PROFESSIONAL
LOUDSPEAKERS

APPLICATION NOTE

2 WAYS 15″ LOUDSPEAKER SYSTEM

KEY FEATURES

> An effective, high performance and easy to build, two way loudspeaker system for high performance in a relatively compact and portable enclosure.

> An "already optimized" passive crossover network greatly simplifies the system setup.

> The 15W700 woofer has been combined with the ND1460 Neodymium Compression Driver, mounted on a XT1464 horn in order to obtain a smooth frequency response, precision directivity control and high power handling.

> Unique 18 Sound Elliptical-Spheroidal waveguide technology assures constant coverage at mid and high frequency with precision and stability, and good array-ability if used in multiple units.

> A crossover frequency set in the 1.5kHz range, yields very good power handling and operation reliability while not sacrificing directivity control and mid-range sound quality.

> The 15ND830 woofer is the perfect option if equivalent sonic performaces are required while greatly reducing system weight as well.

15W700

GENERAL SPECIFICATIONS

NOMINAL DIAMETER	380 mm (15 in)
RATED IMPEDANCE	8 Ohm
CONTINUOUS PINK NOISE	450W
SENSITIVITY	99 dB
FREQUENCY RANGE	38 ÷ 5000 Hz
MAX RECOMM. FREQUENCY	2000 Hz
RECOMM. ENCLOSURE VOLUME	80 ÷ 140 lt (2.82÷4.85 cuft)
VOICE COIL DIAMETER	75 mm (3 in)
NET WEIGHT	8,6 kg (18,98 lb)

THIELE SMALL PARAMETERS

Fs	38 Hz
Re	5.7 Ohm
Sd	0.0085sq mt. (131.75sq. in.)
Qms	3.8
Qes	0.33
Qts	0.3
Vas	217 lt (7.67 cuft)
Mms	80 gr. (0,18 lb)
BL	18.4 Tm
Linear mathematical Xmax	± 6,5 mm (± 0,26 in)
Le (1kHz)	1,57 mH
Ref. Efficiency 1W@1m (half space)	97,8 dB

ND1460

GENERAL SPECIFICATIONS

THROAT DIAMETER	35.5 mm (1.4in)
RATED IMPEDANCE	8 Ohm
DC RESISTANCE	6.2 Ohm
MINIMUM IMPEDANCE	8 Ohm at 3500 Hz
LE (at 1KHz)	124 μH
AES POWER	100W above 1.2 kHz
PROGRAM POWER	200W above 1.2 kHz
SENSITIVITY (1W@1m)	109 dB

FREQUENCY RANGE	500 Hz ÷ 20 kHz
RECOMM. XOVER FREQUENCY	above 800 Hz (12dB/oct)
DIAPHRAGM MATERIAL	Titanium
VOICE COIL DIAMETER	75mm (3in)
VOICE COIL WINDING MATERIAL	Edge-wound aluminum
MAGNET MATERIAL	Neodymium
FLUX DENSITY	1.9 T
BL FACTOR	13.5 N/A

XT1464

GENERAL SPECIFICATIONS

THROAT DIAMETER	25.4 mm (1in)
HORIZONTAL COVERAGE (-6dB)	60° (1 ÷ -8) average range (1,6kHz - 12,5kHz)
VERTICAL COVERAGE (-6dB)	40° (18 ÷ -7) average range (1,6kHz - 12,5kHz)
DIRECTIVITY INDEX	10 dB (1.3 ÷ -0,4) average range (1.6kHz - 12.5kHz)
USABLE FREQUENCY RANGE	above 800 Hz
RECOMM. CROSS FREQUENCY	1200 Hz or more
SENSITIVITY (ON AXIS)	110 dB
FREQUENCY RANGE	1200 Hz ÷ 20kHz

MOUNTING INFORMATION

OVERHALL DIMENSIONS - Mouth height - Mouth width - Depth	 215 mm (8,5 in) 260 mm (10,2in) 126 mm (5 in)
MOUTH MOUNTING DIMENSIONS	4 Ø6 holes on the edge of rectangle with 214mm x 169mm (8,43x6,65 in) sides
DRIVER MOUNTING DIMENSIONS	3 Ø6 holes on ø 57mm (2.24in) - 4 M6 holes on ø 76mm (3in)
NET WEIGHT	1 Kg (2,20 lb)

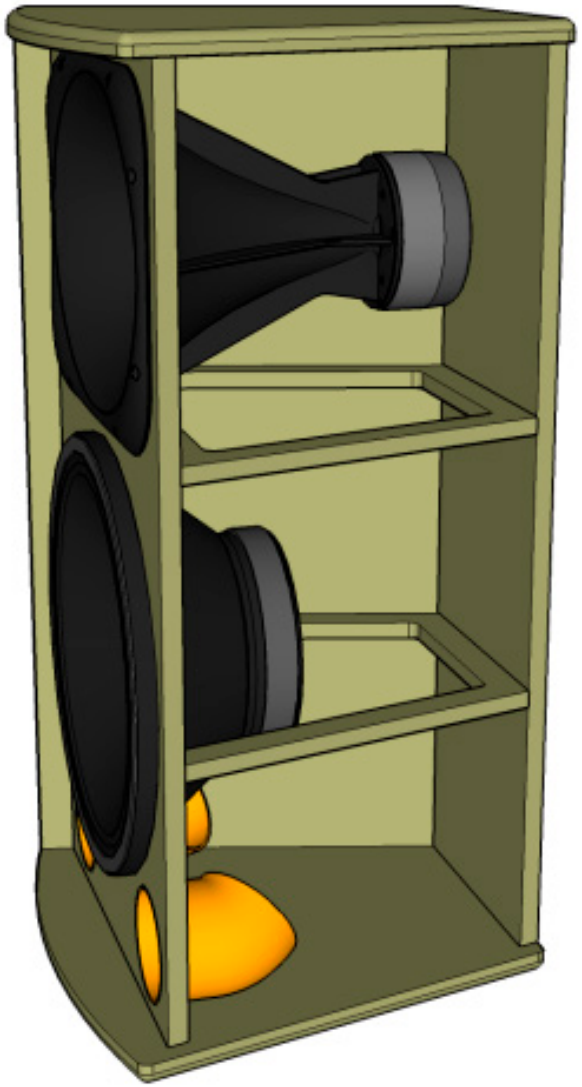
KEY FEATURES

> The enclosure should be made out of Baltic birch plywood (15mm thick).

> The vents can be made with standard PVC plumbing pipe connections with internal diameter of 96mm, as described at page 13.

> All the used bolts should be the M5 type (5mm diameter), 35mm deep. "8.8" steel type or better is strongly suggested.

> M5 T-Nuts are recommended to be used in conjunction with M5 bolts.



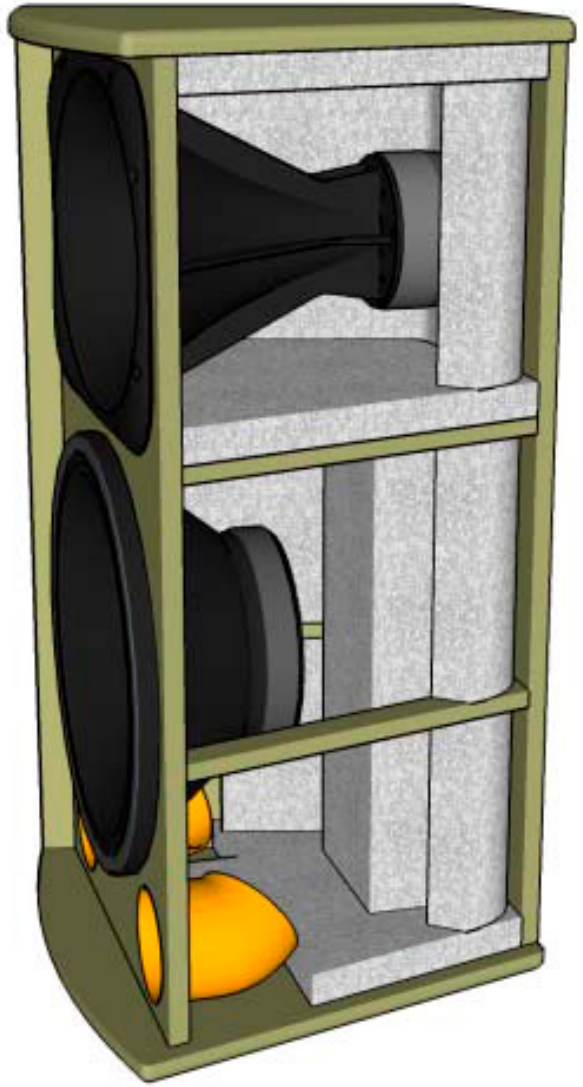
INTERNAL VIEW

KEY FEATURES

> It's strictly necessary to provide for proper cabinet internal acoustical damping with absorptive material.

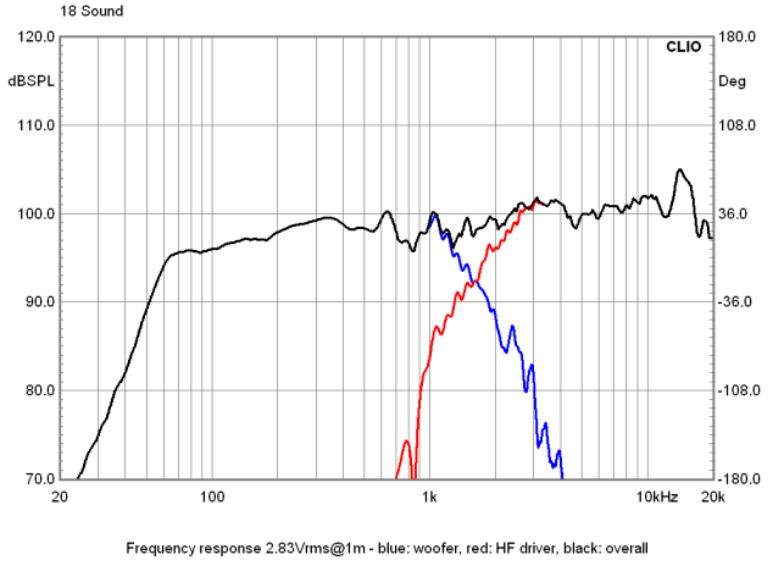
> High density damping material, such as Dacron or other synthetic fibers, is required for best performance.

> The following example image show the proper damping material disposition.

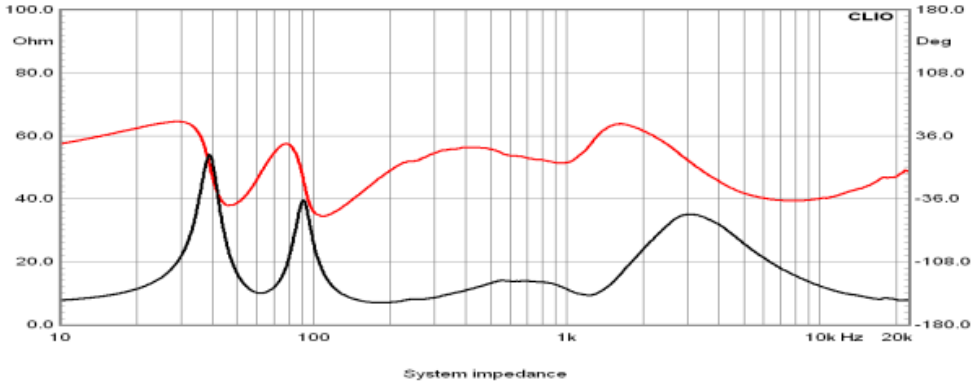


DAMPING DISPOSITION

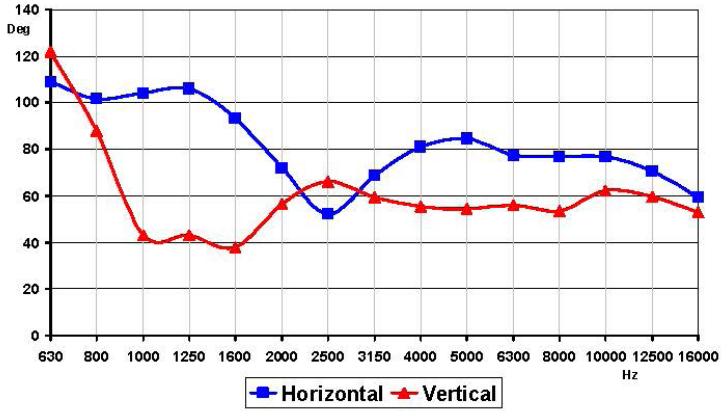
MEASUREMENTS: 15W700 + ND1460/XT1464



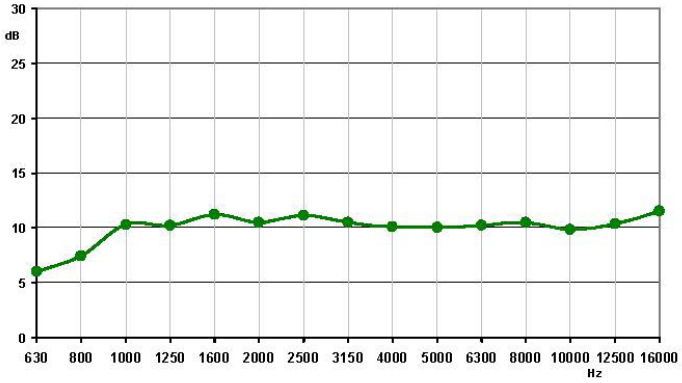
FREQUENCY RESPONSE



IMPEDANCE CURVE



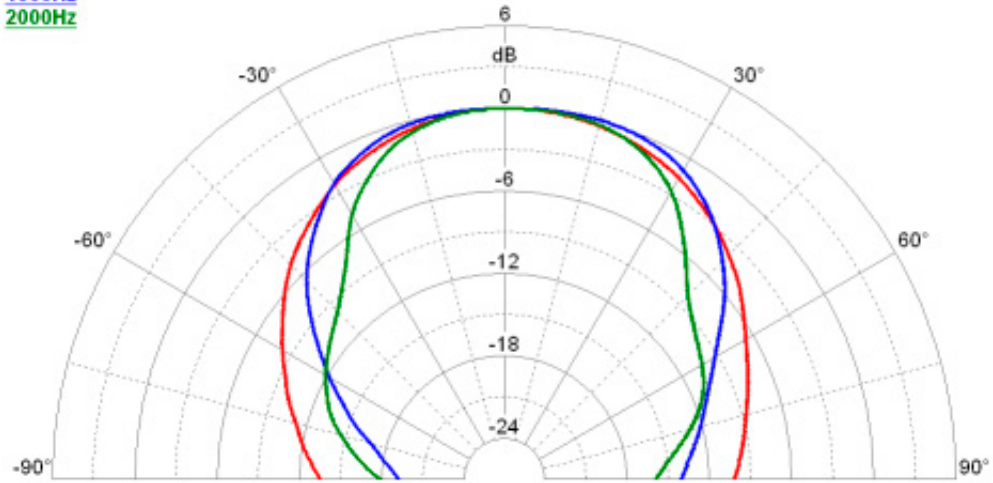
BEAMWIDTH



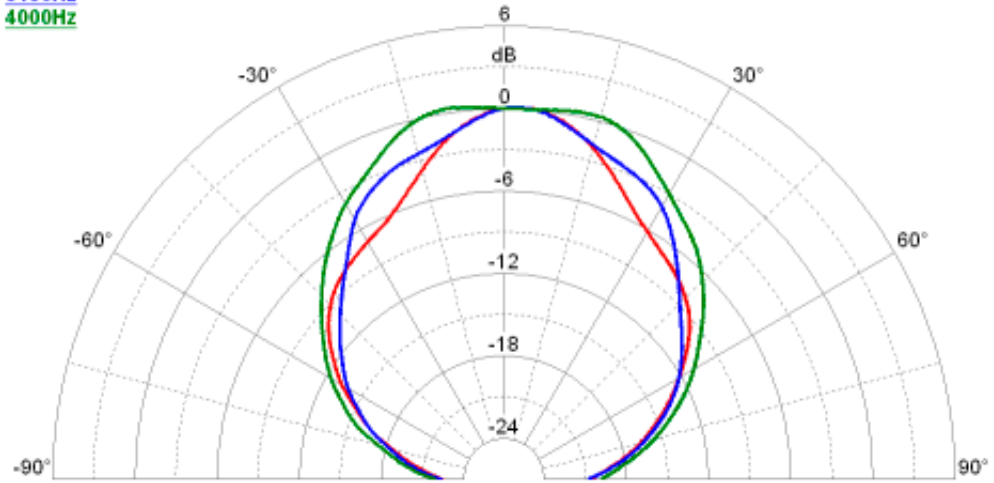
DIRECTIVITY INDEX

HORIZONTAL POLAR RESPONSE

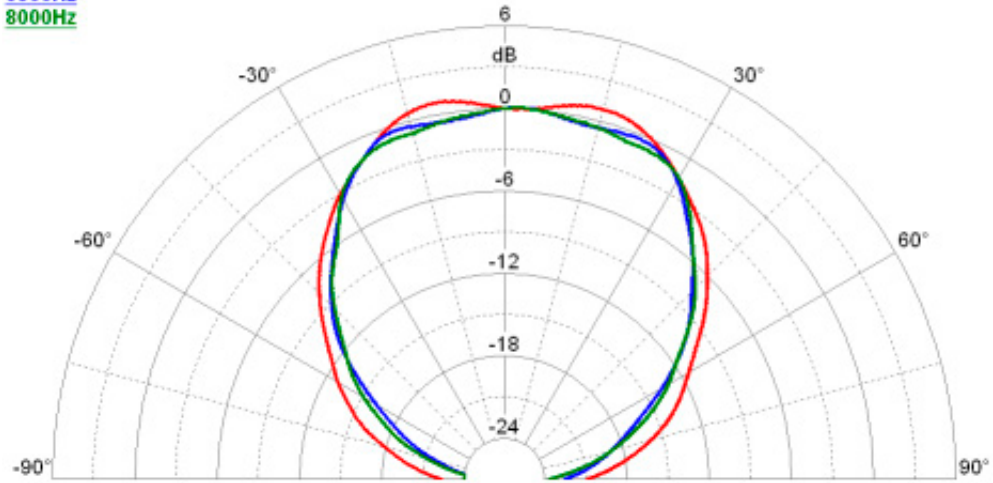
1250Hz
1600Hz
2000Hz



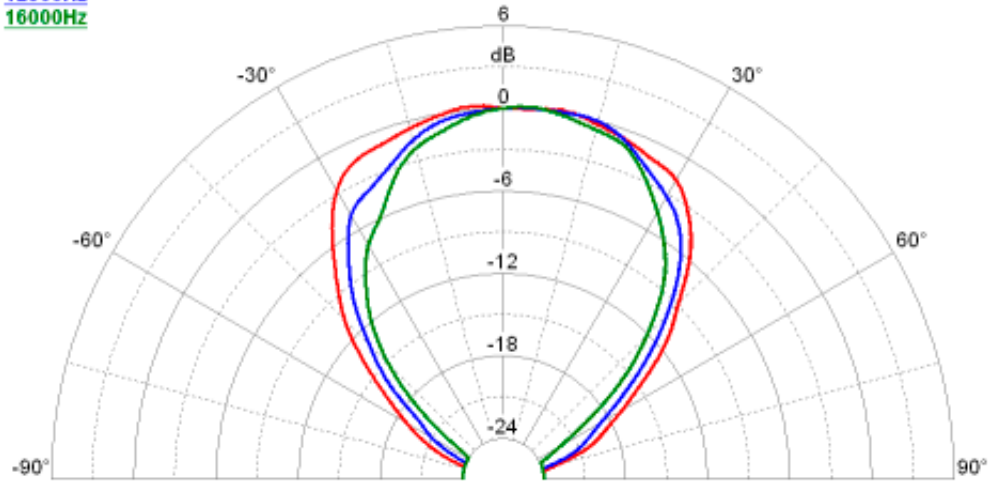
2500Hz
3150Hz
4000Hz



5000Hz
6300Hz
8000Hz

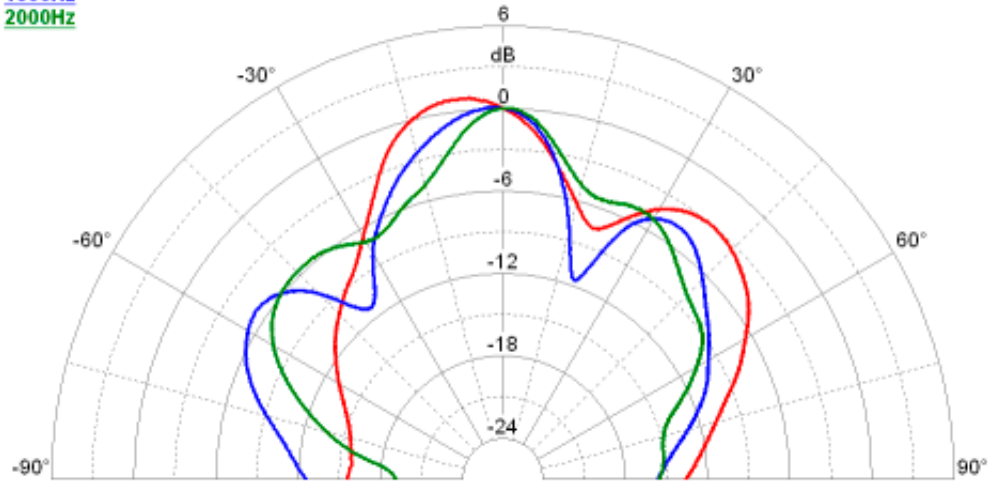


10000Hz
12500Hz
16000Hz



VERTICAL POLAR RESPONSE

1250Hz
1600Hz
2000Hz



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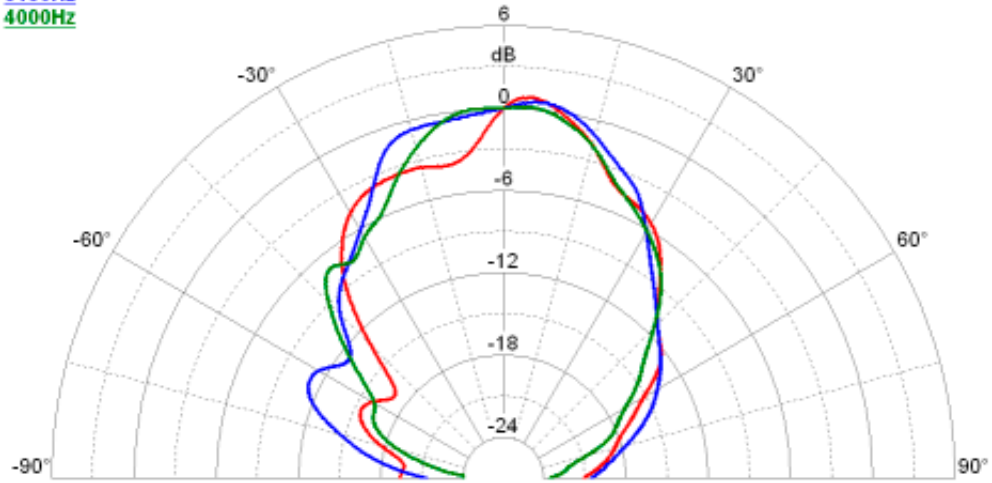

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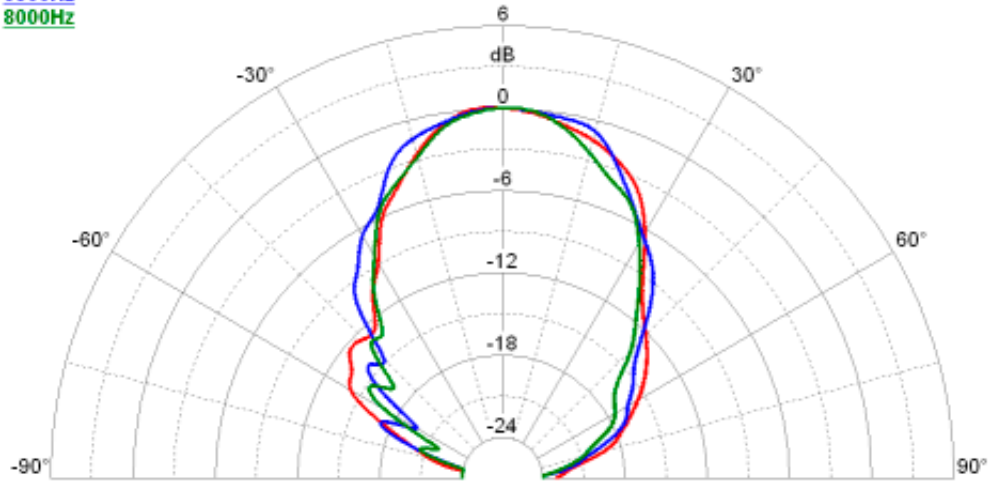
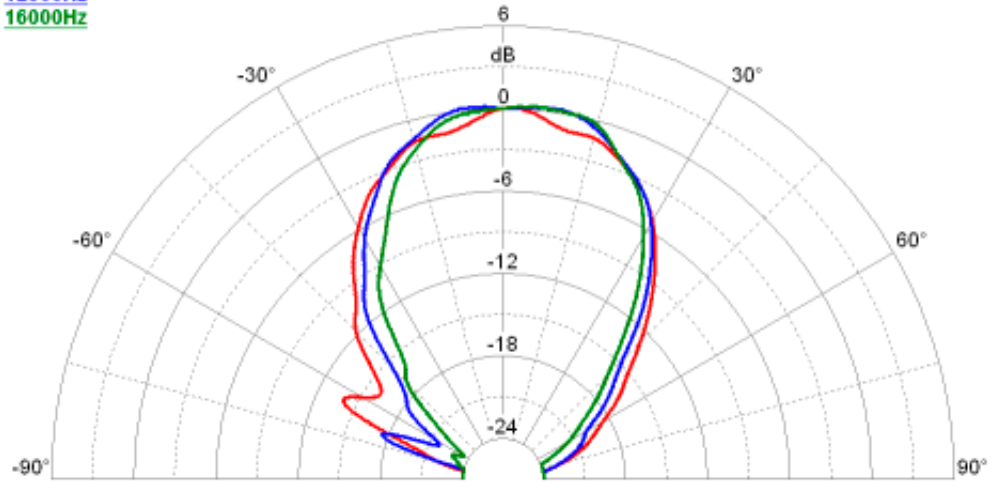
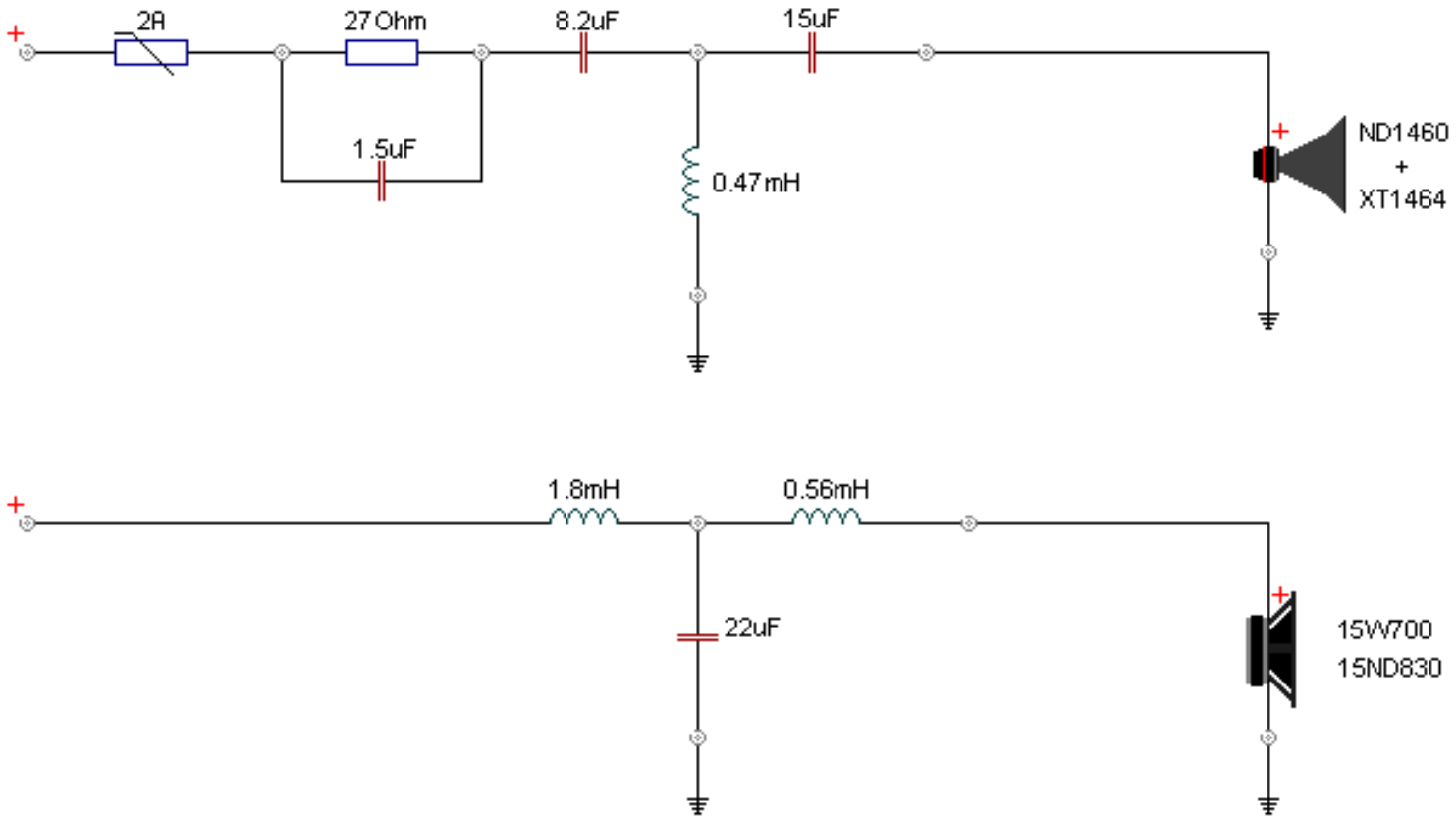


10000Hz
12500Hz
16000Hz

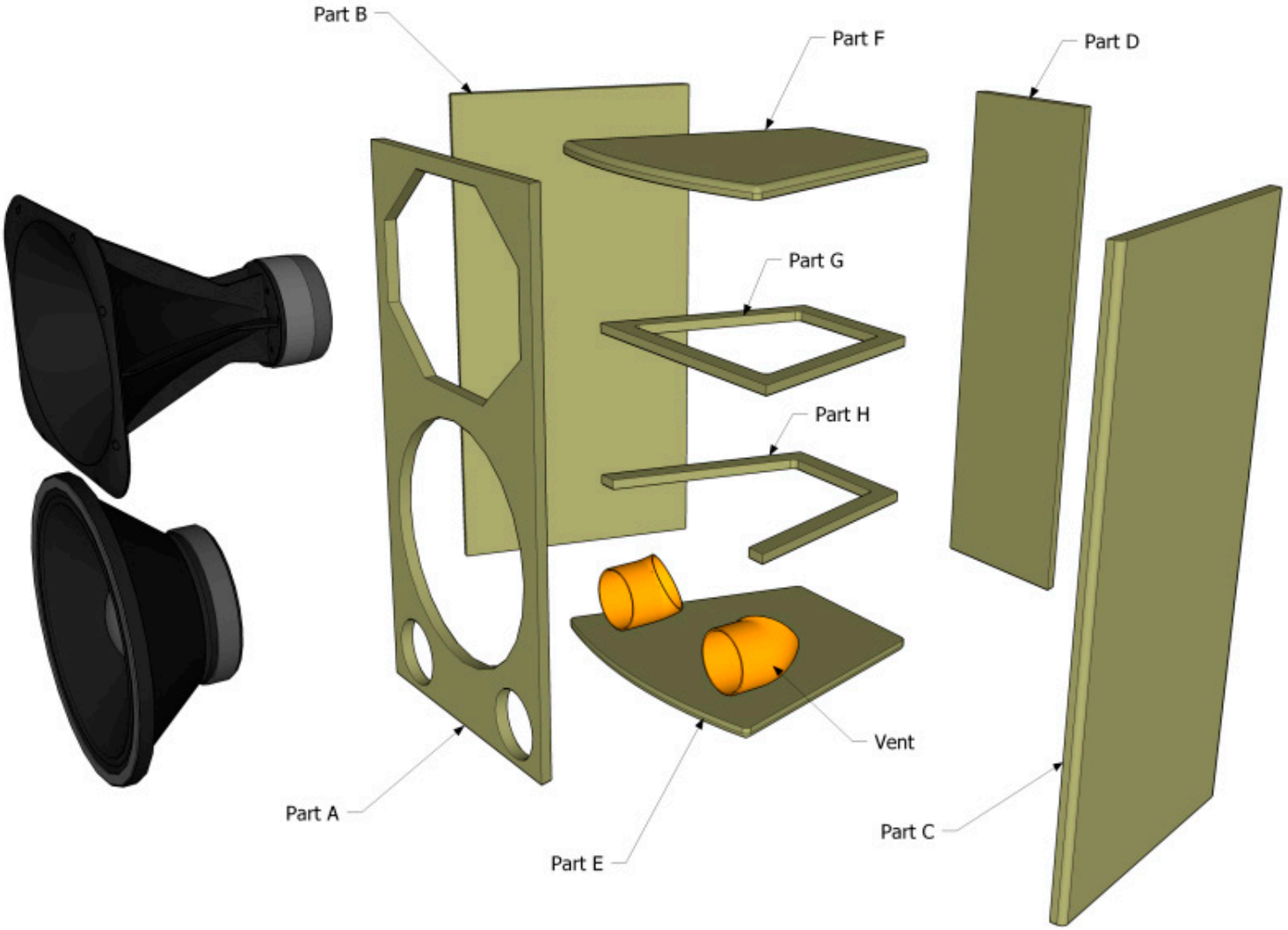


CROSSOVER SCHEMATICS

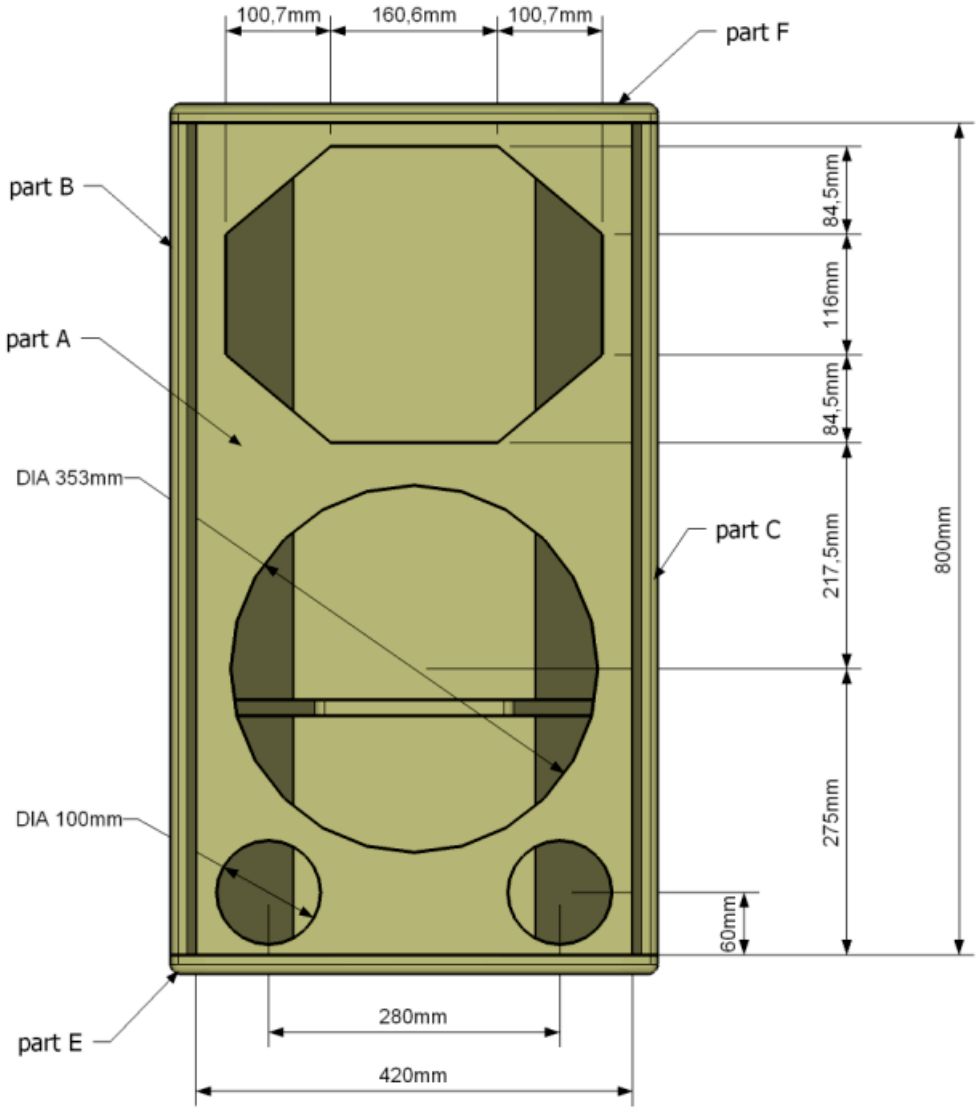
COMPONENTS LIST		
TYPE	VALUE	NOTE
Resistor	27 Ohm	>20W
Capacitor	1.5 uF	5% - >250V
Capacitor	8.2 uF	5% - >250V
Inductor	0.47 mH	<0.4 Ohm
Capacitor	15 uF	5% - >250V
Inductor	1.8 mH	<1.4 Ohm
Capacitor	22 uF	5% - >250V
Inductor	0.56 mH	<0.6 Ohm
PTC	2A	



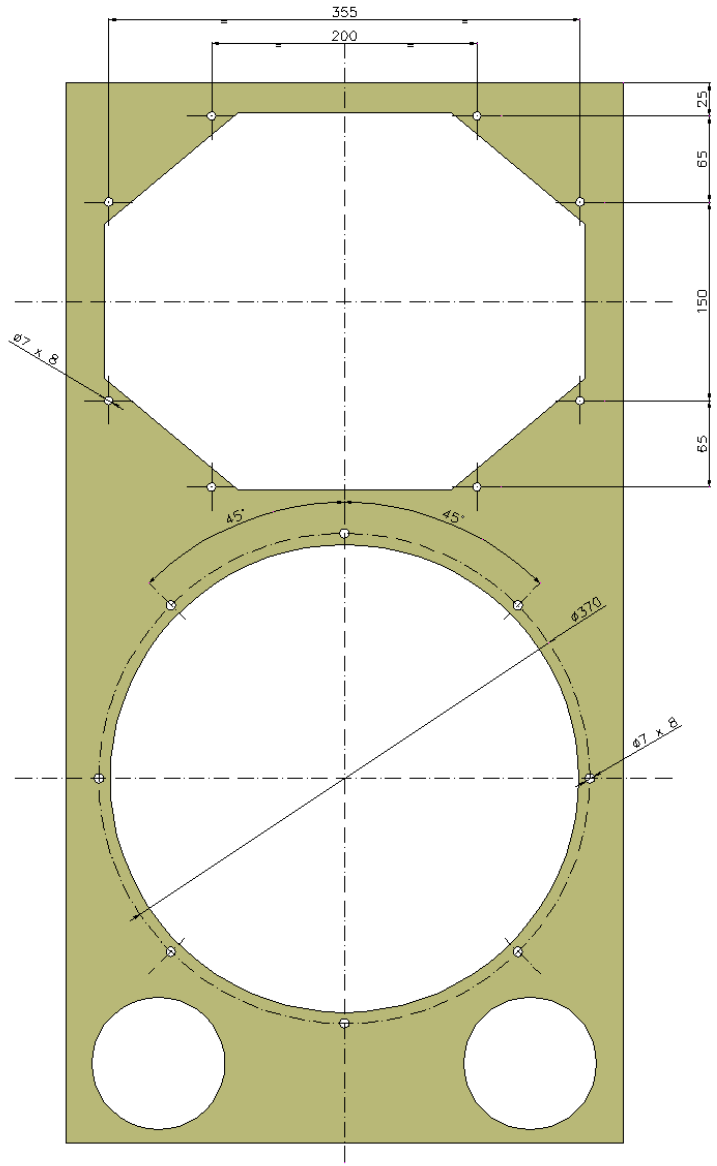
EXPLODED VIEW



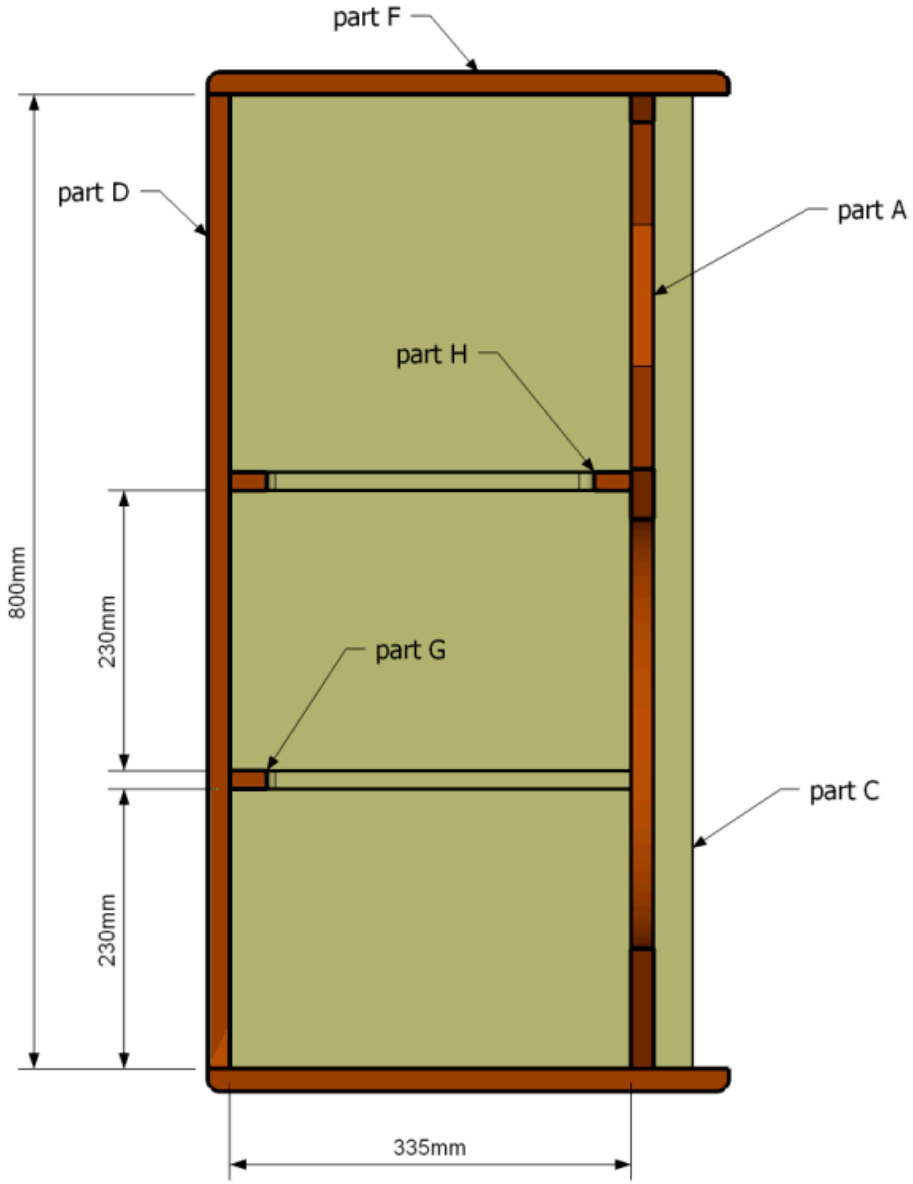
FRONT VIEW



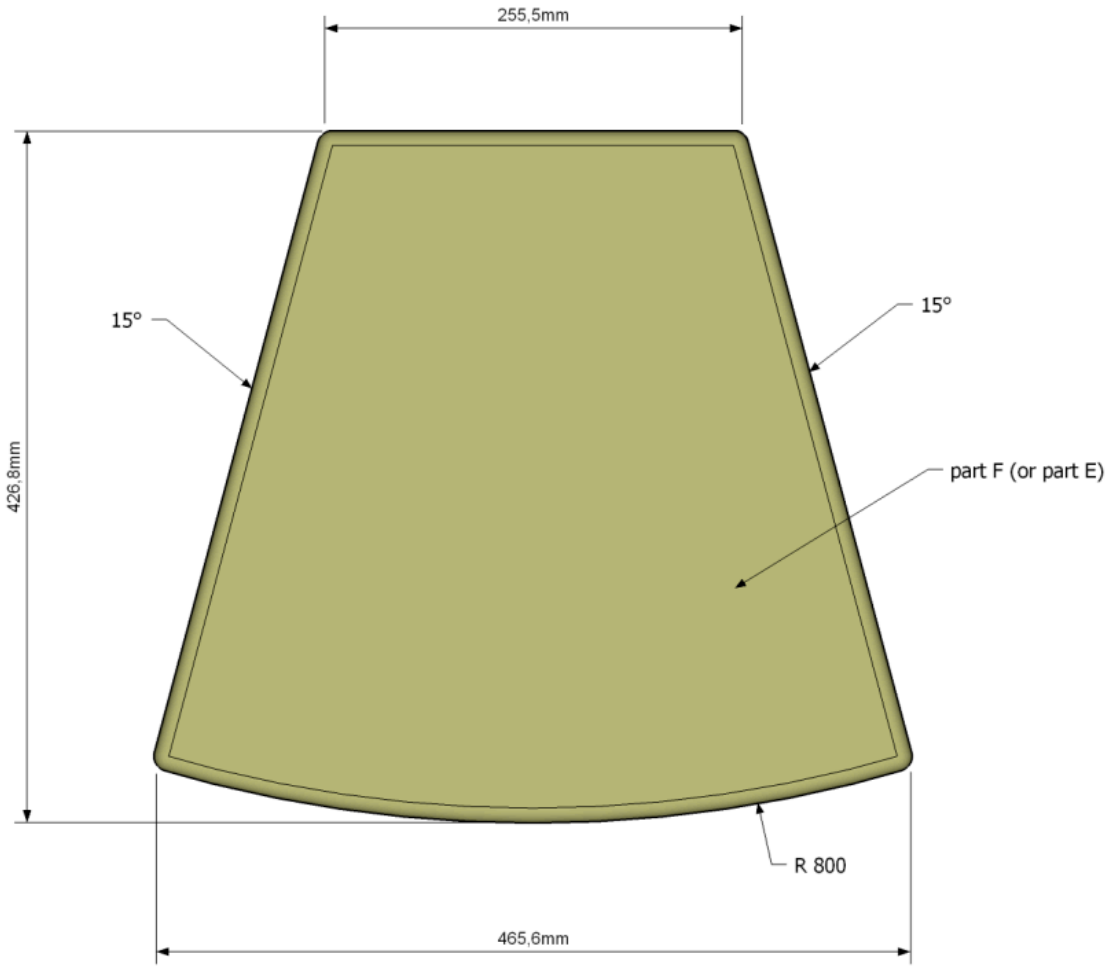
FRONT PANEL: BOLTS HOLES



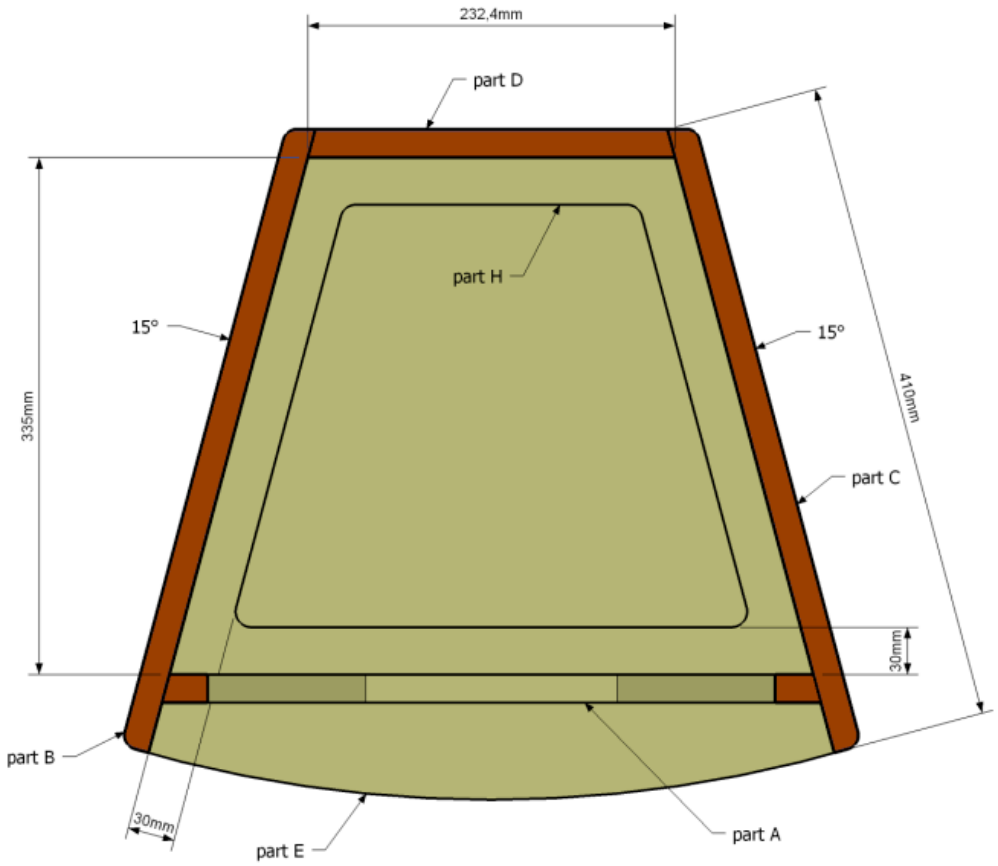
SIDE VIEW



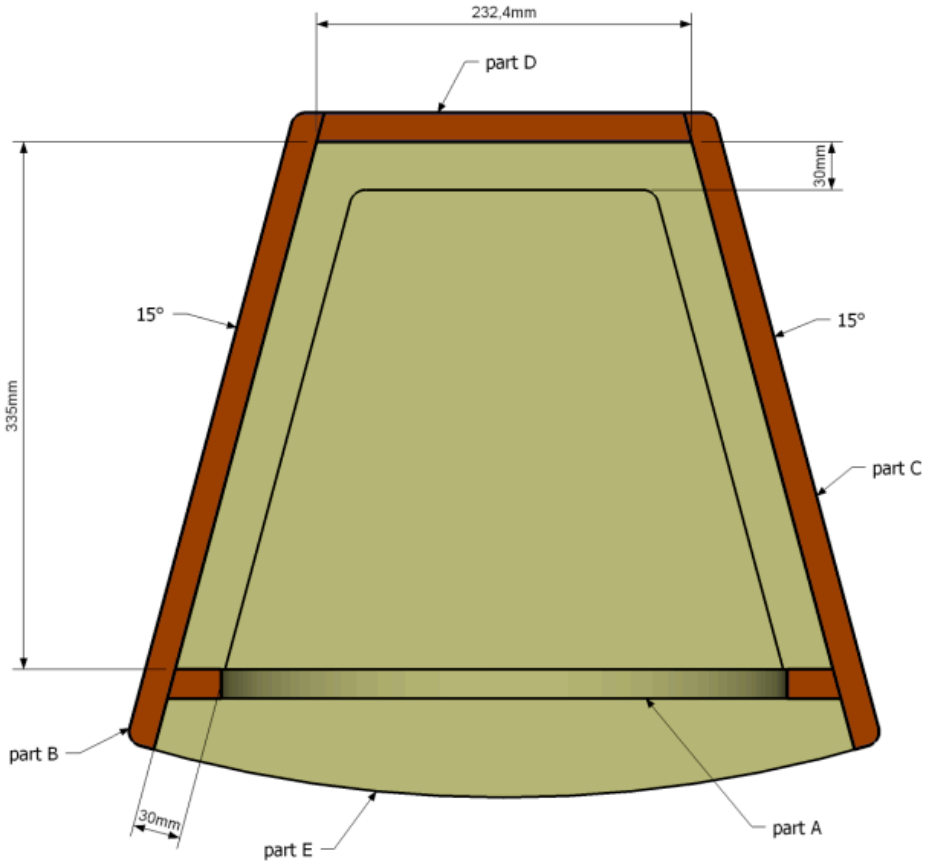
TOP VIEW



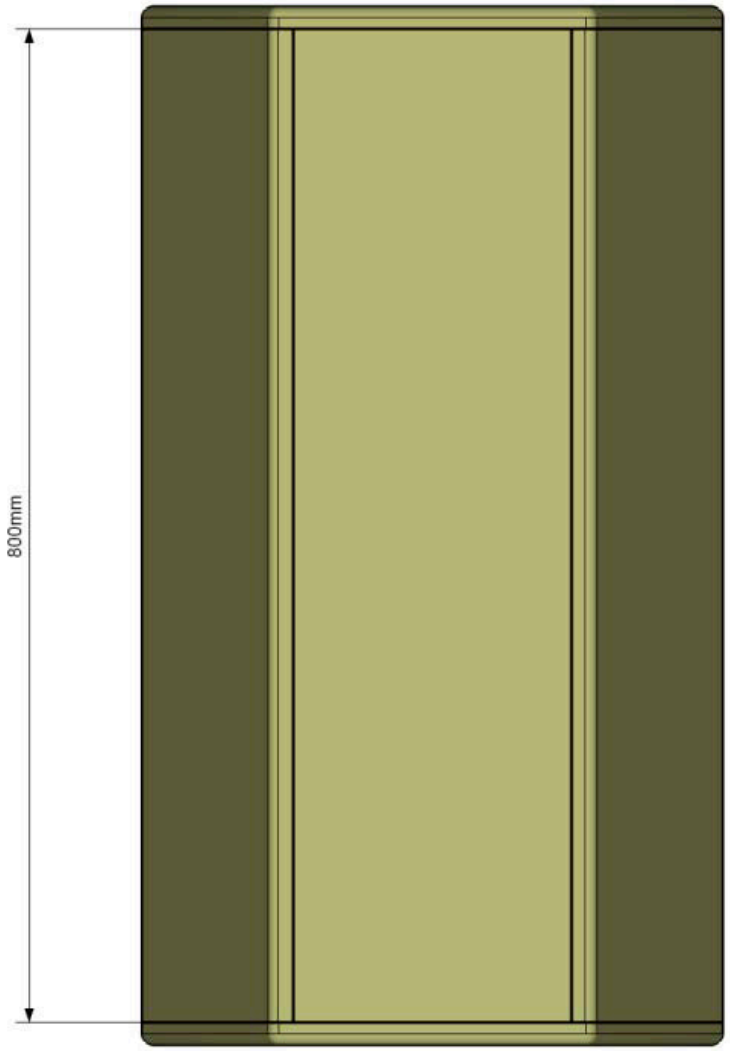
TOP VIEW SECTION: HORN HEIGHT SECTION



TOP VIEW SECTION: WOOFER HEIGHT SECTION



BACK VIEW



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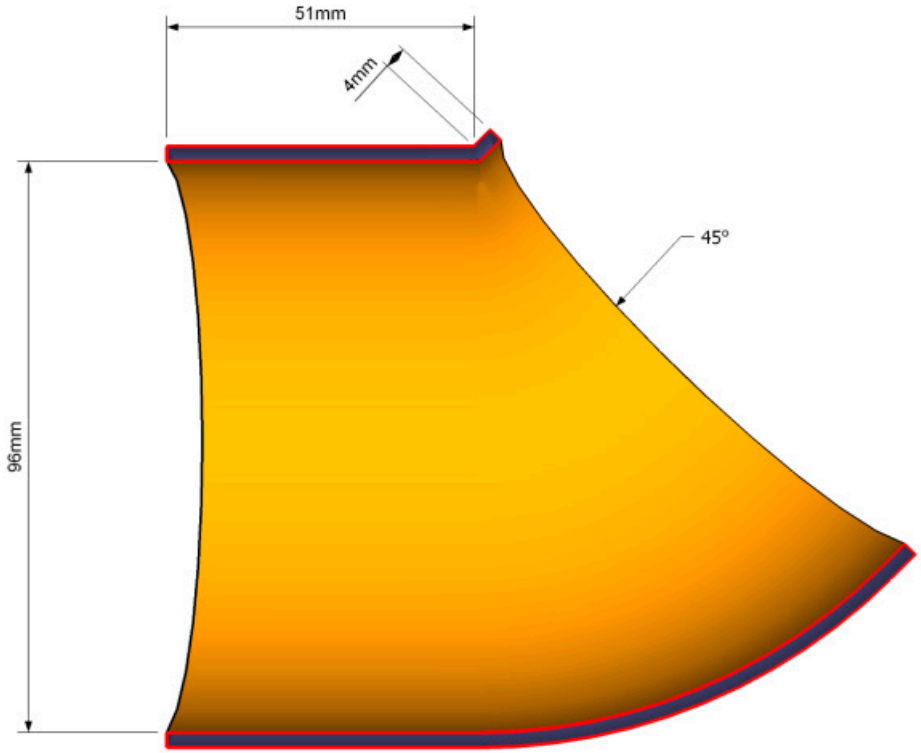

PLUMBING PIPE, 90° CONNECTION

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