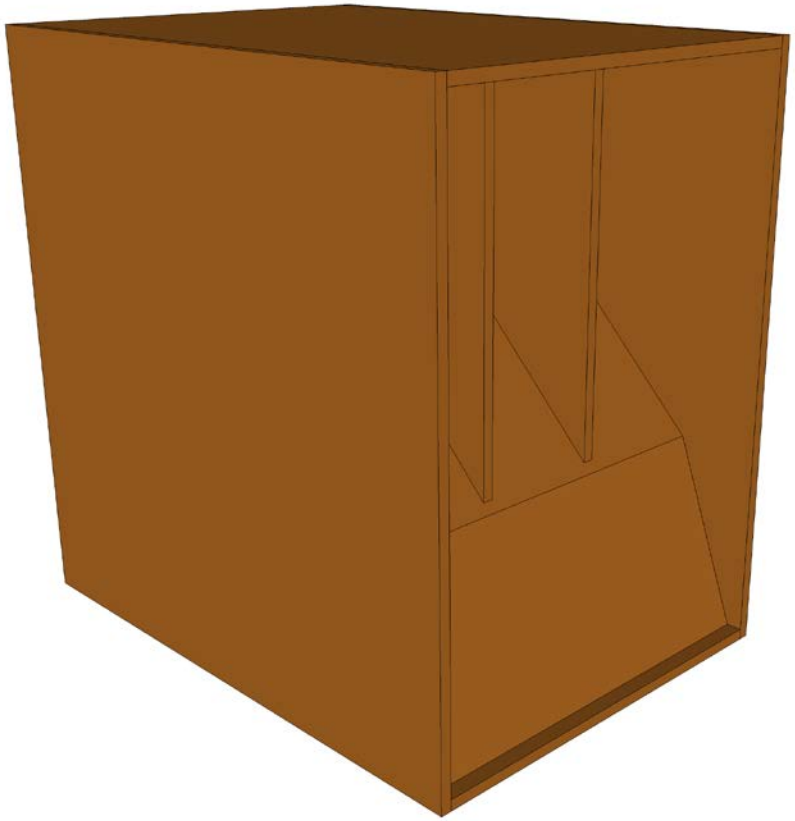
# APPLICATION NOTE



## HORN LOADED 18'' SUBWOOFER

# KEY FEATURES

18TLW3000

- High performance 1 x 18'' subwoofer system;
- Multiple driver choice is possible;

**18TLW3000** woofer key features:
1800 W AES power handling
100 mm (4 In) Tetracoil dual voice coil
Ultra linear suspension behaviour for excellent sound clarity
Low noise forced air cooling design

**18LW2500 woofer key features:**
1600 W AES power handling
100 mm (4 In) Interleaved voice coil (ISV)
Composite reinforced straight ribbed cone
Ultra linear dual magnet motor design

**18LW2400 woofer key features:**
1200 W AES power handling
100 mm (4 In) Interleaved voice coil (ISV)
Double Silicon Spider (DSS)
Double Demodulating Rings (DDR)

## General Specifications

| | |
|---|---|
| Nominal Diameter | 460 mm (18 in) |
| Rated Impedance | 8 Ohm |
| AES Power | 1800 W |
| Program Power | 3600 W |
| Peak Power | 10000 W |
| Sensitivity | 95 dB |
| Frequency Range | 30 - 2000 Hz |
| Power Compression @-10dB | 0,6 dB |
| Power Compression @-3dB | 2,0 dB |
| Power Compression @Full Power | 3,4 dB |
| Max Recomm. Frequency | 300 Hz |
| Recomm. Enclosure Volume | 100 - 350 lt. (3,53 - 12,36 cuft) |
| Minimum Impedance | 5,7 Ohm at 25°C |
| Max Peak To Peak Excursion | 45 mm (1.77 in) |
| Voice Coil Diameter | 100 mm (4 in) |
| Voice Coil winding material | copper |
| Suspension | Triple roll, Polycotton |
| Cone | Curvilinear fiberglass loaded cellulose |

## Thiele Small Parameters

| | |
|---|---|
| Fs | 33 Hz |
| Re | 4,6 Ohm |
| Sd | 0,1225 sq. mt. (189,88 sq. in.) |
| Qms | 13,00 |
| Qes | 0,42 |
| Qts | 0,41 |
| Vas | 185 lt. (6.53 cuft) |
| Mms | 266 gr. (0,59 lb) |
| BL | 24,5 Tm |
| Linear Mathematical Xmax | ± 12 mm (± 0,47 in) |
| Le (1kHz) | 1,80 mH |
| Ref. Efficiency 1W@1m (half space) | 94,0 dB |

# KEY FEATURES

## 18LW2400

### General Specifications

| | |
|---|---|
| Nominal Diameter | 460 mm (18 in) |
| Rated Impedance | 8 Ohm |
| AES Power | 1200 W |
| Program Power | 2400 W |
| Peak Power | 7000 W |
| Sensitivity | 98 dB |
| Frequency Range | 31 - 2500 Hz |
| Power Compression @-10dB | 0,7 dB |
| Power Compression @-3dB | 1,5 dB |
| Power Compression @Full Power | 2,2 dB |
| Max Recomm. Frequency | 500 Hz |
| Recomm. Enclosure Volume | 130 - 350 lt. (4,59 - 12,36 cuft) |
| Minimum Impedance | 6,3 Ohm at 25°C |
| Max Peak To Peak Excursion | 50 mm (1,97 in) |
| Voice Coil Diameter | 100 mm (4 in) |
| Voice Coil winding material | copper |
| Suspension | Triple roll, Polycotton |
| Cone | Straight ribbed, fiberglass reinforced cellulose |

### Thiele Small Parameters

| | |
|---|---|
| Fs | 35 Hz |
| Re | 5 Ohm |
| Sd | 0,1225 sq. mt. (189,88 sq. in.) |
| Qms | 7,2 |
| Qes | 0,32 |
| Qts | 0,31 |
| Vas | 230 lt. (8.12 cuft) |
| Mms | 192 gr. (0,42 lb) |
| BL | 25,6 Tm |
| Linear Mathematical Xmax | ± 9,5 mm (± 0,38 in) |
| Le (1kHz) | 1,35 mH |
| Ref. Efficiency 1W@1m (half space) | 96,7 dB |

## 18LW2500

### General Specifications

| | |
|---|---|
| Nominal Diameter | 462 mm (18 in) |
| Rated Impedance | 8 Ohm |
| AES Power | 1600 W |
| Program Power | 3200 W |
| Peak Power | 7200 W |
| Sensitivity | 95 dB |
| Frequency Range | 30 Hz - 1000 Hz |
| Power Compression @-10dB | 0,6 dB |
| Power Compression @-3dB | 2,2 dB |
| Power Compression @Full Power | 3,3 dB |
| Max Recomm. Frequency | 250 Hz |
| Recomm. Enclosure Volume | 160-350 lt (4.59 - 12.37 cuft) |
| Minimum Impedance | 6,1 @ 25° |
| Max Peak To Peak Excursion | 70 mm (2,76 in) |
| Voice Coil Diameter | 100 mm (4 in) |
| Voice Coil winding material | Copper wire |
| Suspension | Triple roll, Heavy Polycotton |
| Cone | Curved ribbed fiber loaded cellulose |

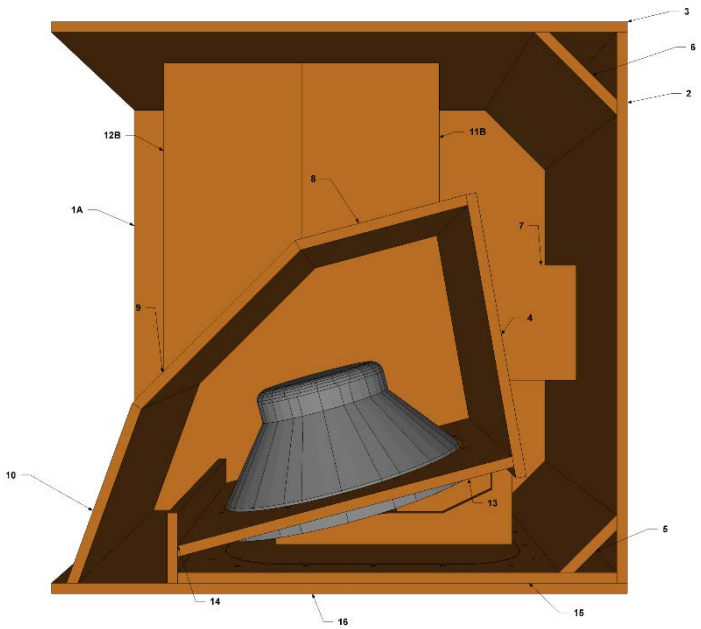
### Thiele Small Parameters

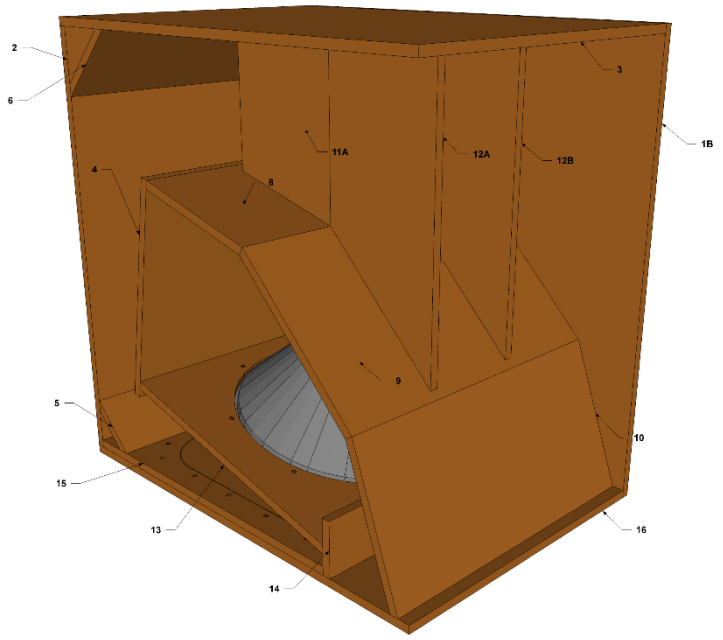
| | |
|---|---|
| Fs | 34 Hz |
| Re | 4,9 Ohm |
| Sd | 0,113 sq.m (175,15 sq.in) |
| Qms | 22 |
| Qes | 0,34 |
| Qts | 0,33 |
| Vas | 135 lt. (4.76 cu.ft) |
| Mms | 290 gr. (0,64 lb) |
| BL | 30 Tm |
| Linear Mathematical Xmax | ±14 mm (±0,55 in) |
| Le (1kHz) | 2,87 mH |
| Ref. Efficiency 1W@1m (half space) | 93,8 dB |

18 EIGHTEEN SOUND PROFESSIONAL LOUDSPEAKERS

# KEY FEATURES

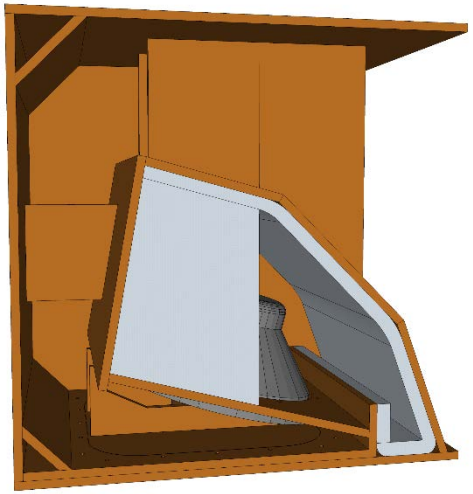
- The enclosure should be made of Baltic birch plywood (15mm thickness)
- Bolts are M6x35mm (M6 T-Nuts recommended)
- Handling, rigging and connectors are user's choice

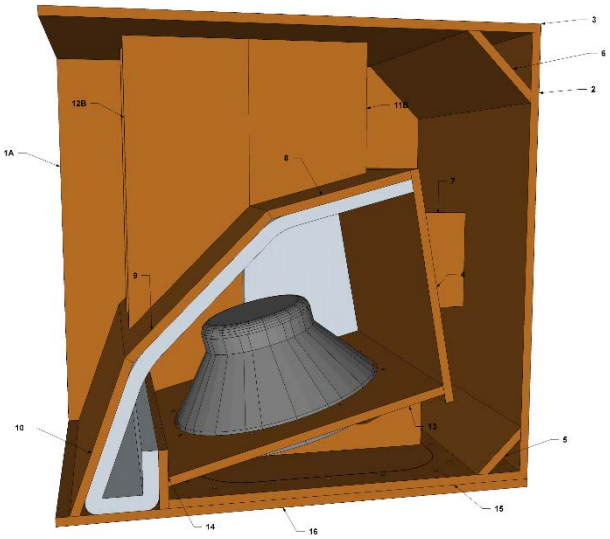


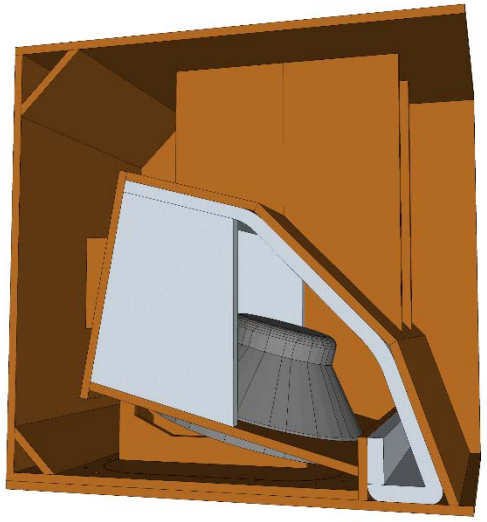



# KEY FEATURES

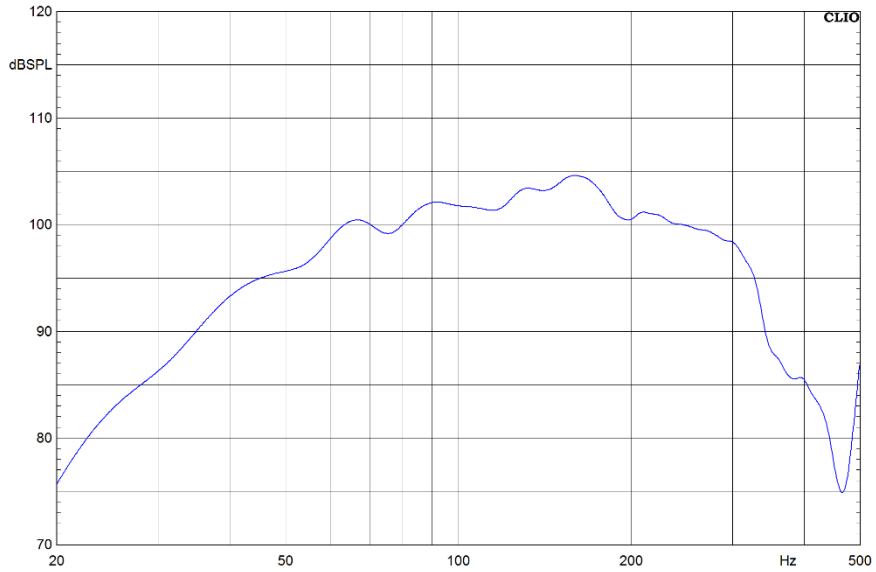
- It's recommended to well damp the cabinet interior (an high density dampening material, such as Dacron or other synthetic fibers, is required for better performance)
- You should use the image as an example



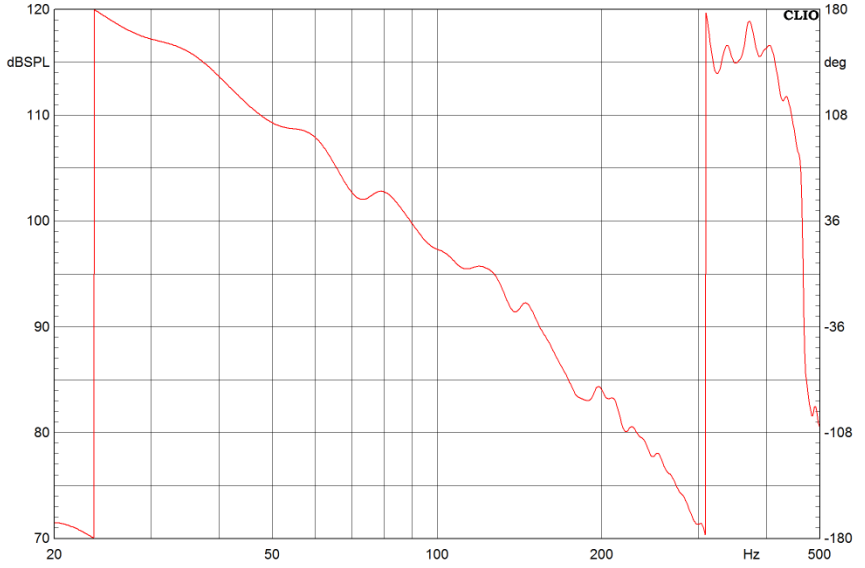


# UNFILTERED MAGNITUDE RESPONSE, 2.83V/1M AND RELATIVE PHASE RESPONSE WITH 18TLW3000

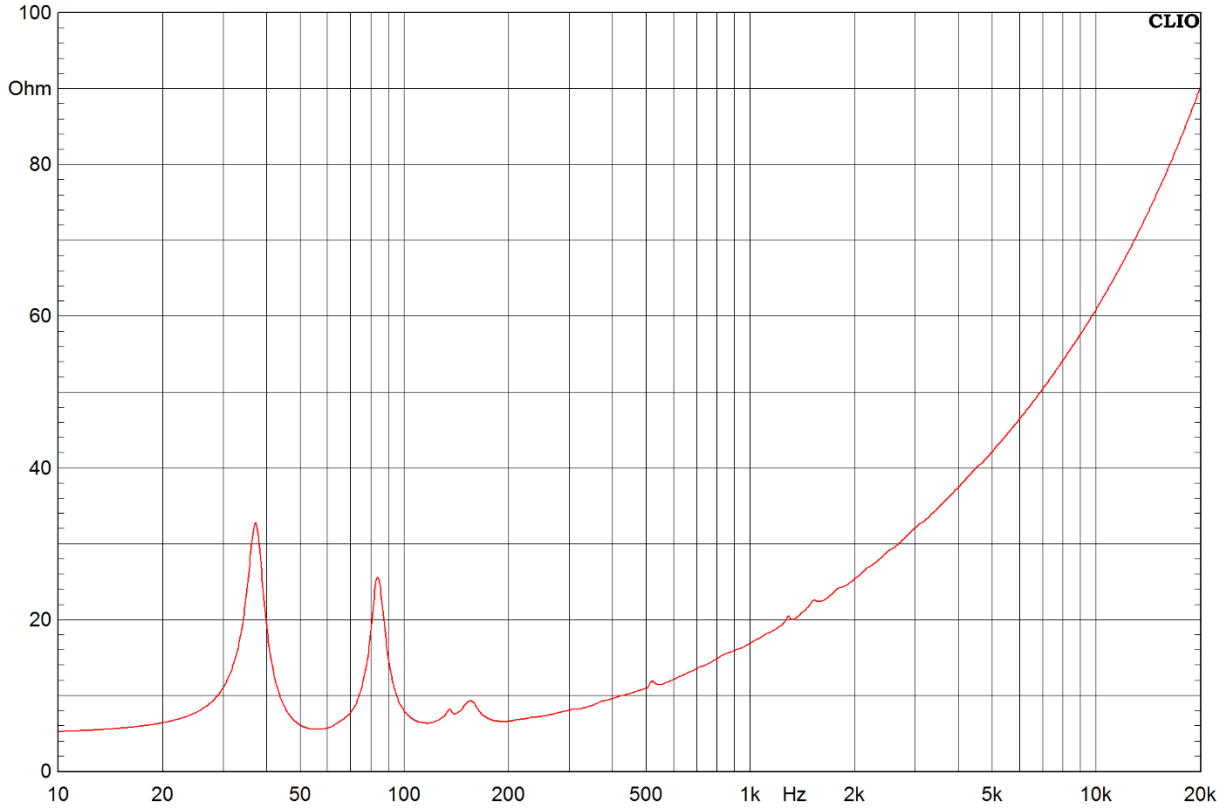



MAGNITUDE RESPONSE

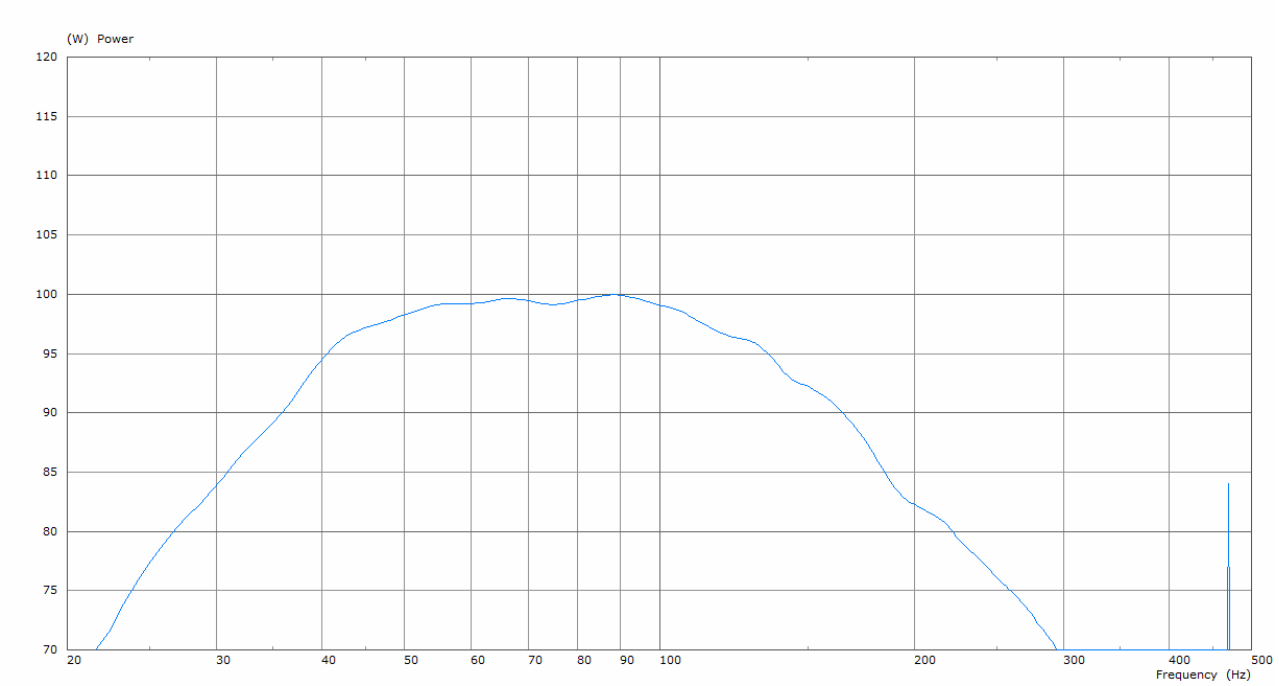



PHASE RESPONSE

# IMPEDANCE RESPONSE WITH 18TLW3000



# FILTERED MAGNITUDE RESPONSE, 2.83V/1M WITH 18TLW3000

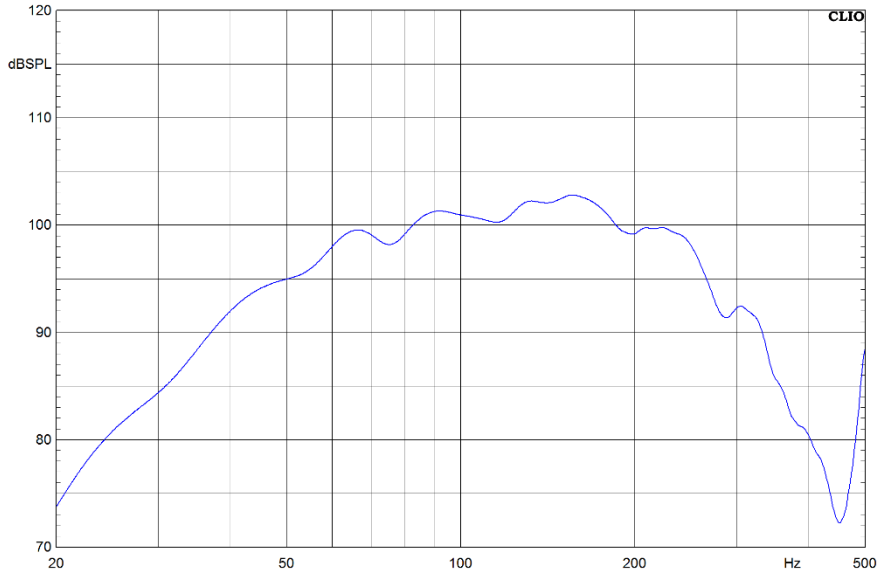



EQUALIZATION SETTINGS SUGGESTION

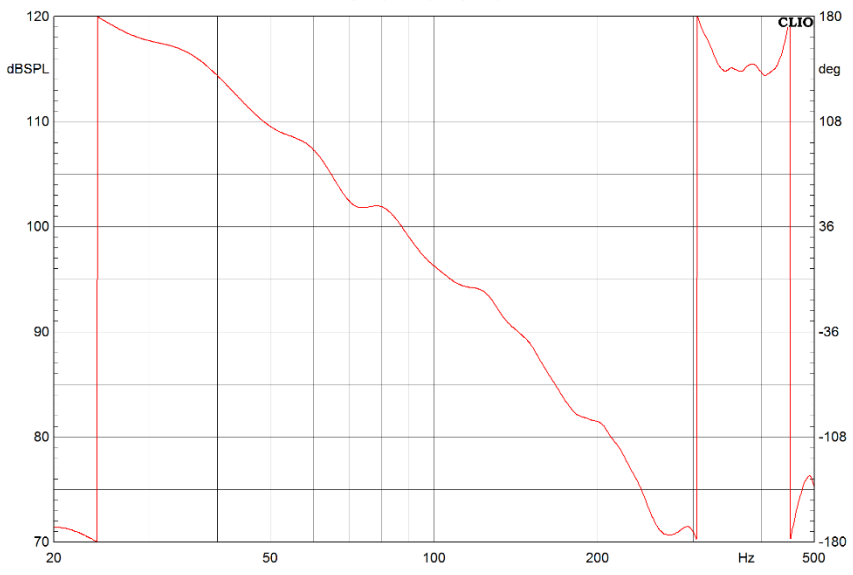
High Pass: Butterworth 12dB/Oct 45Hz
Parametric EQ: fo = 150 / -9dB / Q = 1
Parametric EQ: fo = 90 / -3dB / Q = 3
Parametric EQ: fo = 50 / 1dB / Q = 2
Low Pass: Butterworth 24dB/Oct 120Hz

GAIN = 3dB

# UNFILTERED MAGNITUDE RESPONSE, 2.83V/1M AND RELATIVE PHASE RESPONSE WITH 18LW2500

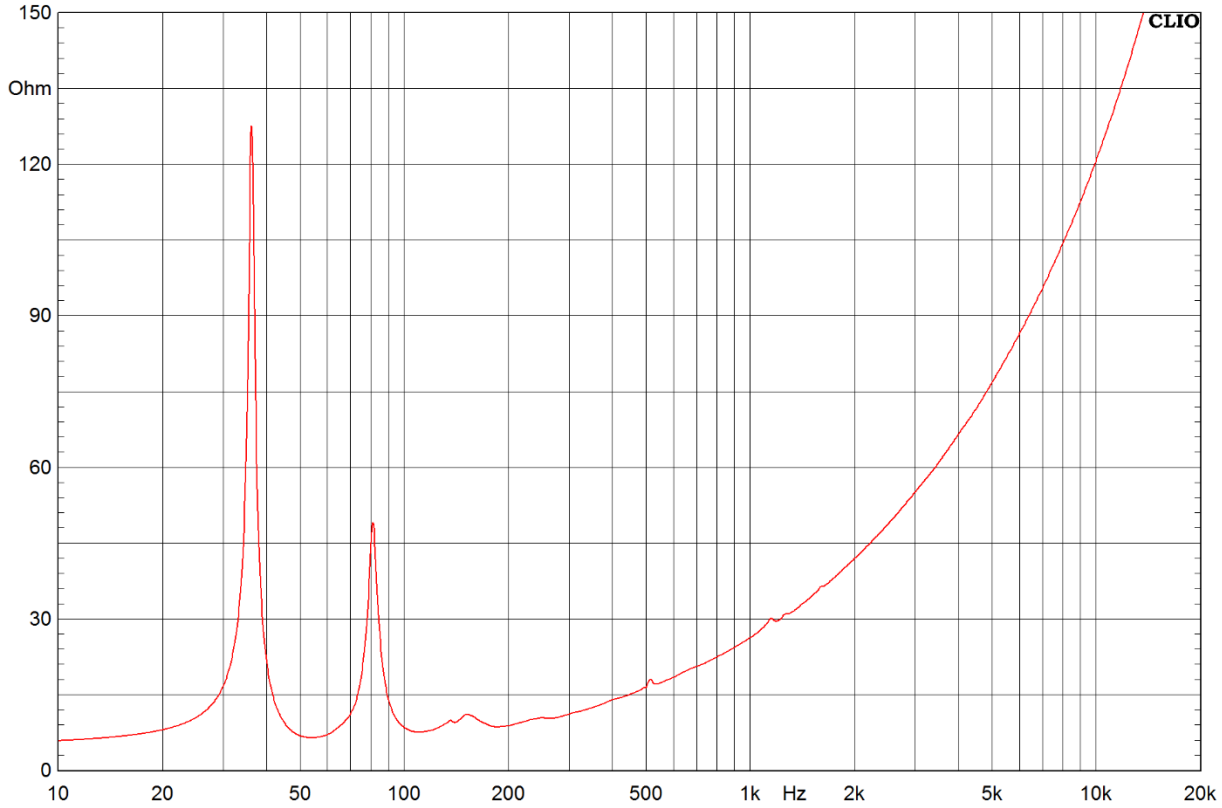



MAGNITUDE RESPONSE

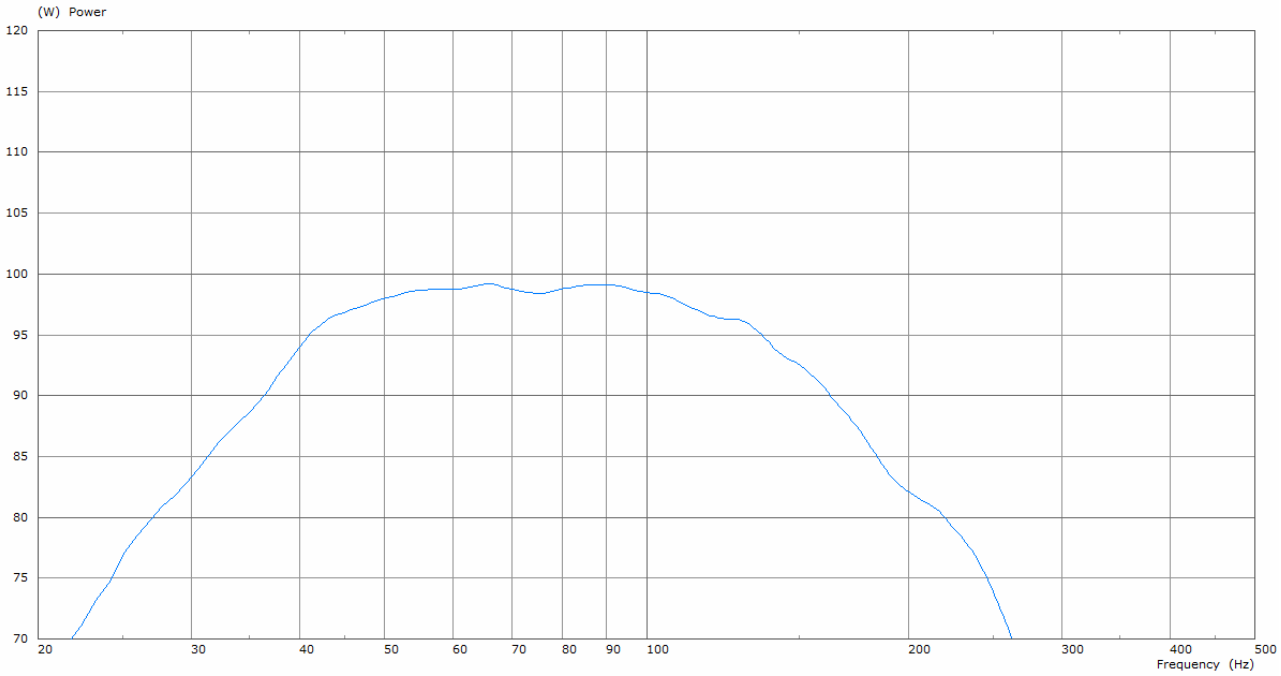



PHASE RESPONSE

# IMPEDANCE RESPONSE WITH 18LW2500



# FILTERED MAGNITUDE RESPONSE, 2.83V/1M PHASE WITH 18LW2500

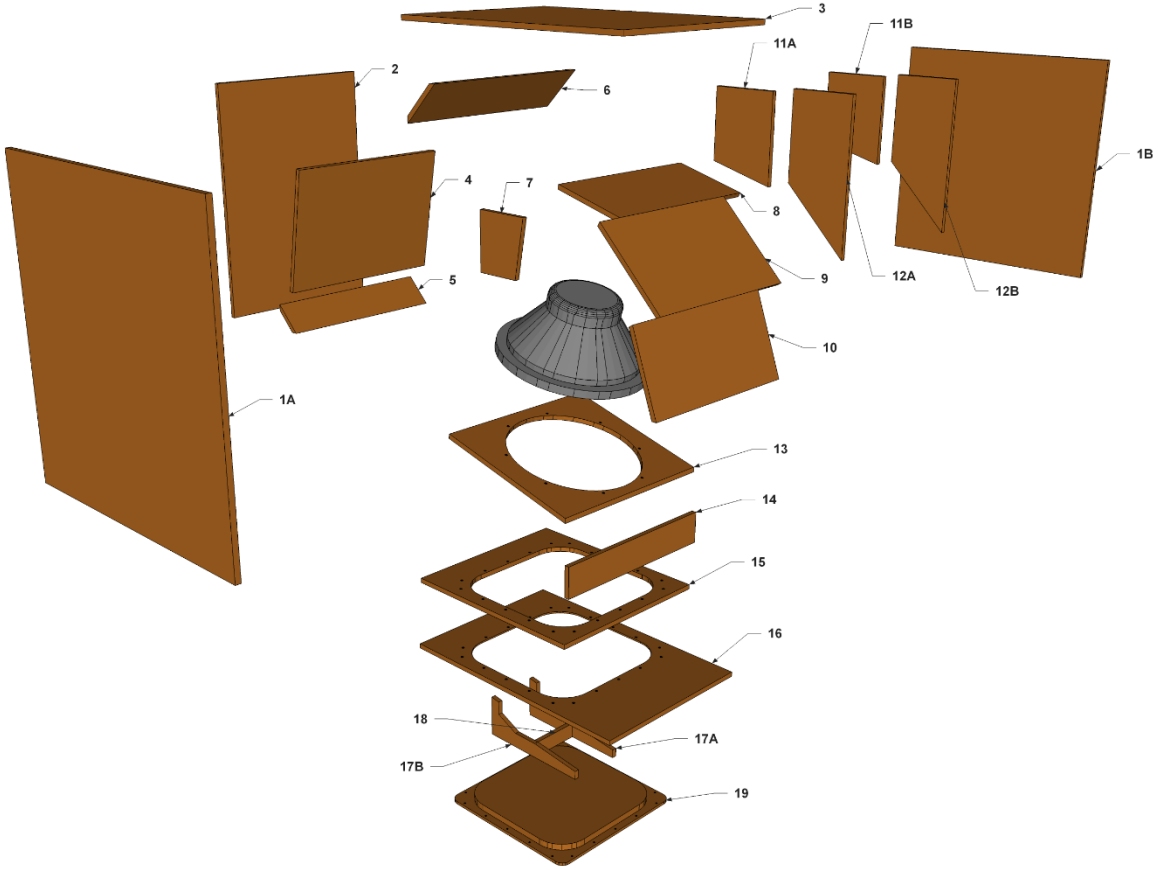



## EQUALIZATION SETTINGS SUGGESTION

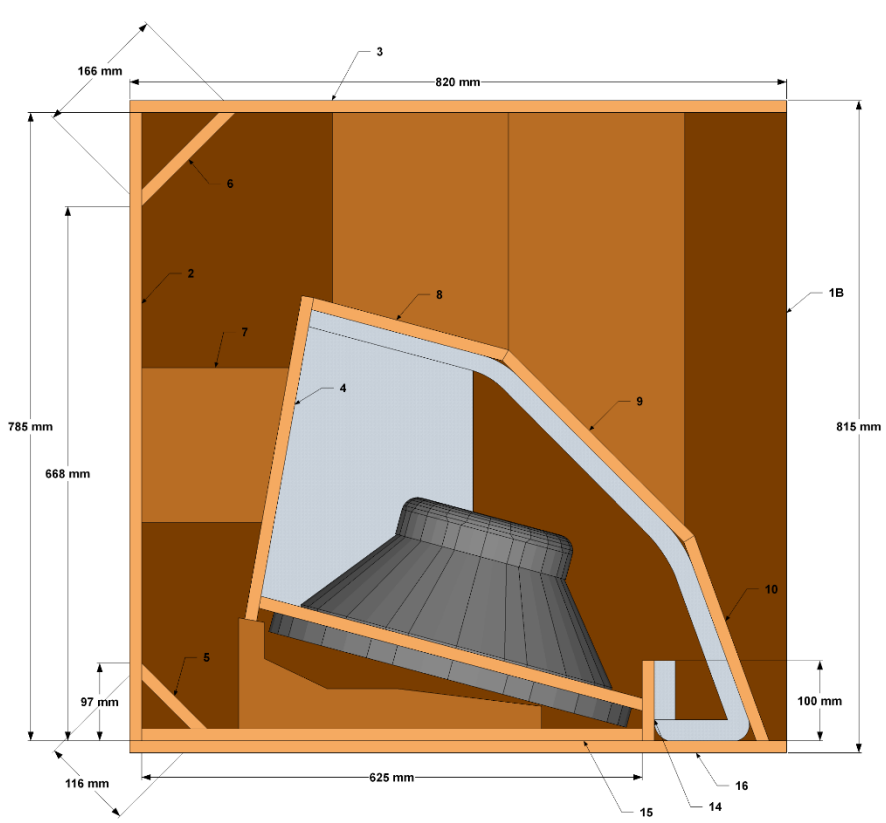
High Pass: Butterworth 12dB/Oct 45Hz
Parametric EQ: fo = 150 / -7dB / Q = 1
Parametric EQ: fo = 90 / -4dB / Q = 3
Parametric EQ: fo = 50 / 1dB / Q = 2
Low Pass: Butterworth 24dB/Oct 120Hz

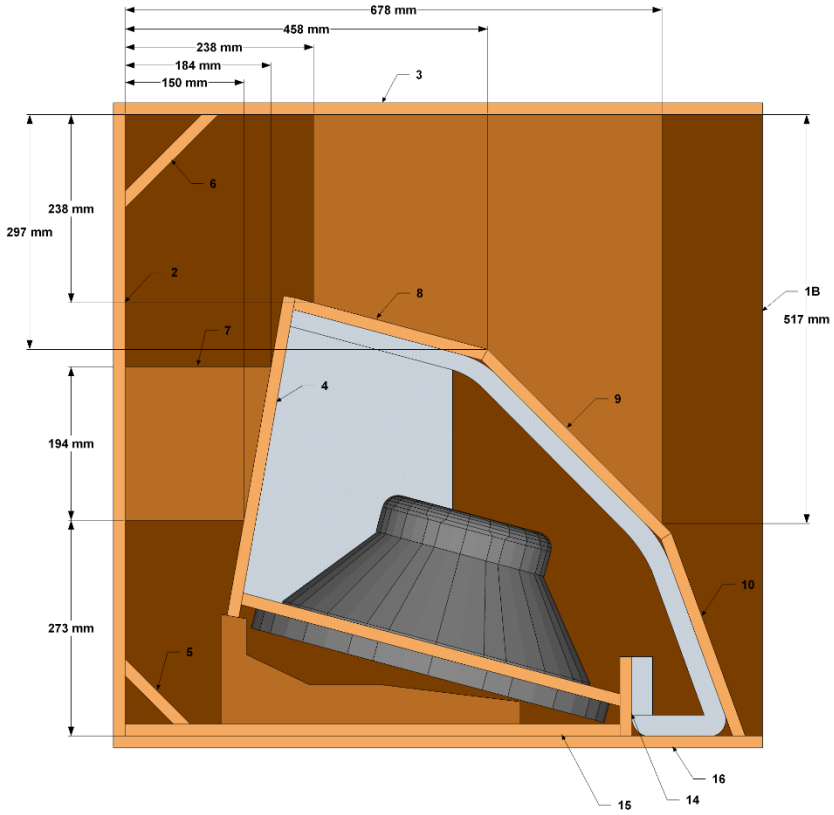
GAIN = 3dB

# EXPLODED VIEW

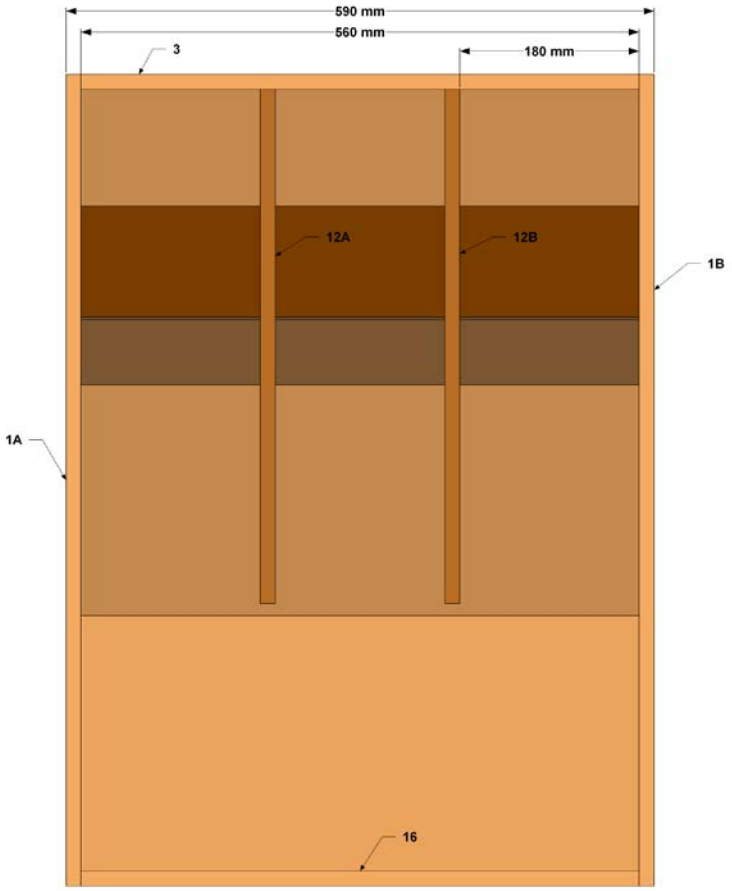


# SIDE VIEW

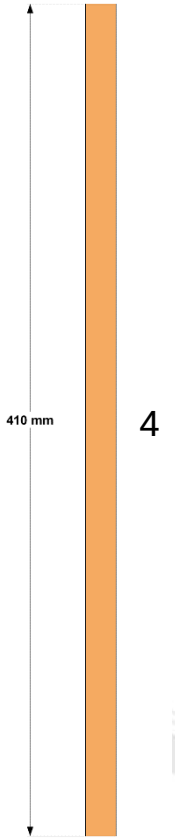


# FRONT SIDE



# DETAILS: HORN CONSTRUCTION

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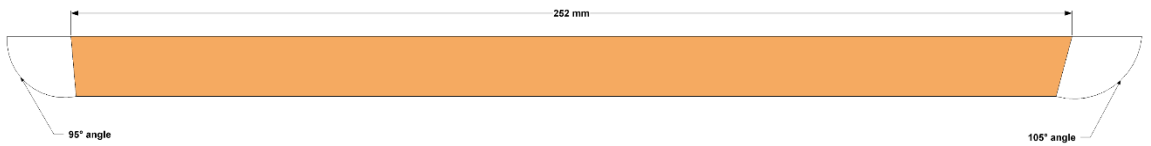


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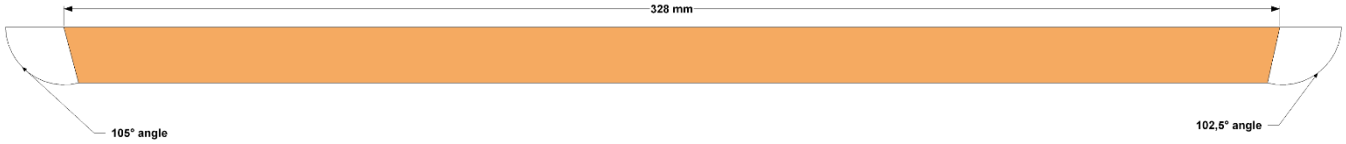


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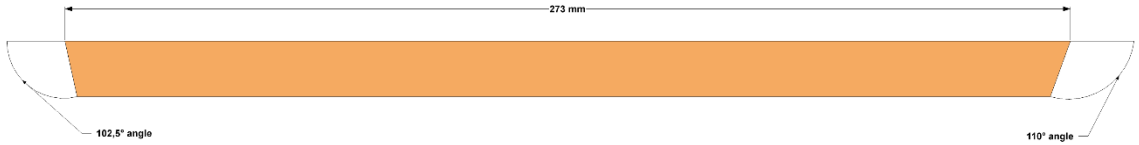
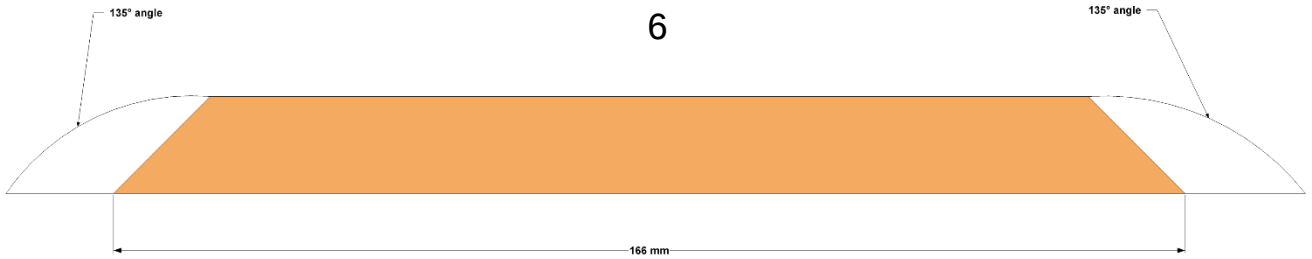
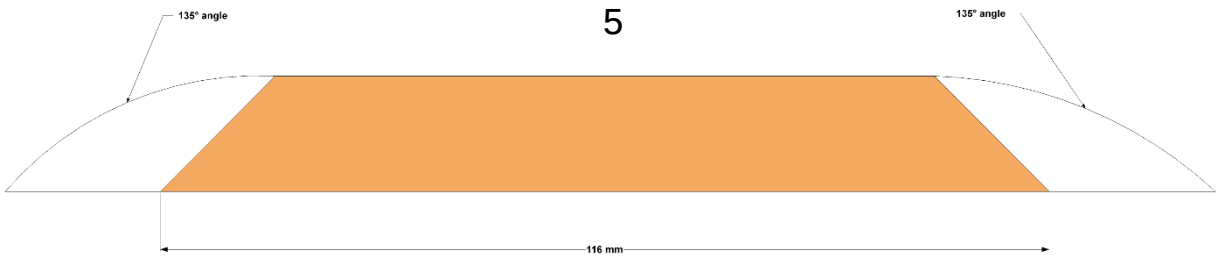
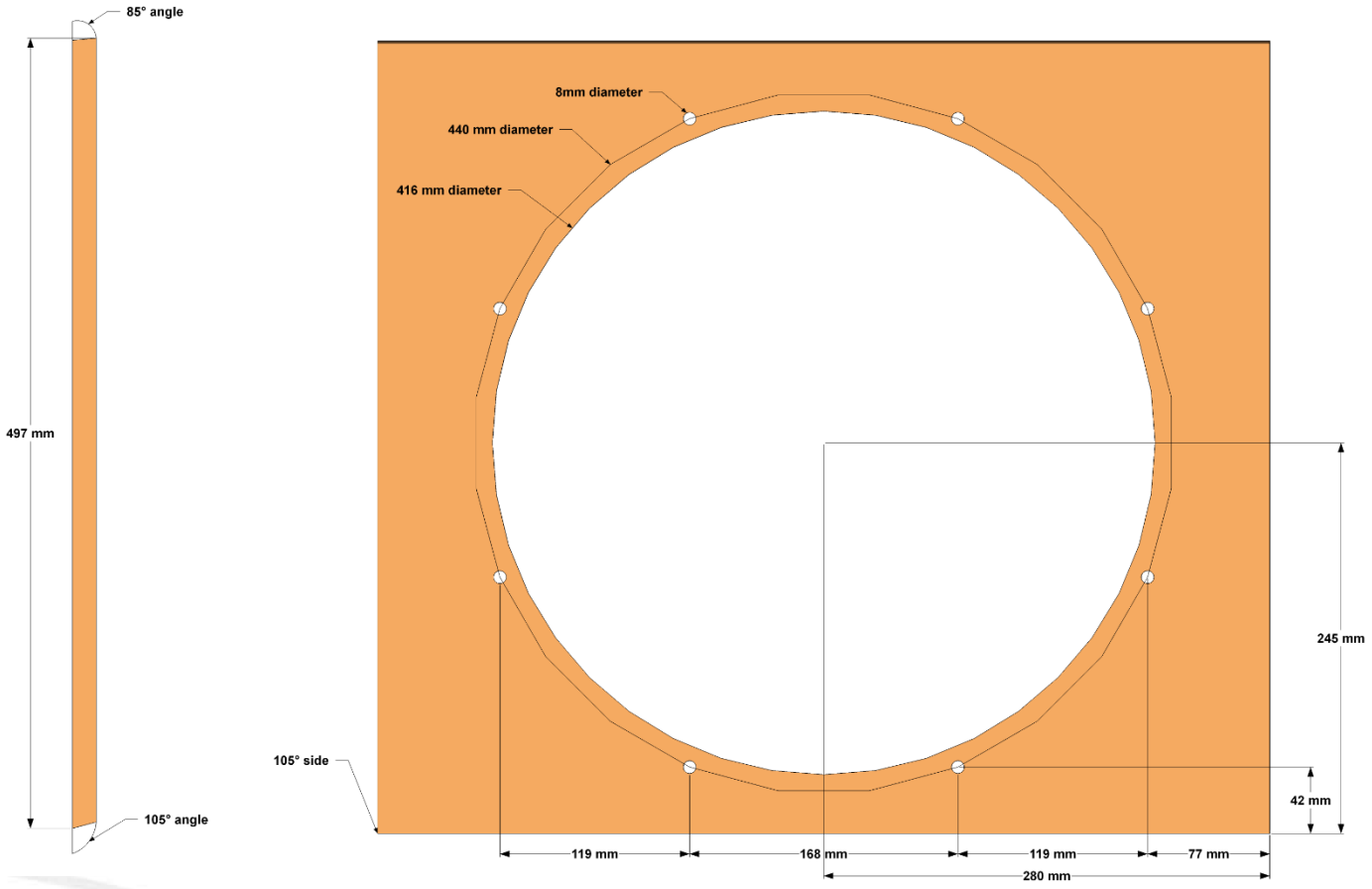


# DETAILS: REAR CONSTRUCTION

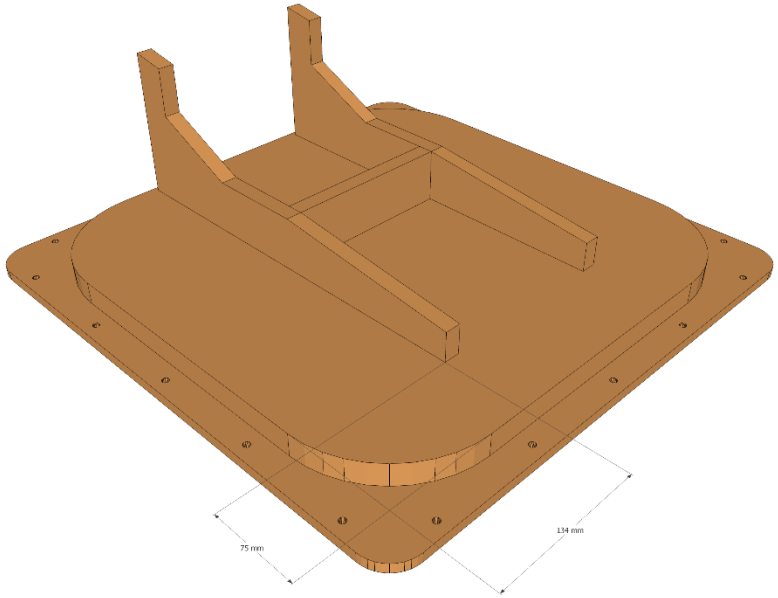


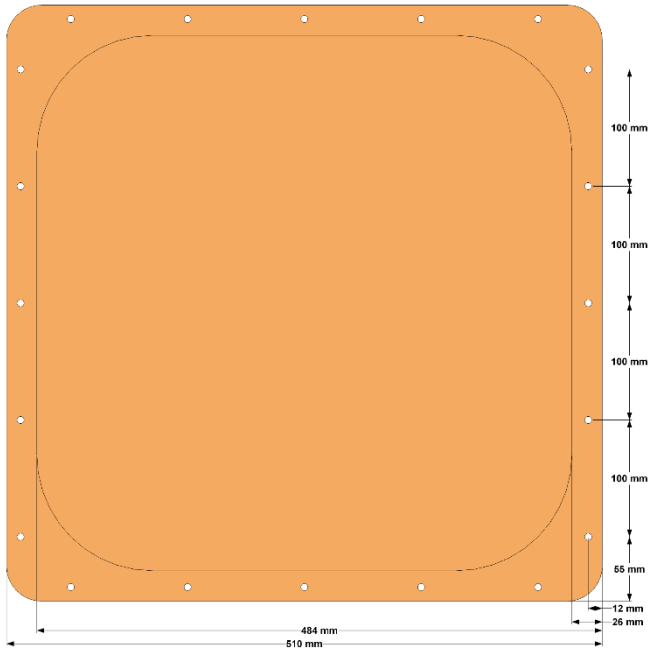



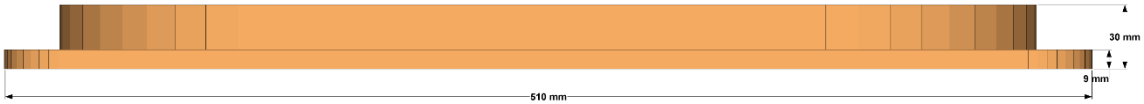
# DETAILS: WOOFER



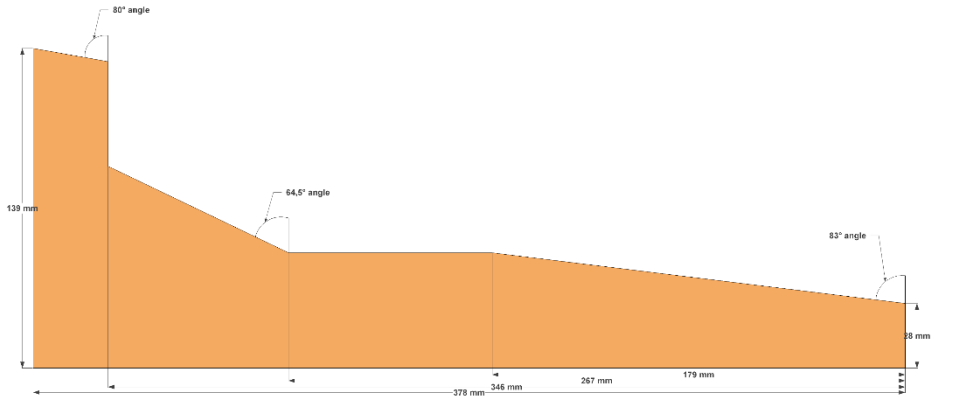
# DETAILS: ACCESS PANEL

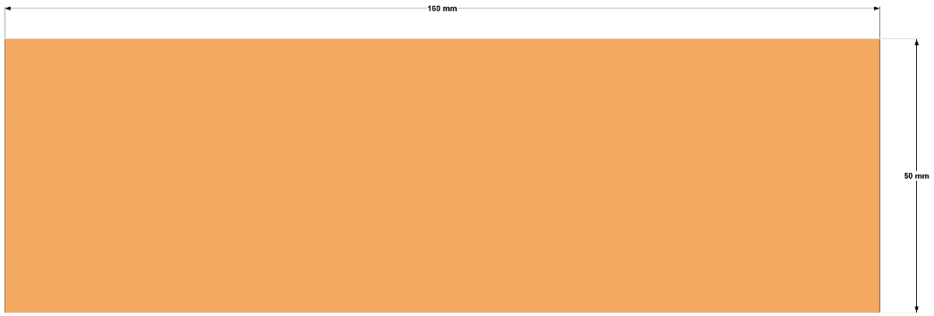


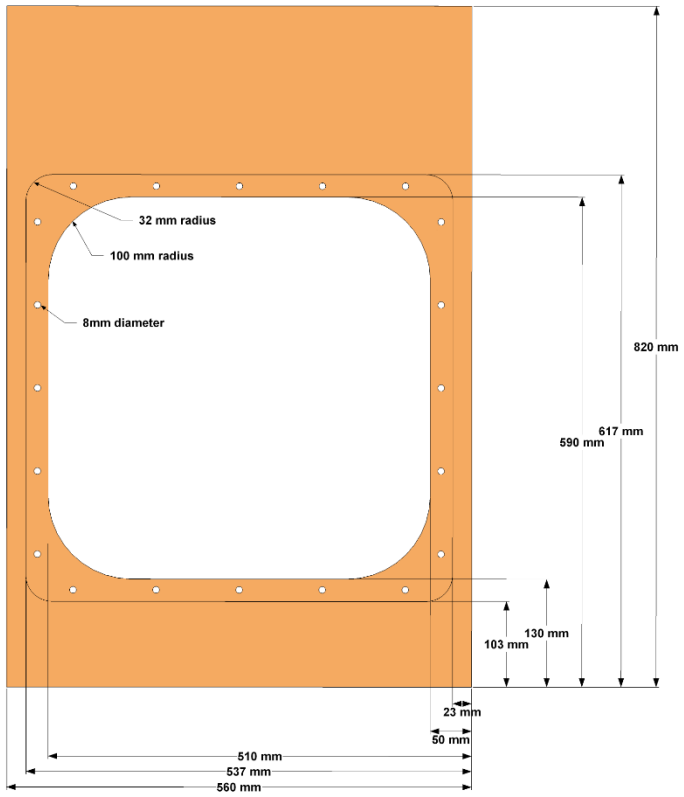



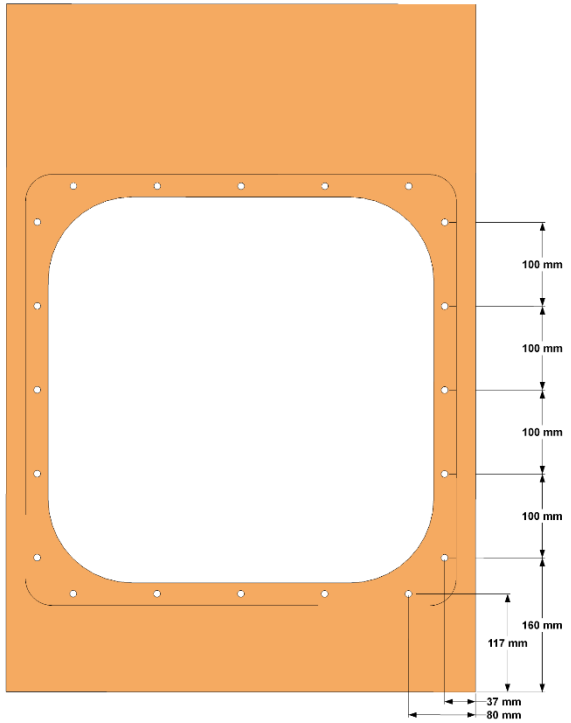
# DETAILS: ACCESS PANEL REINFORCEMENT



# DETAILS: ACCESS PANEL HOUSING



# DETAILS: ACCESS PANEL HOUSING