

Custom Two-Way Crossover Network Design

By Solen, Solen Inc.

2-Way Crossover Network

Low-Pass (LP) Filter: 1 required

Type: 3rd-Order Butterworth

Desired Corner Frequency: 1500 Hz

High-Pass (HP) Filter: 1 required

Type: 3rd-Order Butterworth

Desired Corner Frequency: 2000 Hz

C1 = 6.6 μ F, , 0.000627 ohms

C2 = 18.8 μ F, , 0.000362 ohms

C3 = 47 μ F, Polypropylene, 0.0024 ohms

L1 = 0.47 mH, Air Core (#18), 0.306 ohms

L2 = 0.47 mH, Air Core (#12), 0.08 ohms

L3 = 0.16 mH, Air Core (#12), 0.04 ohms

Tweeter

5.15 dB L-Pad

Rp1 = 3.6 ohms

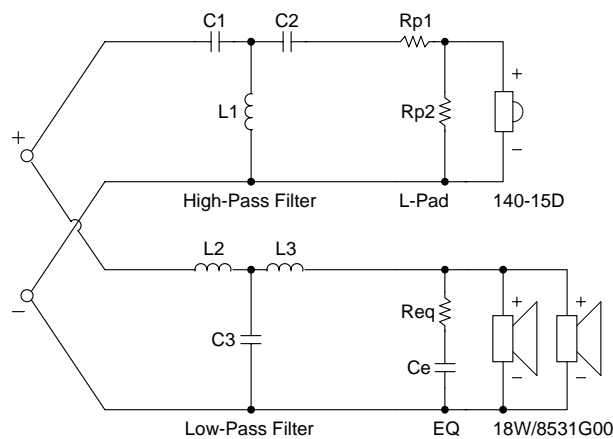
Rp2 = 10 ohms

Woofers

Impedance EQ

Req = 3.6 ohms

Ce = 20 μ F



Tweeter Properties

--Driver Description--

Name: 140-15D

Type: Standard one-way driver

Company: RAAL Advanced Loudspeakers D.

--Driver Configuration--

No. of Drivers = 1

--Driver Parameters--

Fs = 800 Hz
 Qms = 1.033
 Vas = 1.127 liters
 Cms = 1.799 mm/N
 Mms = 0.022 g
 Rms = 0.107 kg/s
 Xmax = 0.1 mm
 Xmech = 0.2 mm
 Sd = 21 sq.cm
 P-Vd = 0.00021 liters
 Qes = 15.49
 Re = 7.5 ohms
 Le = 0.03 mH
 Z = 8 ohms
 BL = 0.231 Tm
 Pe = 200 watts
 Qts = 0.968
 no = 3.591 %
 1-W SPL = 95 dB
 2.83-V SPL = 95 dB

Woofers Properties

--Driver Description--

Name: 18W/8531G00

Type: Standard one-way driver

Company: Scan-Speak A/S

Comment: Revelator

--Driver Configuration--

No. of Drivers = 2

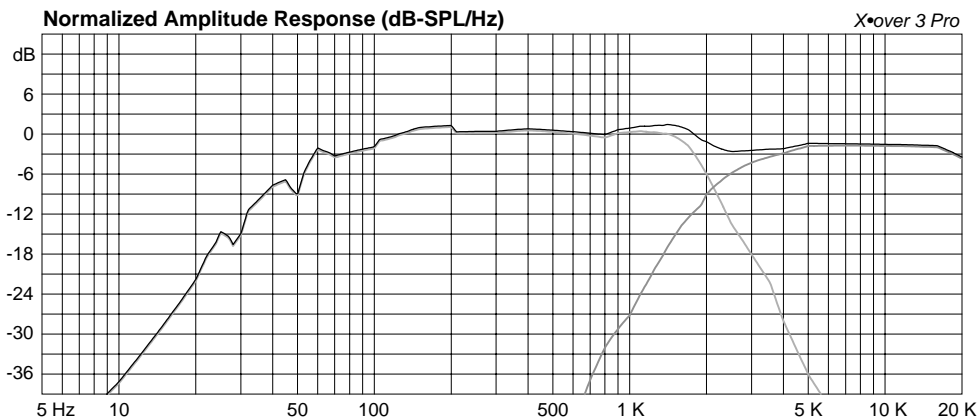
Mounting = Standard

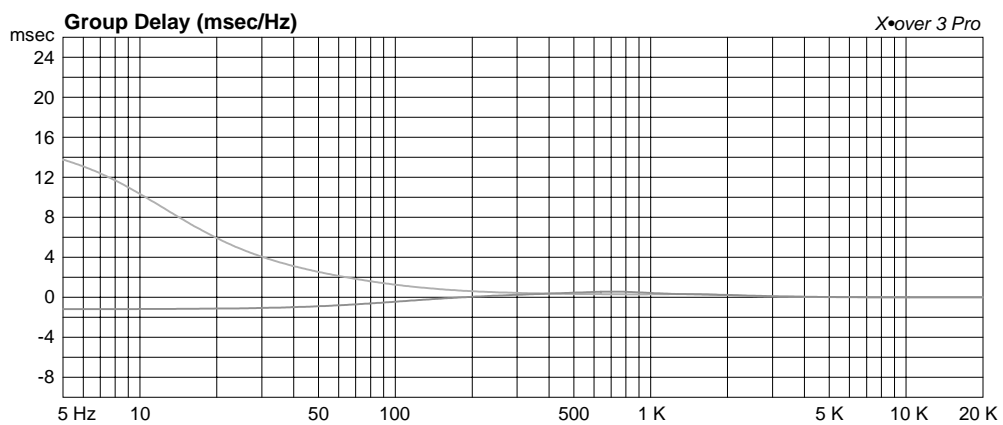
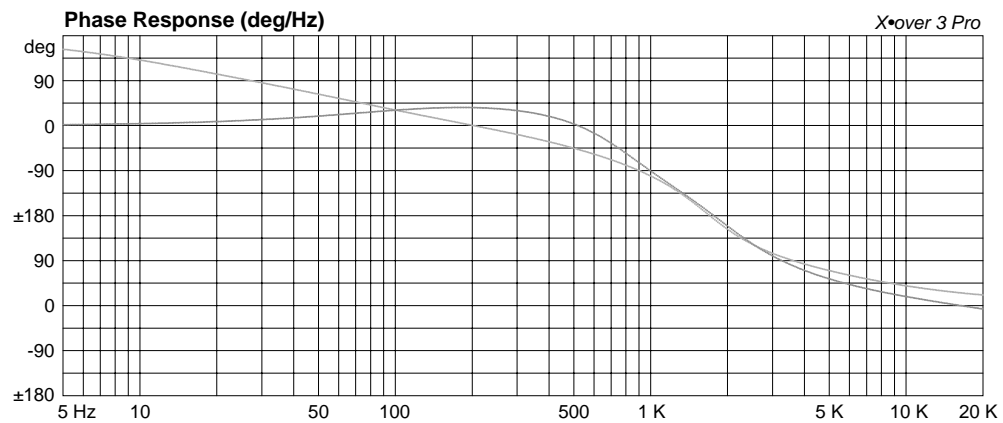
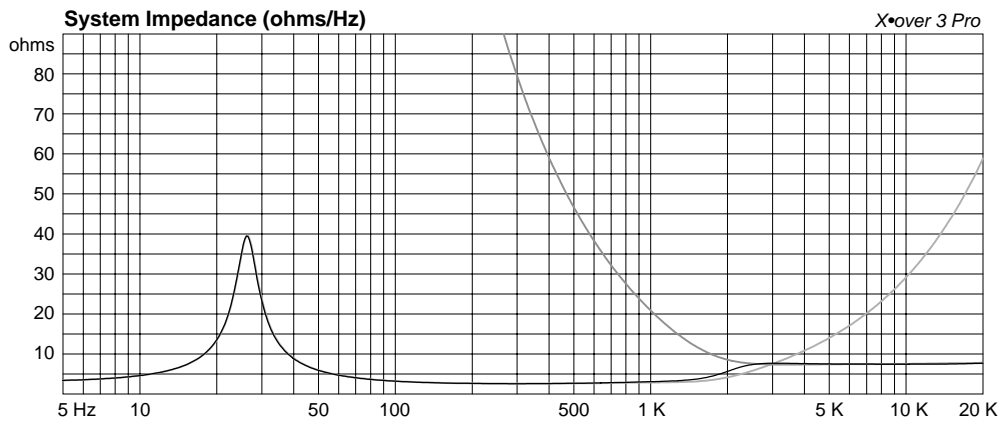
Wiring = Parallel

--Driver Parameters--

Fs = 27.5 Hz
 Qms = 5
 Vas = 61 liters [122]
 Cms = 1.914 mm/N [0.957]
 Mms = 17.5 g [35]
 Rms = 0.605 kg/s [1.21]
 Xmax = 6.5 mm
 Xmech = 9.75 mm
 P-Dia = 138 mm [195.2]
 Sd = 150 sq.cm [300]
 P-Vd = 0.097 liters [0.194]
 Qes = 0.39
 Re = 5.8 ohms [2.9]
 Le = 0.35 mH [0.175]
 Z = 6 ohms [3]
 BL = 6.7 Tm [6.706]
 Pe = 70 watts [140]
 Qts = 0.36
 no = 0.314 % [0.627]
 1-W SPL = 87.1 dB [90.11]
 2.83-V SPL = 87 dB [93.02]

Graph Key: — LP — HP — Net





Low-Frequency Enclosure Design

by Solen Inc.

Loudspeaker Parameters

--General Information--

Company: Scan-Speak

Model: 18W/8531G00

Note/SN:

--Mechanical Parameters--

Fs = 27.5 hertz

Qms = 5.000

Vas = 61.00 liters

Cms = 1.909 mm/N

Mms = 17.500 grams

Rms = 0.606 kg/sec

Xmax = 6.500 mm

Sd = 150.0 sq.cm

Dia = 13.8 cm

--Electrical Parameters--

Qes = 0.390

Re = 5.8 ohms

Le = 0.3 mH

Z = 8.0 ohms

BL = 6.7 N/A

Pe = 70.0 watts

--Combination Parameters--

Qts = 0.360

η_0 = 0.219%

Sens = 87.00 dB (2.83 V)

--Multiple Drivers--

Number = 2

Standard

Wiring: parallel

NetZ = 4.0 ohms

NetRe = 2.9 ohms

NetSens = 93.0 dB

Multiple Driver

Custom Vented Box

Parameters

Vb = 62.00 liters

Fb = 32.1 hertz

F3 = 34.7 hertz

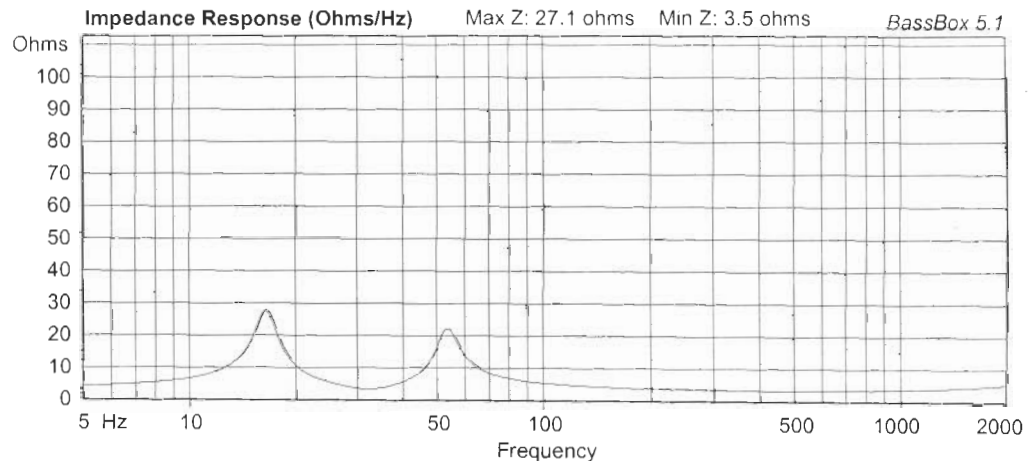
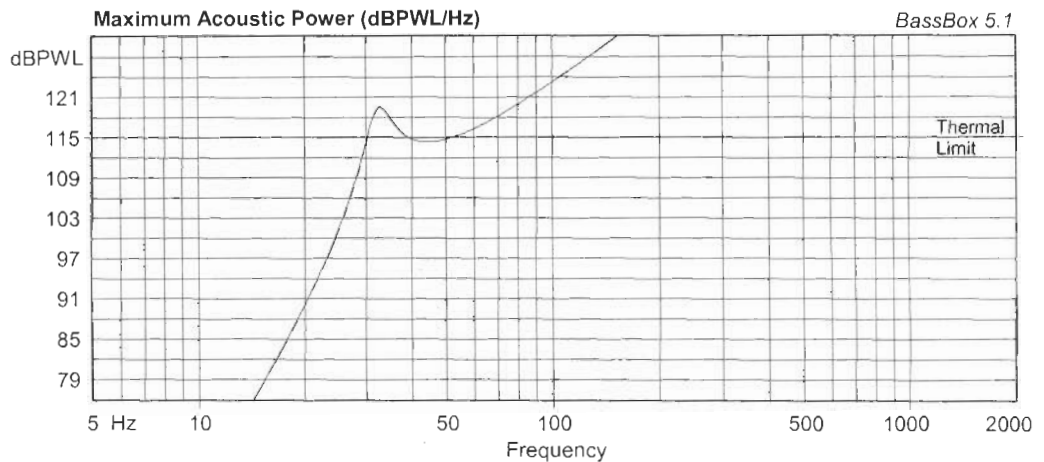
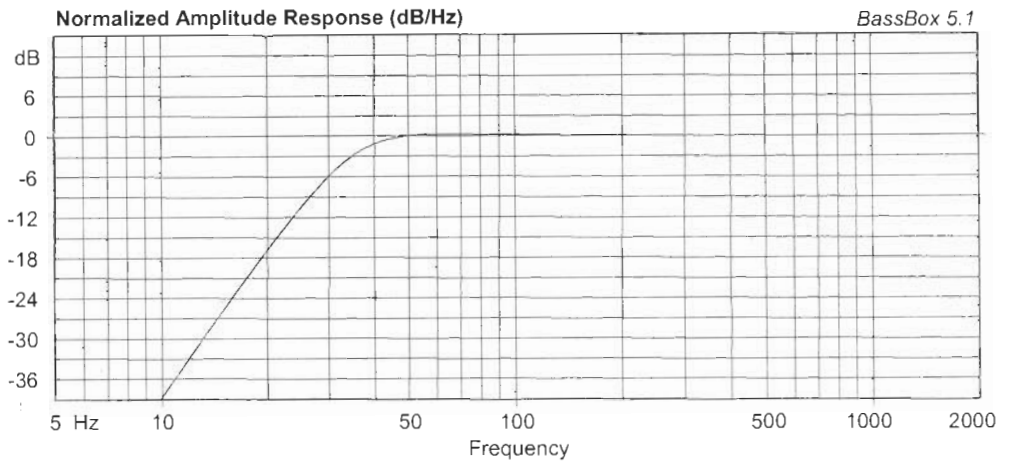
QL = 7.0

Fill = normal

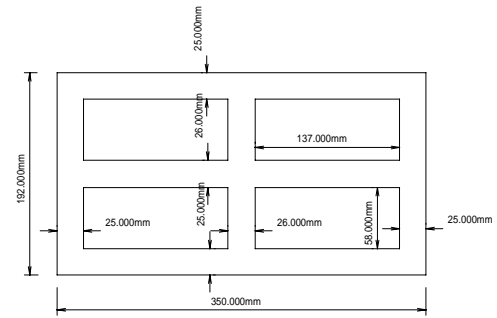
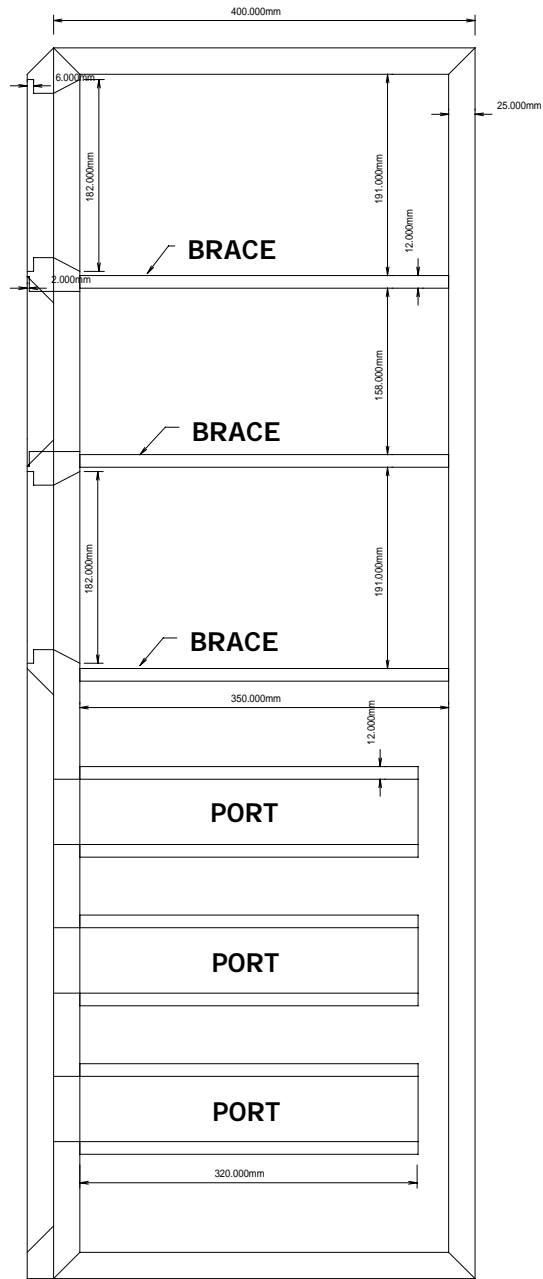
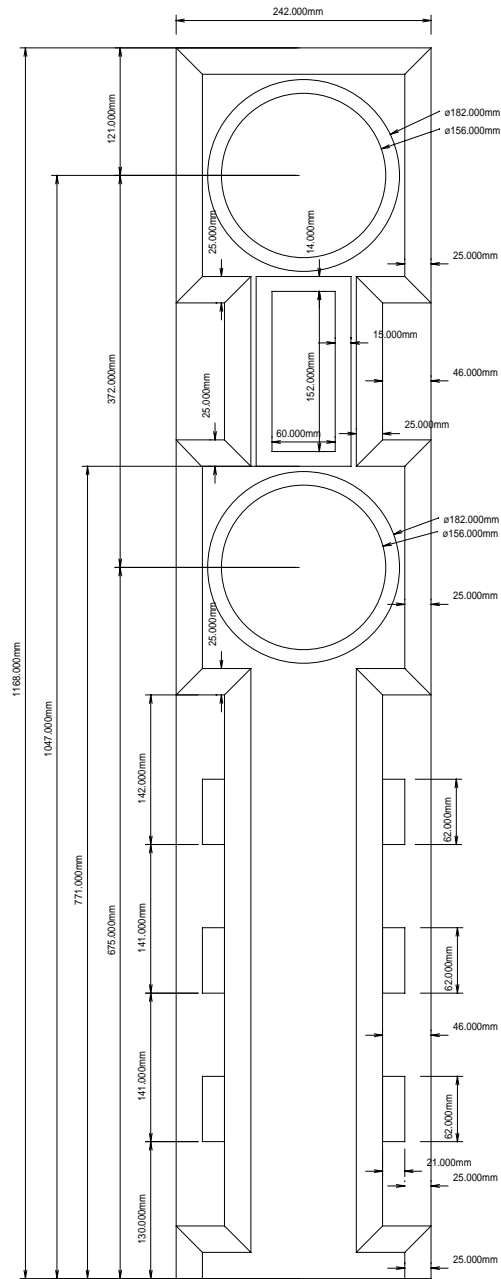
Ports = 6 (square)

H x W = 6.20 x 2.10 cm

Lv = 32.00 cm



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