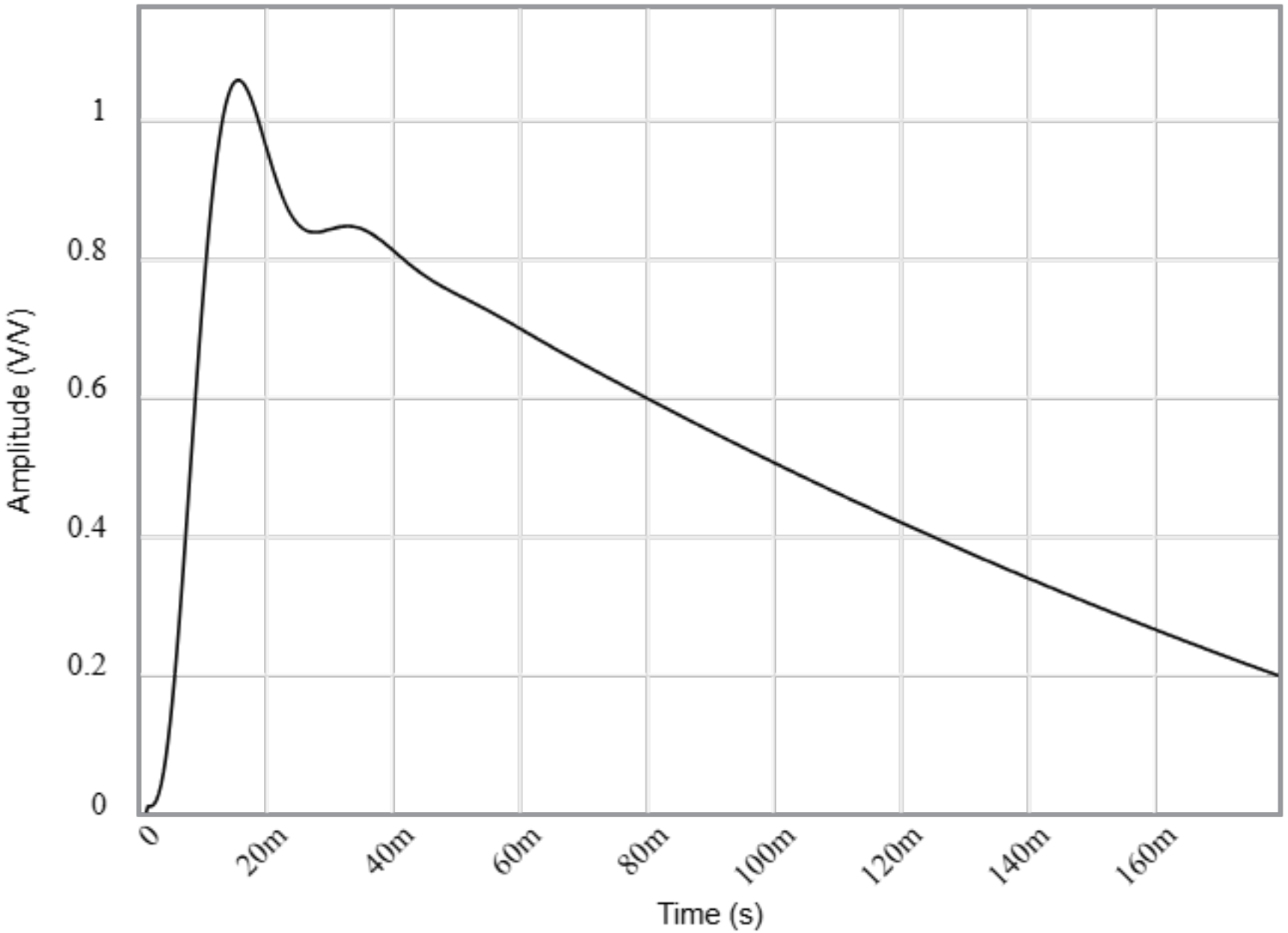
Group Delay


1.2
1
800m
600m
400m
200m
Group Delay (s)
100m
1
10
100
Frequency (Hz)

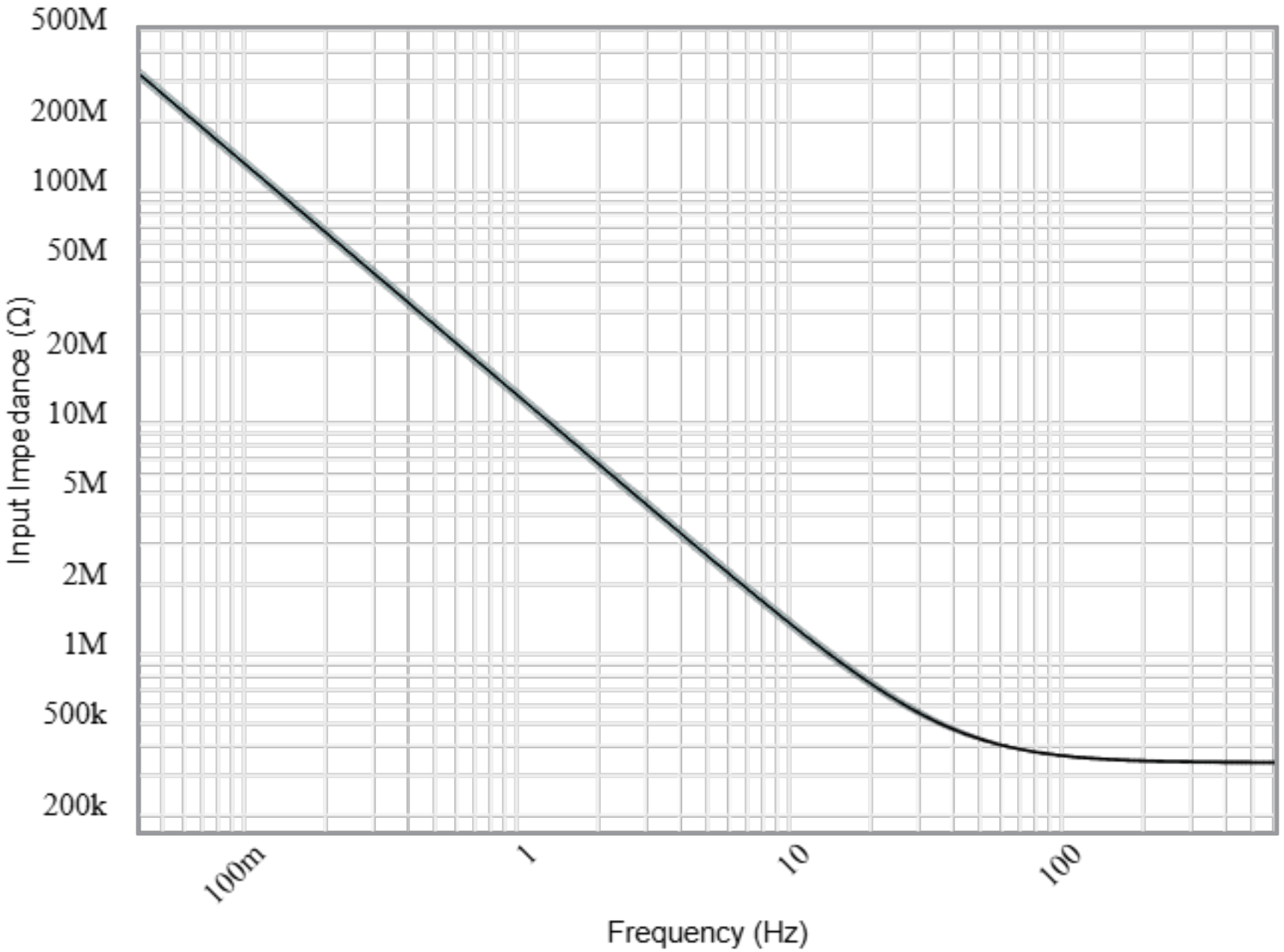
Phase Delay



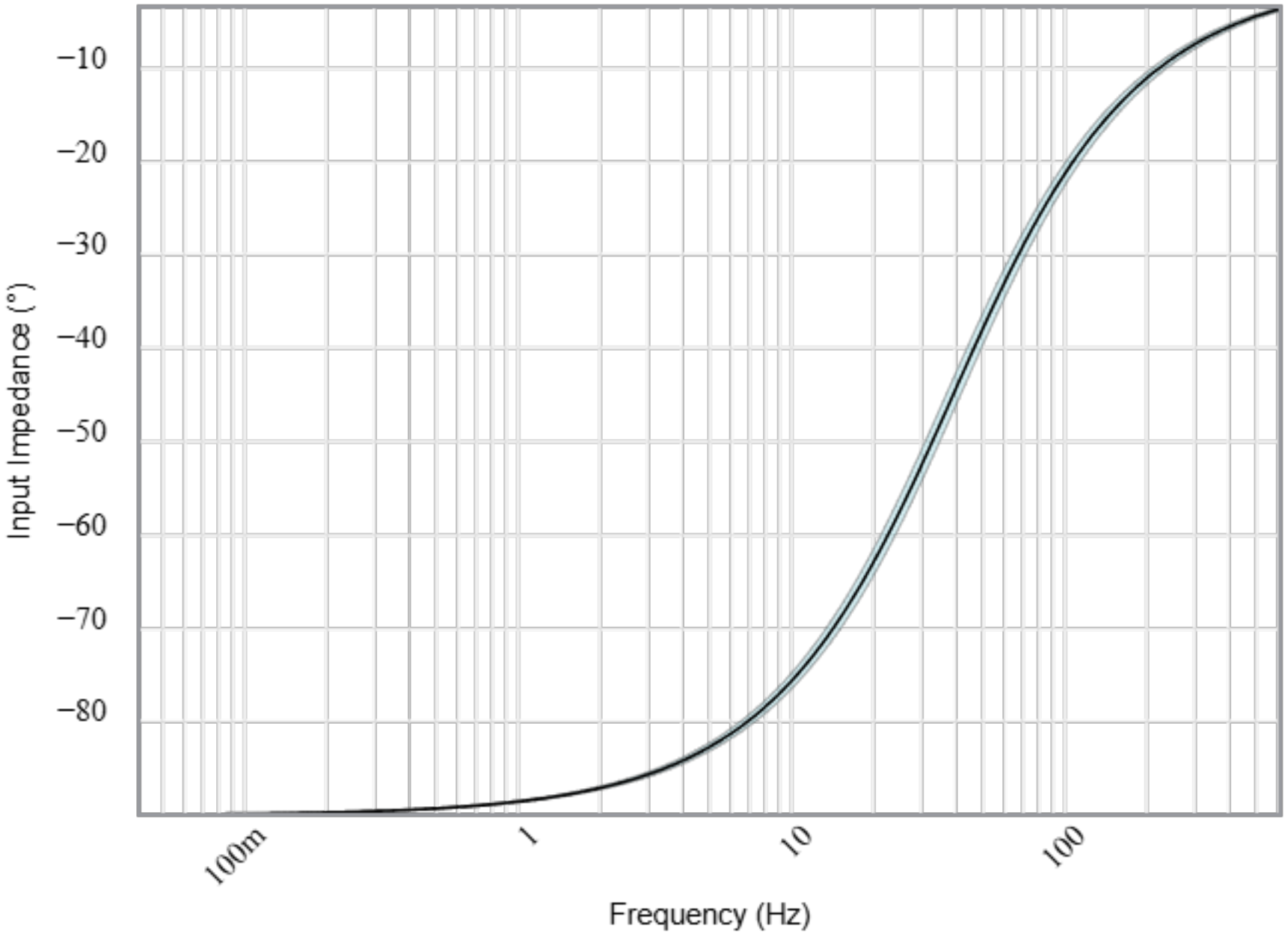
Step Response



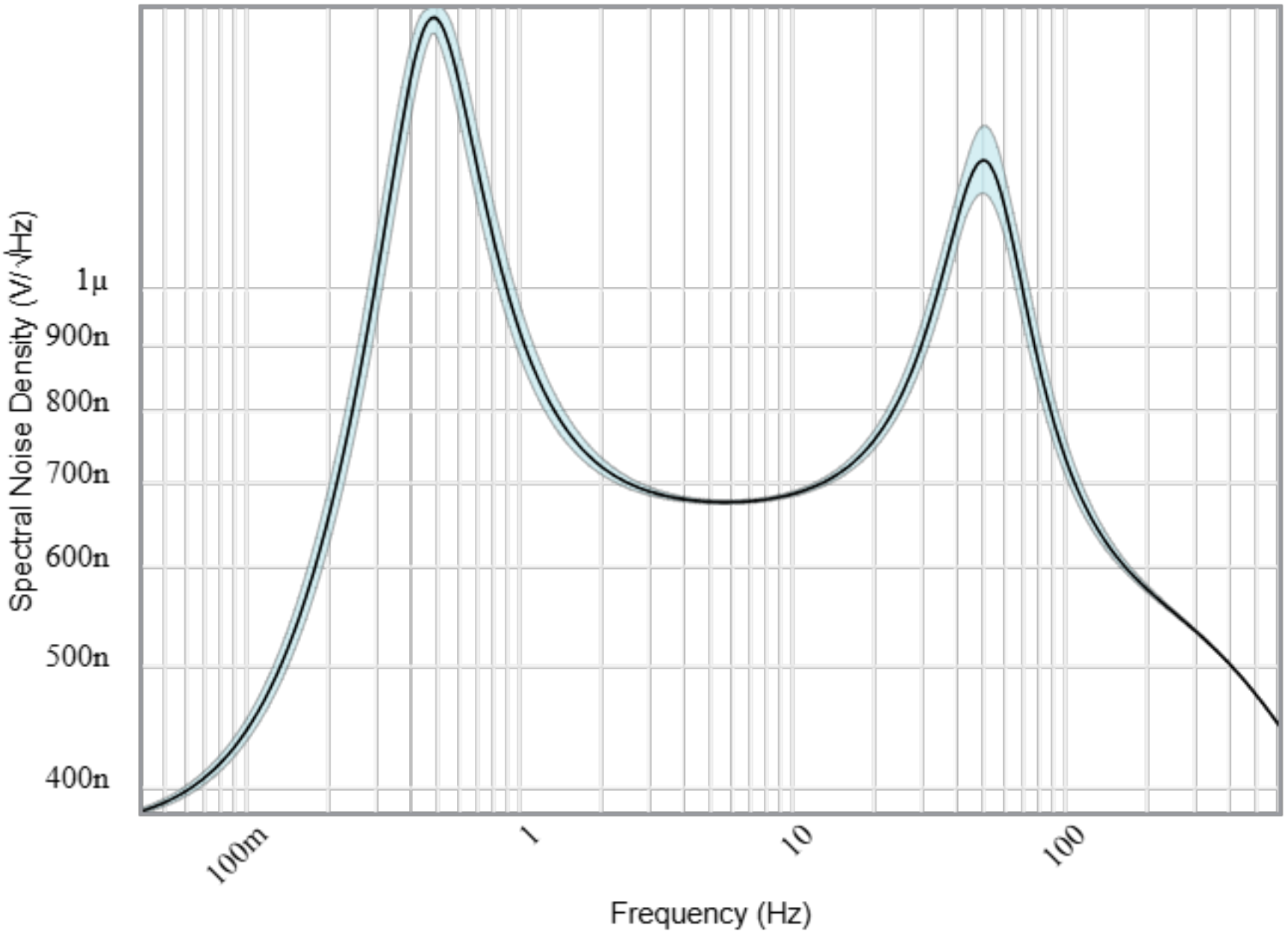
Input Impedance Magnitude



Input Impedance Phase



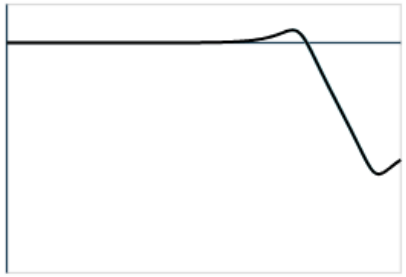
Noise

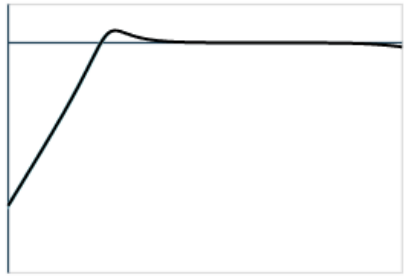

Spectral Noise Density (V/√Hz)
1µ
900n
800n
700n
600n
500n
400n
100m
1
10
100
Frequency (Hz)

Stages

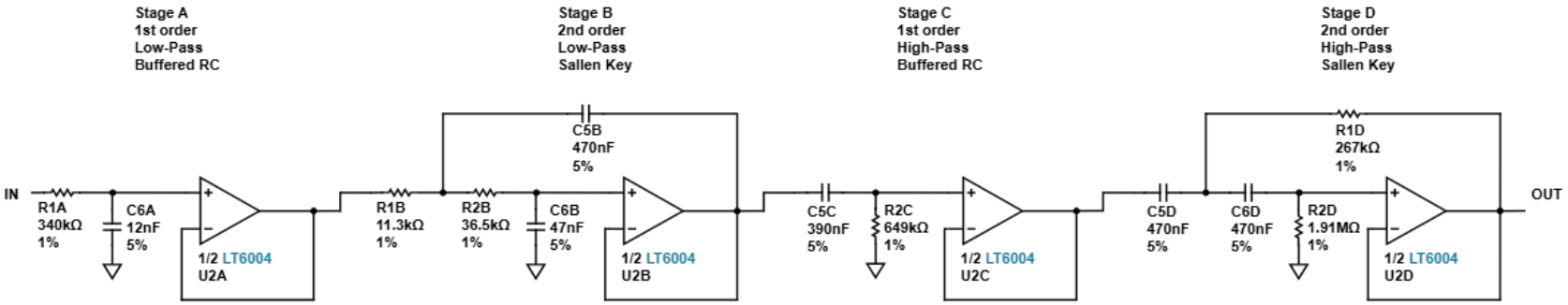
Your filter requires 4 op amp stage(s) with the following characteristics

	A: 1st order Low-Pass Buffered RC		B: 2nd order Low-Pass Sallen Key		C: 1st order High-Pass Buffered RC		D: 2nd order High-Pass Sallen Key	
	Target	**Simulated**	**Target**	**Simulated**	**Target**	**Simulated**	**Target**	**Simulated**
Gain (V/V):	1	1 to 1	1	0.999 to 0.999	1	0.987 to 0.988	1	0.988 to 0.989
f_p (Hz):	39.4	36.6 to 41.2	52.8	48.3 to 54.3	635m	578m to 651m	473m	448m to 505m
Q:	N/A	N/A to N/A	1.34	1.29 to 1.43	N/A	N/A to N/A	1.34	1.34 to 1.38

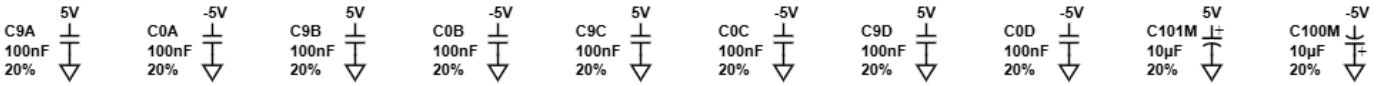




Circuit



BYPASS CAPACITORS



SPARES Why The Spares?