Filter Wizard

Filter Wizard Design

Created on 12/30/2019

ANALOG DEVICES

Filter Wizard Design Report

Filter Requirements for Low-Pass, 9th order Chebyshev

Specifications: Optimize: Specific Parts; +Vs: 5; -Vs: 0
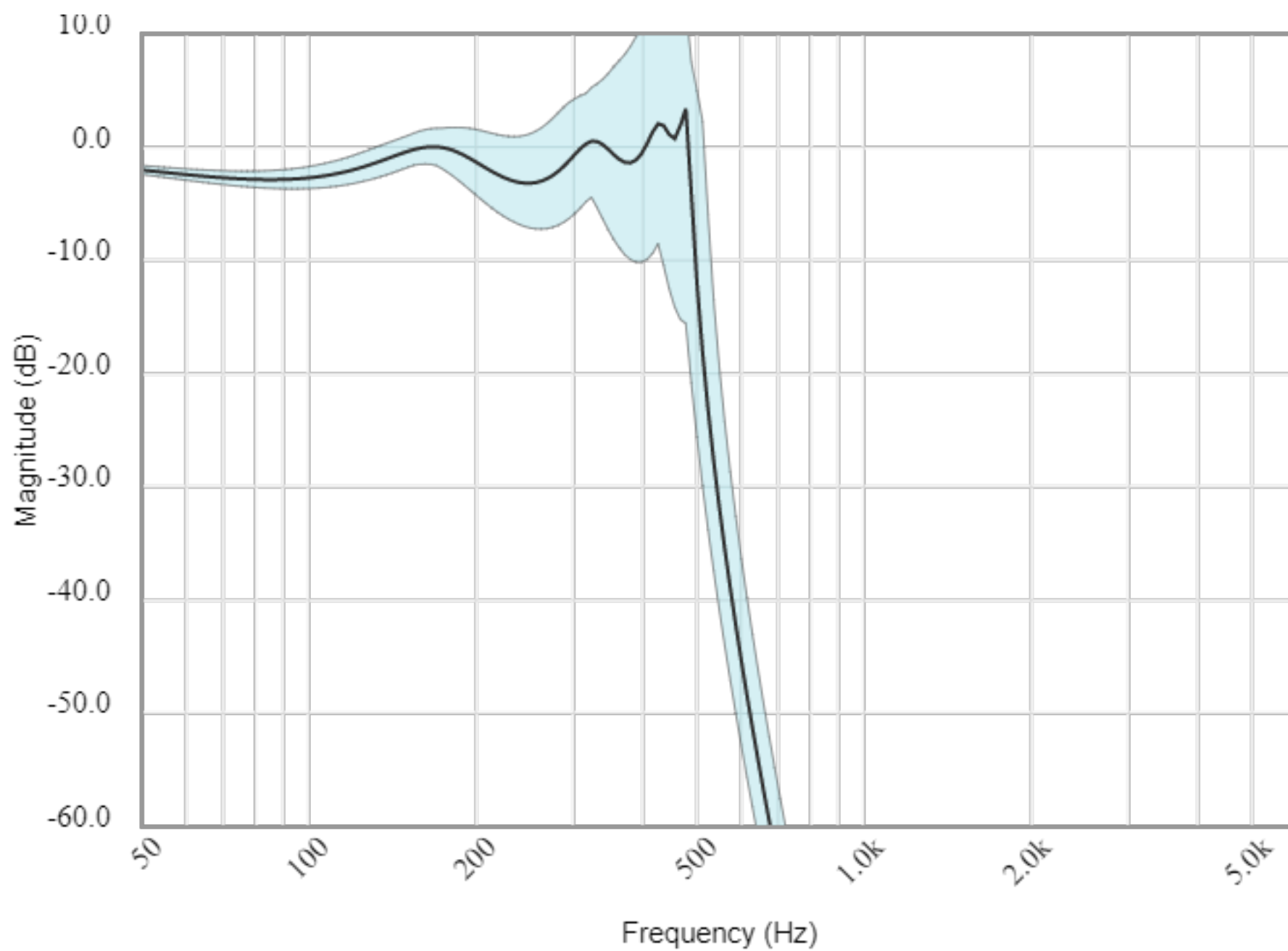
Gain: 0 dB

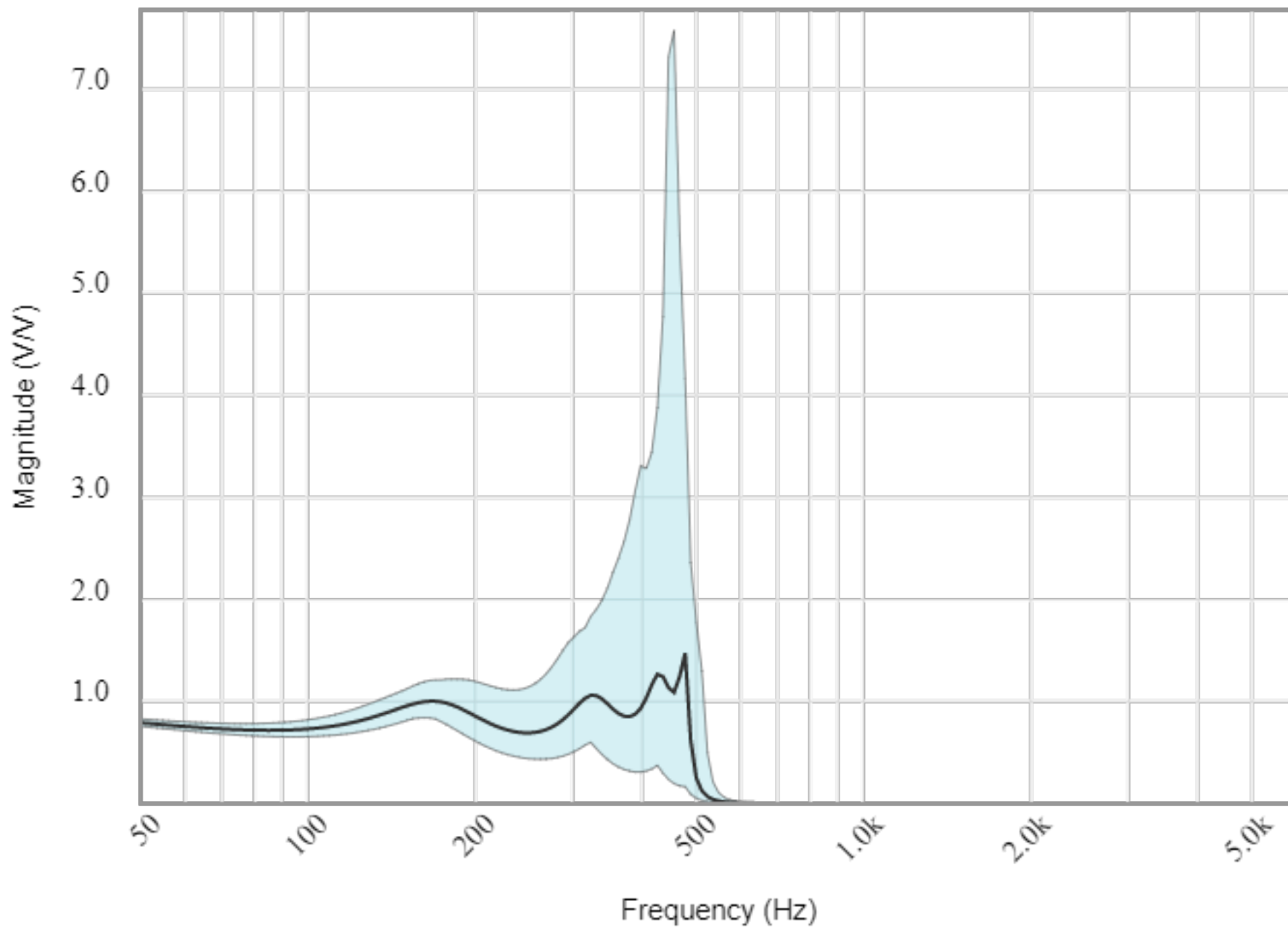Passband: -3dB at 500Hz

Stopband: -40dB at 600Hz

Component Tolerances: Capacitor = 5%; Resistor = 1%; Inductor = 5%; Op Amp GBW = 20%
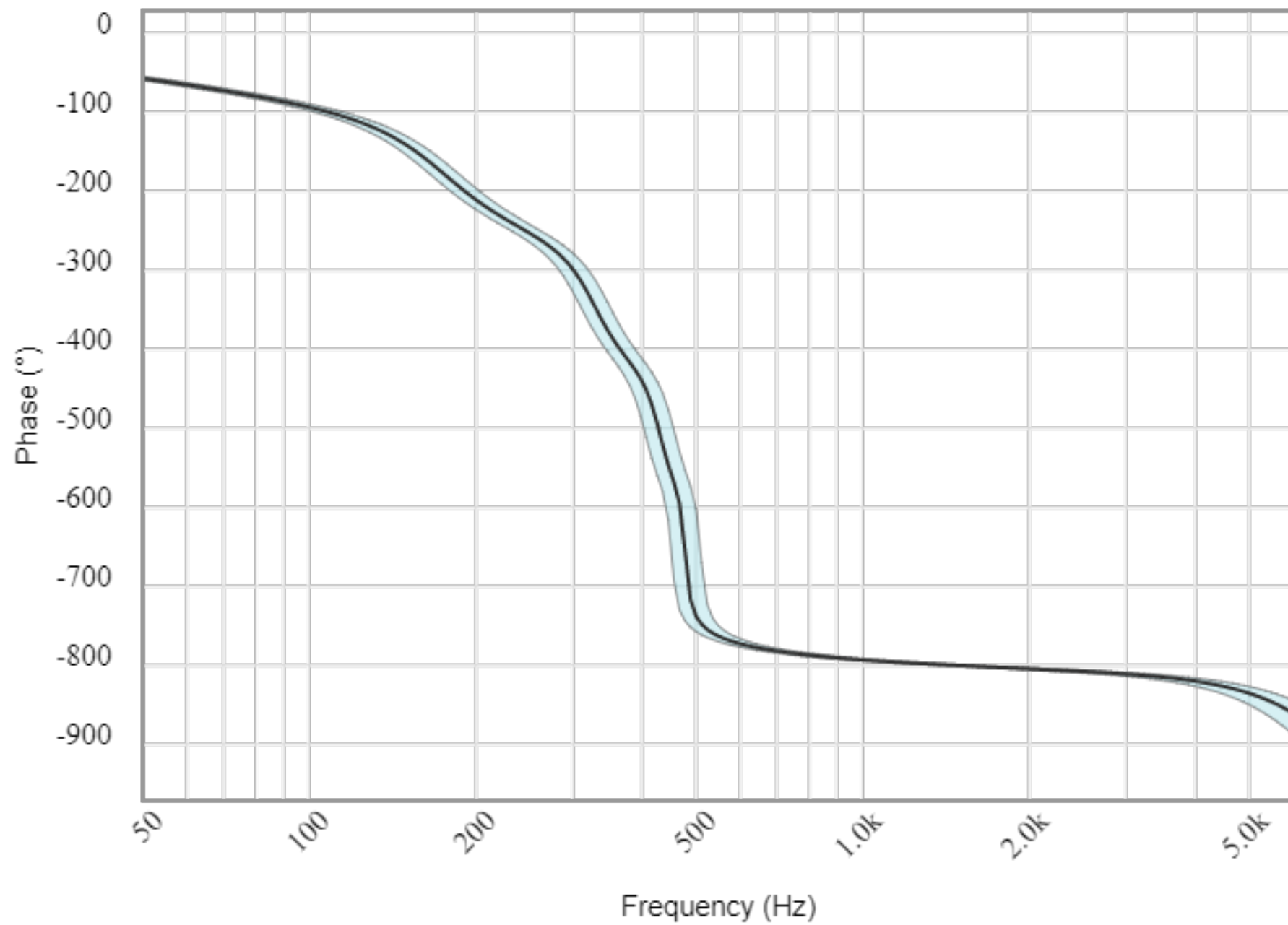
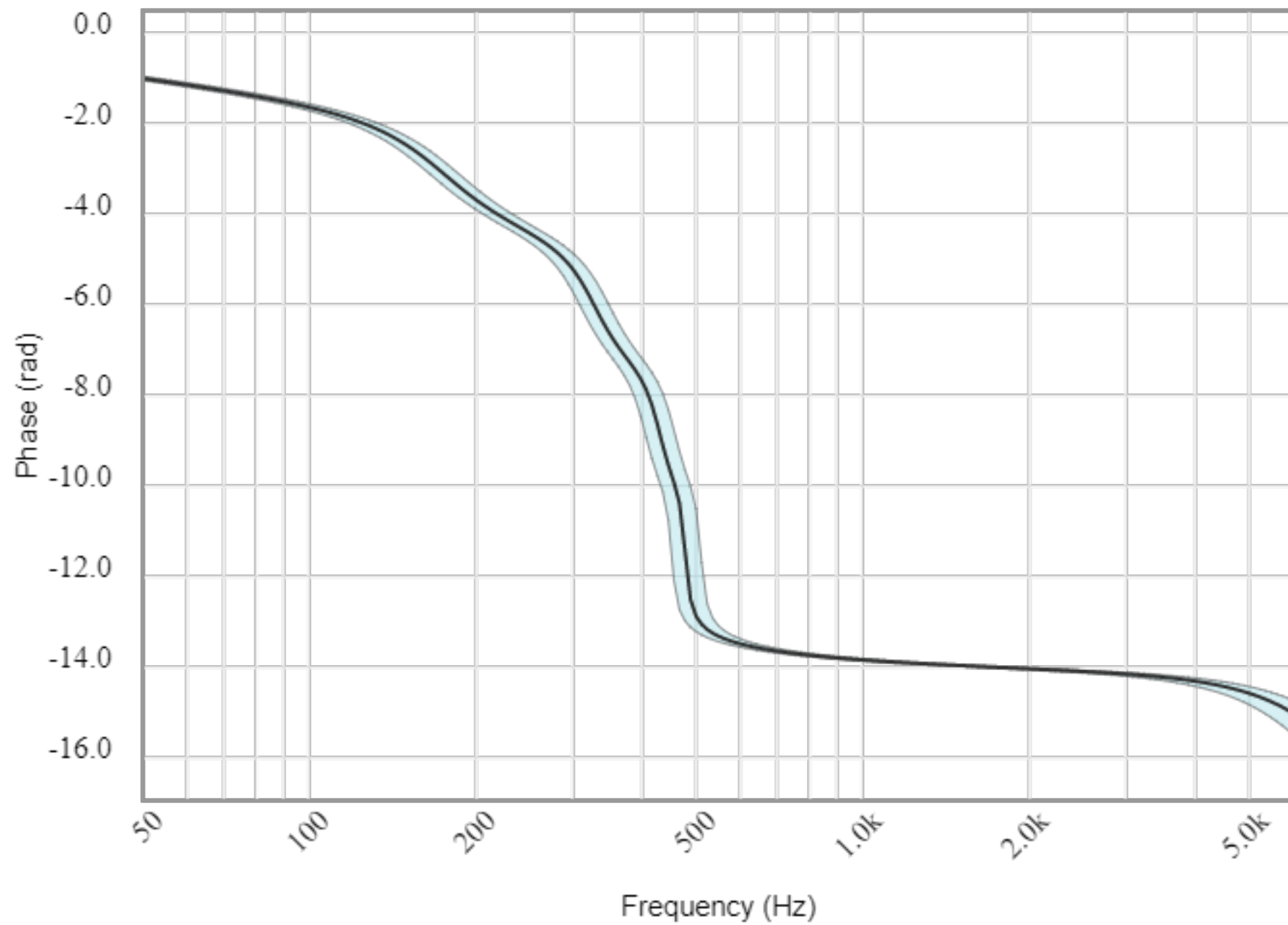BOM: refer to BOM.csv file
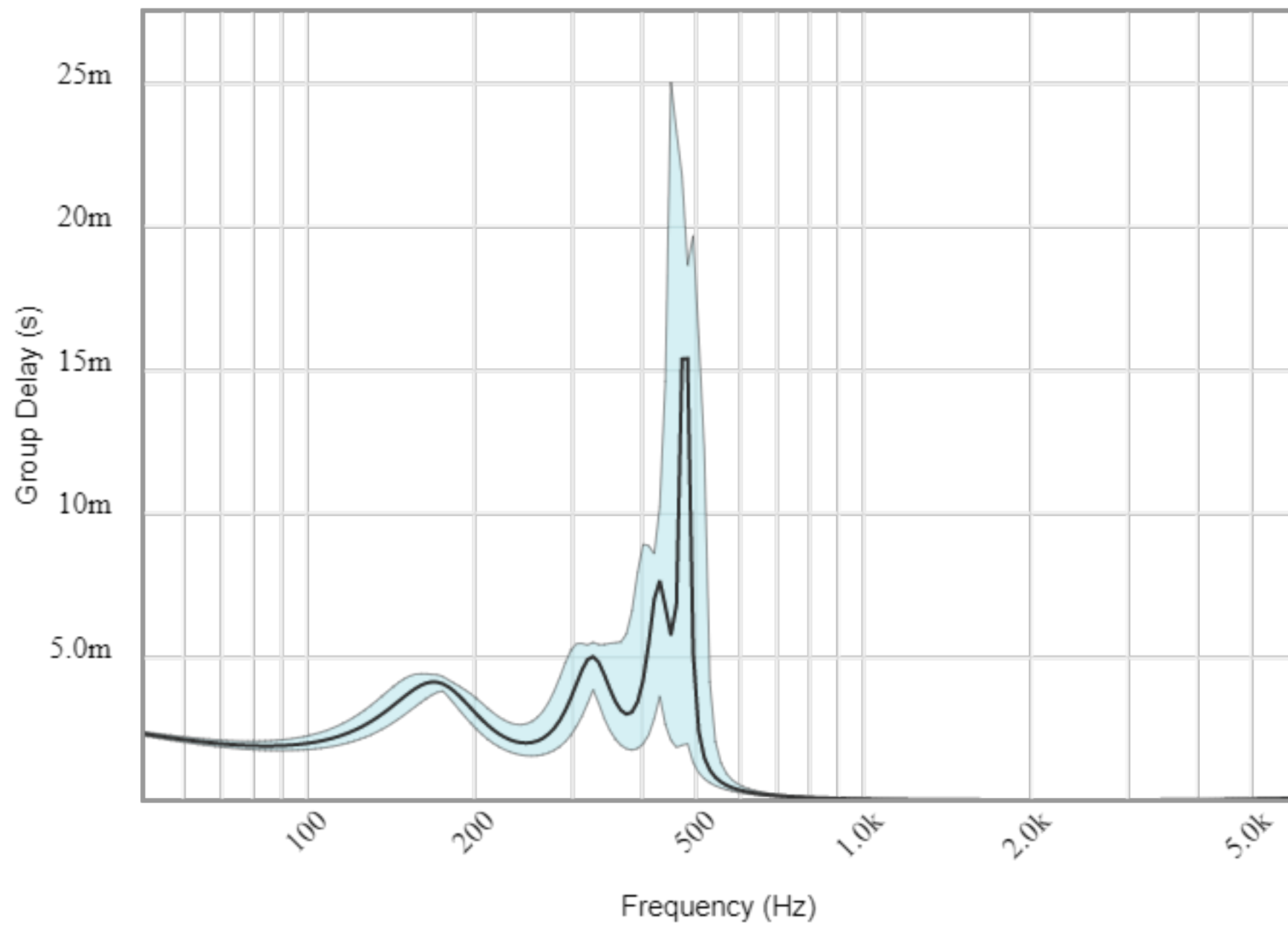
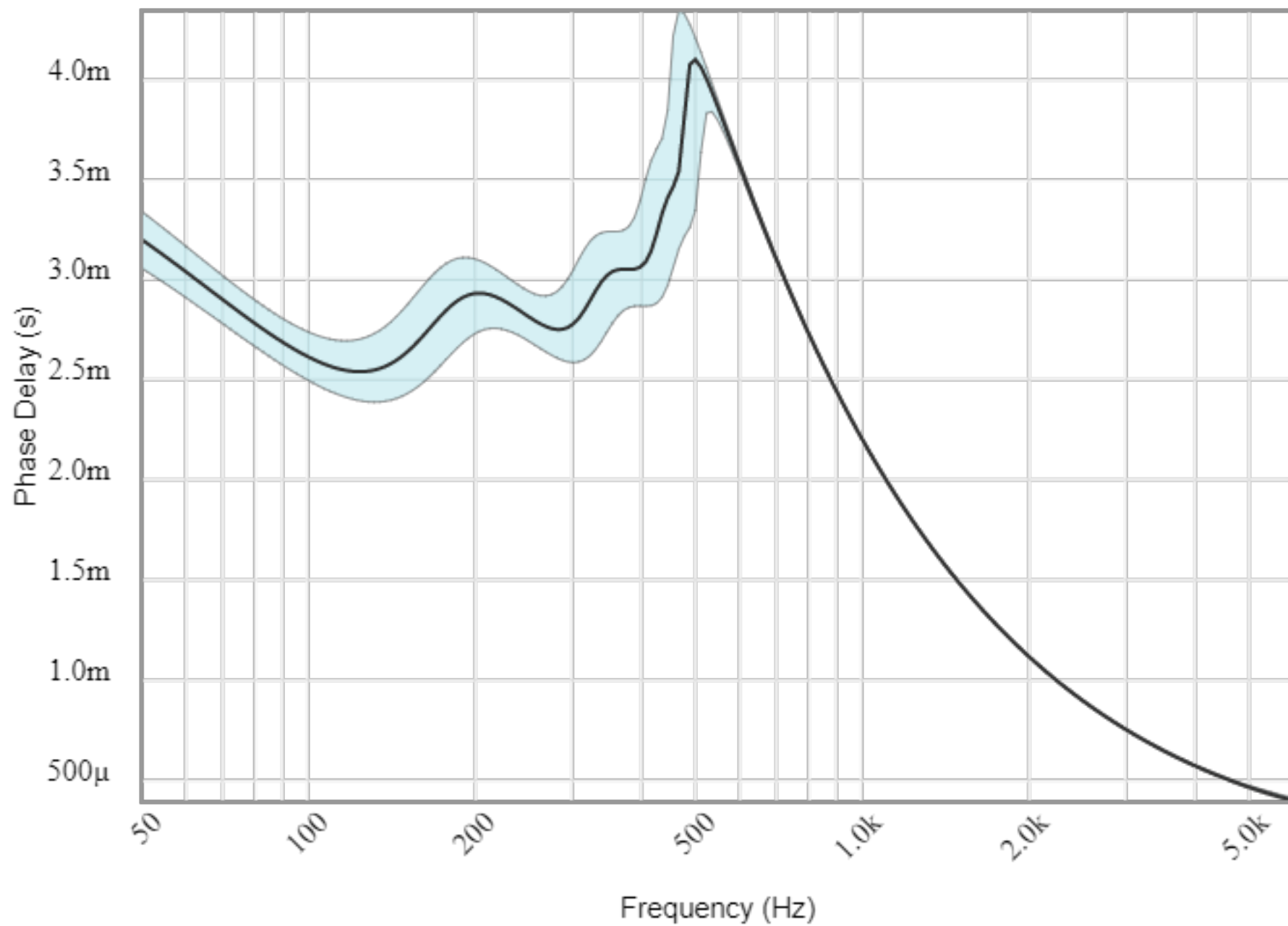Magnitude(dB)
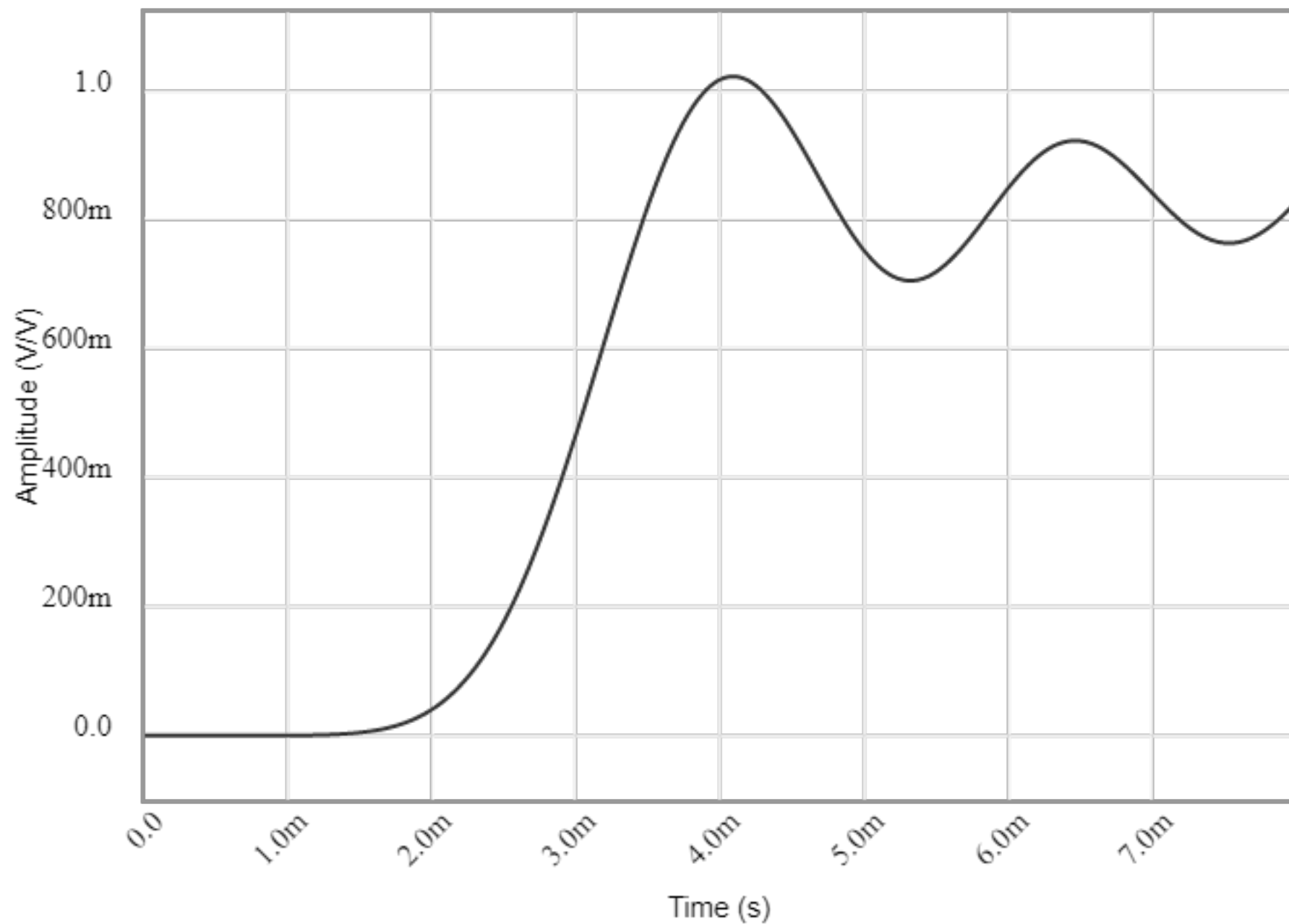
Magnitude(Volts per Volt)

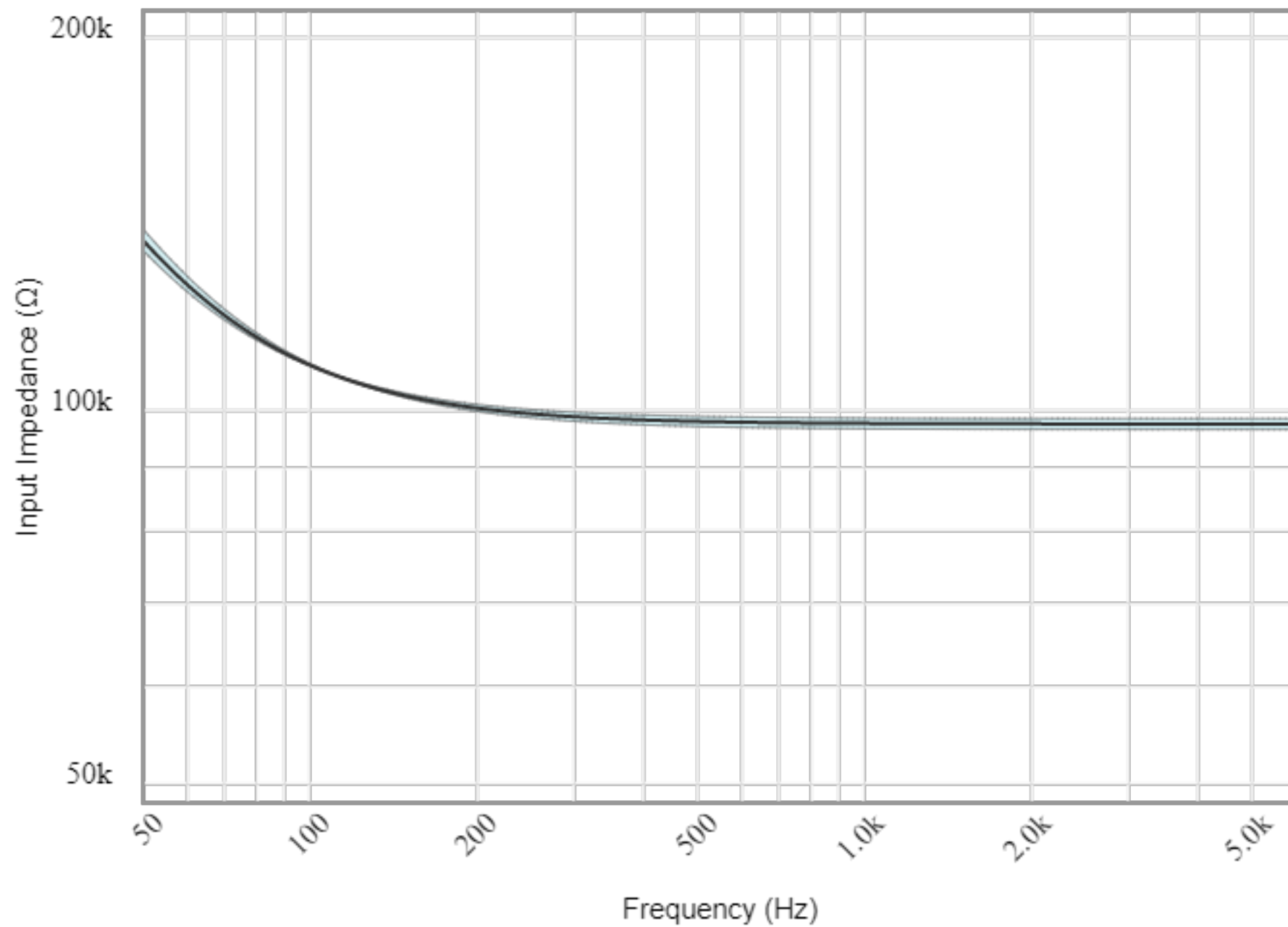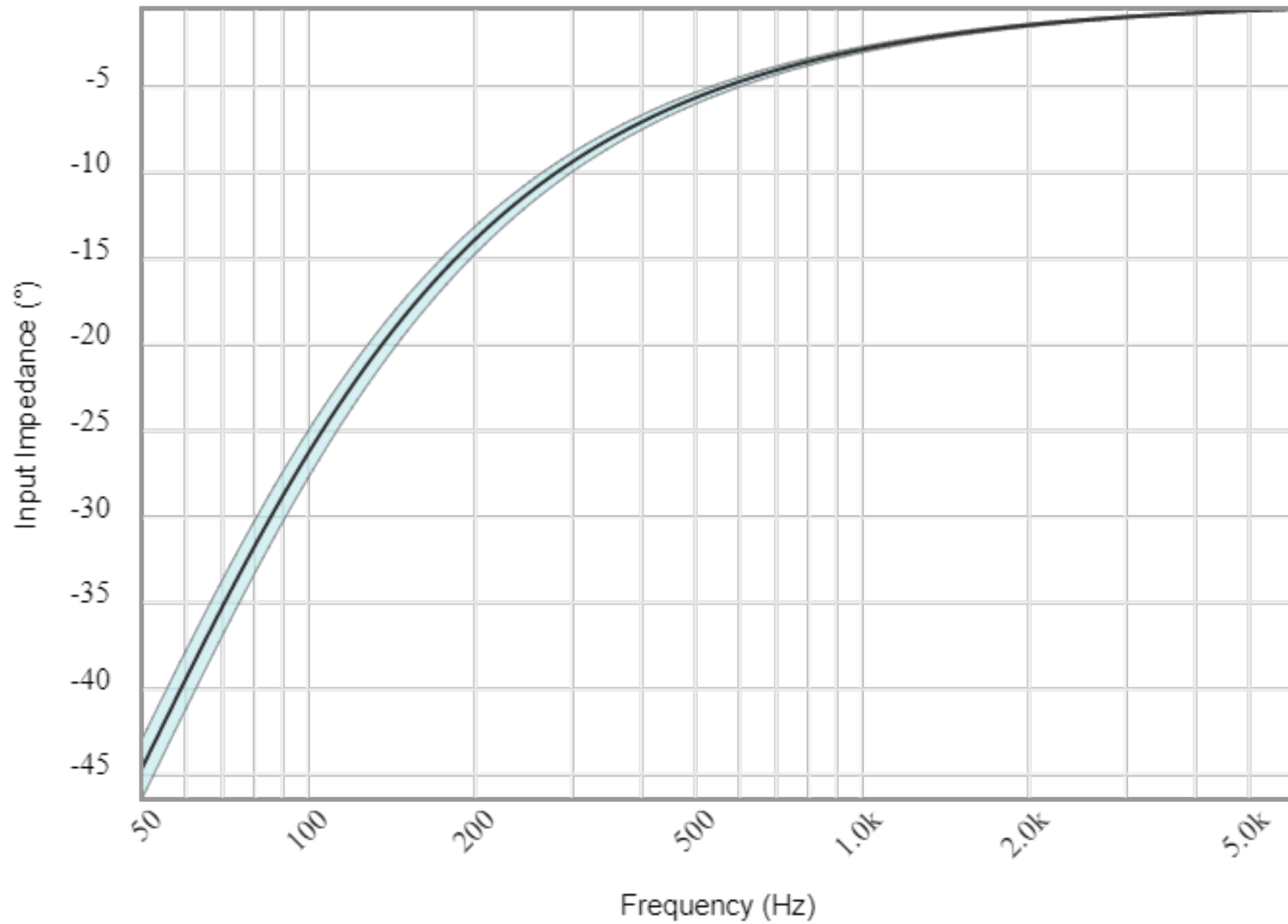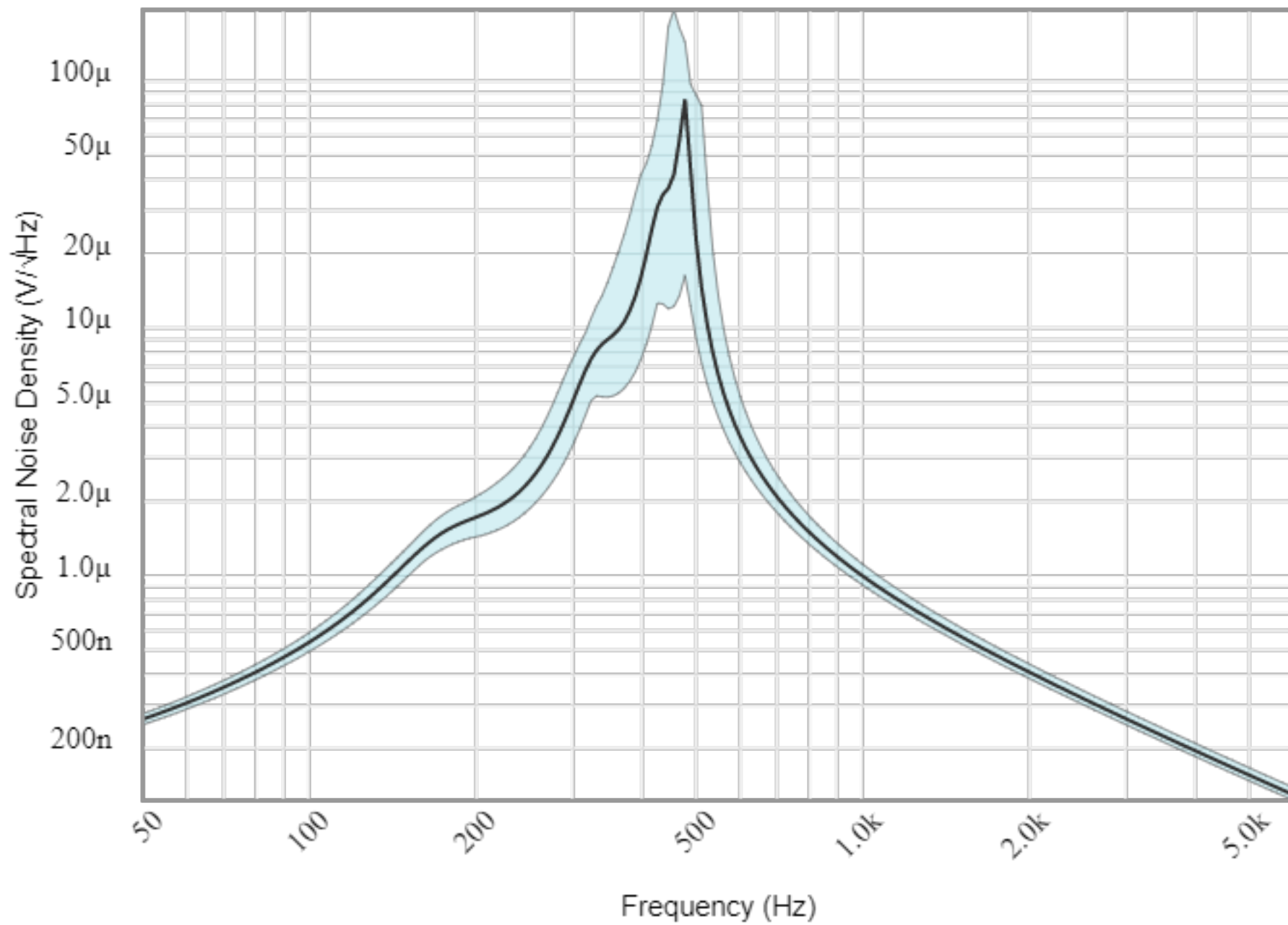Phase(degrees)

Phase(radians)

Group Delay

Phase Delay

Step Response

Input Impedance Magnitude

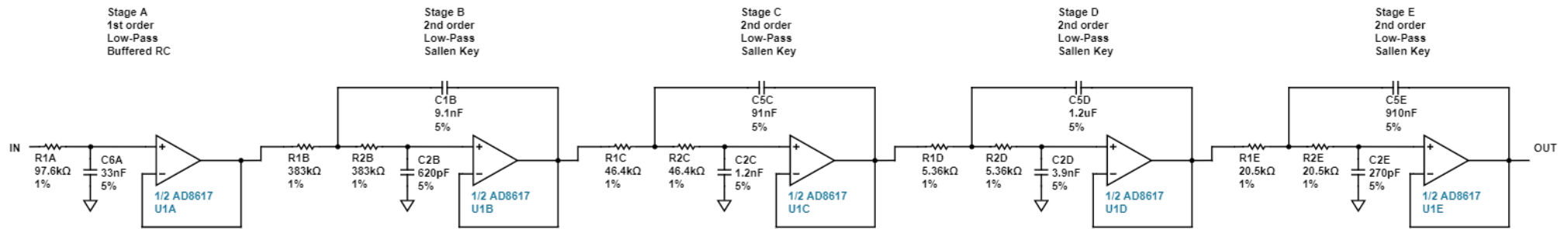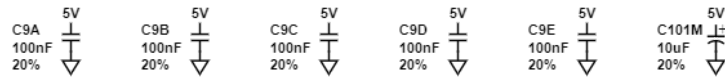Input Impedance Phase

Noise

Circuit

Stage A
1st order
Low-Pass
Buffered RC

Stage B
2nd order
Low-Pass
Sallen Key

Stage C
2nd order
Low-Pass
Sallen Key

Stage D
2nd order
Low-Pass
Sallen Key

Stage E
2nd order
Low-Pass
Sallen Key

IN

R1A
97.6kΩ
1%

C6A
33nF
5%

1/2 AD8617
U1A

C1B
9.1nF
5%

R1B
383kΩ
1%

R2B
383kΩ
1%

C2B
620pF
5%

1/2 AD8617
U1B

C5C
91nF
5%

R1C
46.4kΩ
1%

R2C
46.4kΩ
1%

C2C
1.2nF
5%

1/2 AD8617
U1C

C5D
1.2uF
5%

R1D
5.36kΩ
1%

R2D
5.36kΩ
1%

C2D
3.9nF
5%

1/2 AD8617
U1D

C5E
910nF
5%

R1E
20.5kΩ
1%

R2E
20.5kΩ
1%

C2E
270pF
5%

1/2 AD8617
U1E

OUT

BYPASS CAPACITORS

C9A
100nF
20%
5V

C9B
100nF
20%
5V

C9C
100nF
20%
5V

C9D
100nF
20%
5V

C9E
100nF
20%
5V

C101M
10uF
20%
5V

SPARES   Why The Spares?

5V
REF
1/2 AD8617
U1A

5V
REF
1/2 AD8617
U1B

5V
REF
1/2 AD8617
U1C

5V
REF
1/2 AD8617
U1D

5V
REF
1/2 AD8617
U1E