

4.0" Extended Woofer

**PURE  
SOUND**

Long Stroke driver with  
Ultra Low Distortion



# PTT4.0X04-NLC-02 DATA SHEET

- ⊙ Negligible Force Factor Modulation and Surround Radiation Distortion
- ⊙ Low Magnetic Hysteresis Distortion
- ⊙ "Real" long-stroke Performance: Distortion remains low over full Excursion
- ⊙ Uncompromised Midrange Performance
- ⊙ Designed and Manufactured in Denmark

|                              |                                 |
|------------------------------|---------------------------------|
| Driver size                  | 4"                              |
| DC resistance, $R_{DC}$      | 3.9 $\Omega$                    |
| Resonance freq., $f_s$       | 38 Hz                           |
| Total Q factor, $Q_{ts}$     | 0.32                            |
| Effective piston area        | 57 cm <sup>2</sup>              |
| Equivalent volume, $V_{as}$  | 6.0 L                           |
| SPL@2.83V <sub>rms</sub> /1m | 84.0 dB                         |
| Linear $X_{max}$             | +/- 8.5 mm                      |
| Mechanical $X_{max}$         | +/- 13.7 mm                     |
| IEC Power handling           | 200 W                           |
| Cone material                | PP Coated Proprietary Fibre Mix |

## KEY SPECIFICATIONS

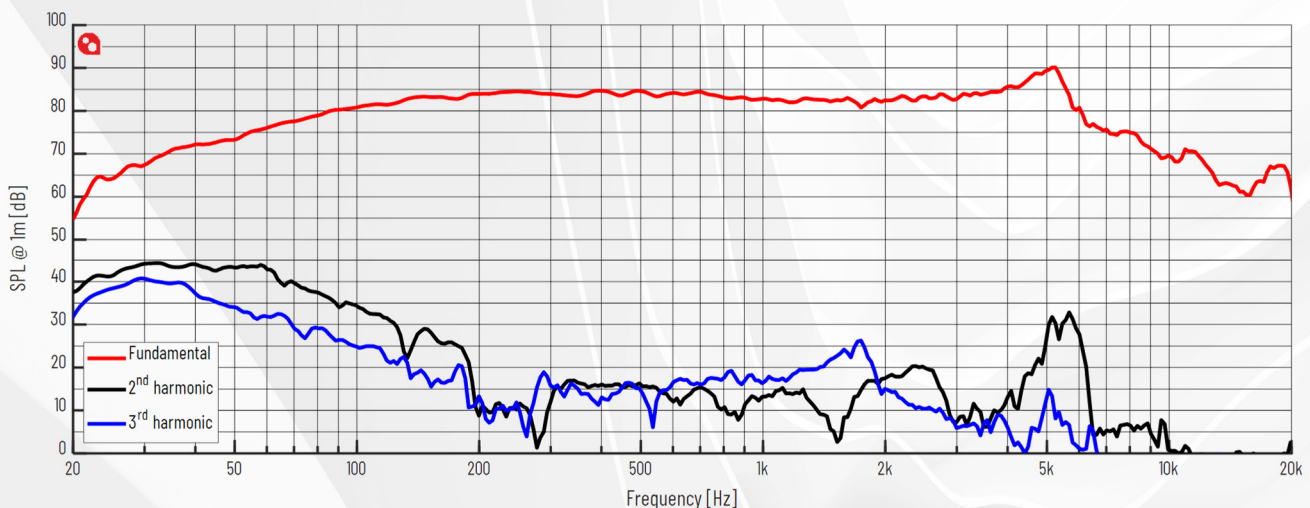


Figure 1 Frequency Response 2.84Vrms @1m

# 1 Specifications

## 1.1 Electrical & Acoustical Parameter

| Parameter |  | Typ  | Unit     |
|-----------|--|------|----------|
| $Z_n$     | Nominal impedance  | 4    | $\Omega$ |
| $Z_{min}$ | Minimum impedance above resonance  | 4.3  | $\Omega$ |
| $f_{min}$ | Frequency for minimum impedance  | 254  | Hz       |
| $Z_o$     | Maximum impedance  | 55   | $\Omega$ |
| $R_{DC}$  | DC resistance  | 3.9  | $\Omega$ |
| $L_e$     | Voice Coil inductance @ 1kHz 0mm   | 0.38 | mH       |
| SPL       | SPL@2.83V <sub>rms</sub> /1m, 300Hz-800Hz, ref. 20 $\mu$ Pa (infinte baffle / 2pi) | 84.0 | dB       |
|           | SPL@1W( $Z_{min}$ )/1m, 300Hz-800Hz, ref. 20 $\mu$ Pa (infinte baffle / 2pi)       | 81.3 | dB       |

Table 1 Electrical &amp; Acoustical Parameters

## 1.2 T/S & Lumped Parameters

| Parameter |                           | Typ  | Unit            |
|-----------|---------------------------|------|-----------------|
| $f_s$     | Resonance frequency       | 38   | Hz              |
| $Q_{ms}$  | Mechanical Q factor       | 4.6  | -               |
| $Q_{es}$  | Electrical Q factor       | 0.34 | -               |
| $Q_{ts}$  | Total Q factor            | 0.32 | -               |
| $V_{as}$  | Equivalent volume         | 6.0  | L               |
| $S_d$     | Effective piston area     | 56.7 | cm <sup>2</sup> |
| $D$       | Effective piston diameter | 8.5  | cm              |
| $Bl$      | Force factor              | 6.0  | N/A             |
| $R_{ms}$  | Mechanical resistance     | 0.70 | kg/s            |
| $M_{ms}$  | Moving mass               | 13.1 | g               |
| $C_{ms}$  | Suspension compliance     | 1.31 | mm/N            |

Table 2 T/S &amp; Lumped Parameters

## 1.3 Mechanical Properties

| Parameter                    |  | Typ     | Unit |
|------------------------------|--|---------|------|
| <b>Excursion Properties</b>  |  |         |      |
| $X_{max}$                    | Linear excursion = (Voice Coil length - Airgap height) / 2 | +/-8.5  | mm   |
|                              | Mechanical excursion                                       | +/-13.7 | mm   |
| <b>Physical Dimensions</b>   |  |         |      |
|                              | Basket diameter  | 125     | mm   |
|                              | Cutout diameter  | 100     | mm   |
|                              | Mounting hole pattern diameter                             | 115     | mm   |
|                              | Mounting hole diameter                                     | 4.2     | mm   |
|                              | Magnet diameter  | 90      | mm   |
|                              | Outer flange height  | 3.6     | mm   |
|                              | Build-in depth   | 73.5    | mm   |
|                              | Weight   | 1.25    | kg   |
| <b>Voice Coil Properties</b> |  |         |      |
|                              | Voice Coil diameter  | 30      | mm   |
|                              | Voice Coil length  | 21.6    | mm   |
|                              | Voice Coil layers  | 4       | -    |
|                              | Airgap height  | 4       | mm   |
|                              | Winding material   | Alu     | -    |

Table 3 Mechanical Properties

## 1.4 Power Handling

| Parameter |   | Typ | Unit |
|-----------|---|-----|------|
|           | Long term maximum power (IEC268-5 18.2) | 200 | W    |
|           | Rated noise power, 100h (IEC268-5 18.4) | 60  | W    |

Table 4 Power Handling

### 1.5 Typical Performance, Graphs

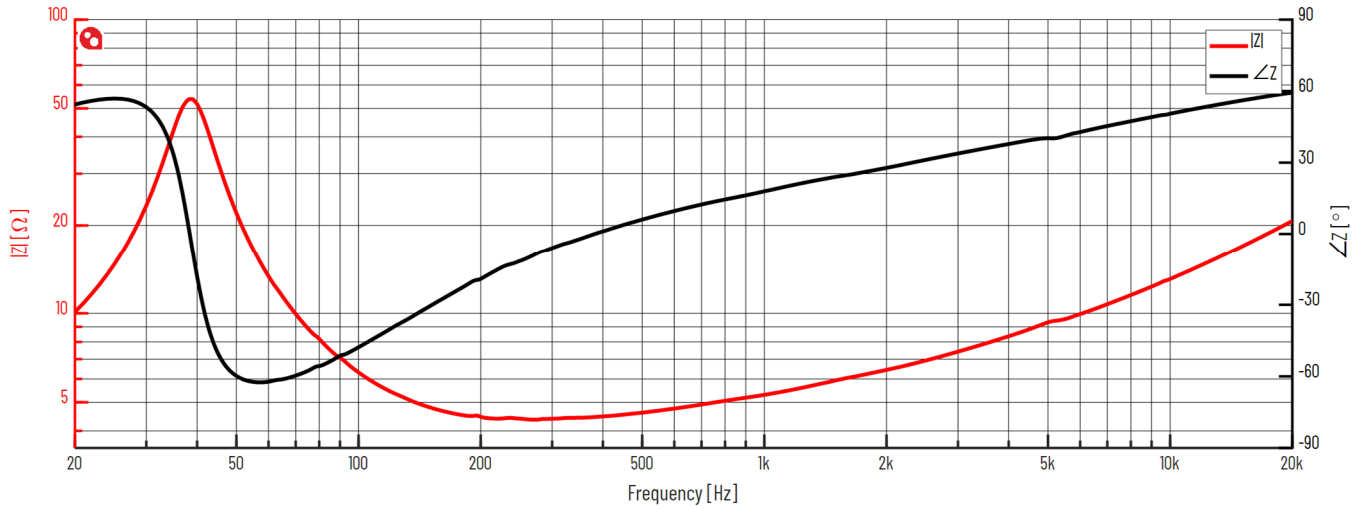


Figure 2 Impedance Response @ 2.83V

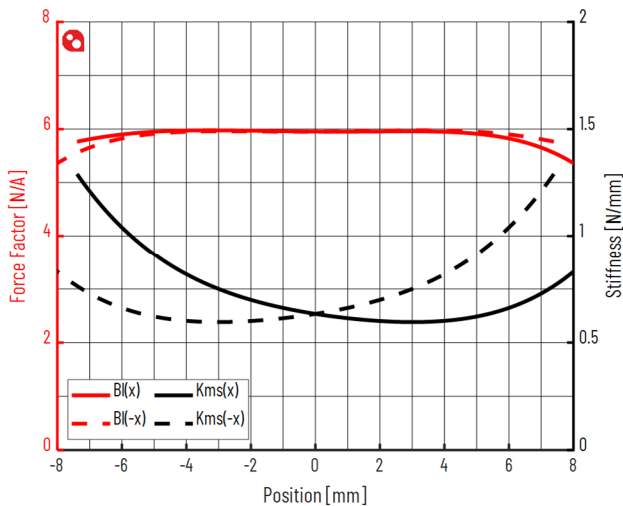


Figure 3 Force Factor and Stiffness vs Voice Coil Position

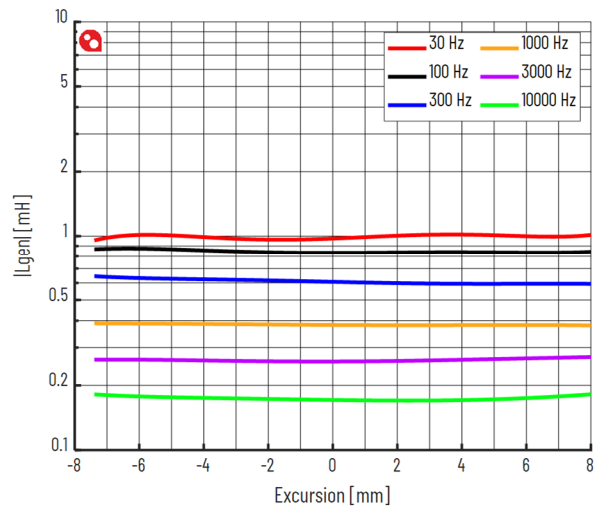


Figure 4 Inductance vs Voice Coil Position

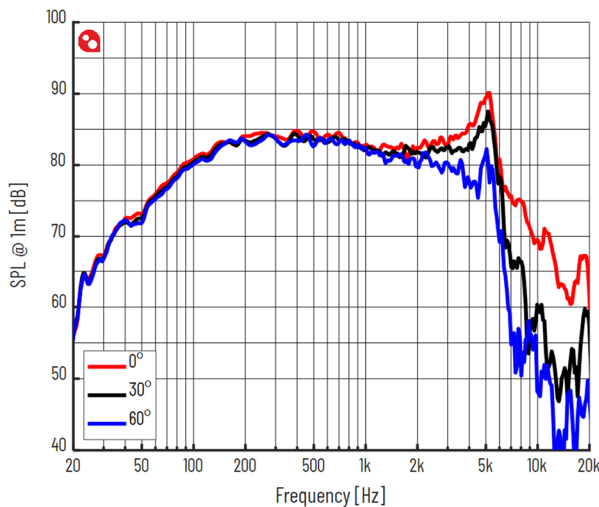


Figure 5 Axial Frequency Response @ 1m, 2.83Vrms

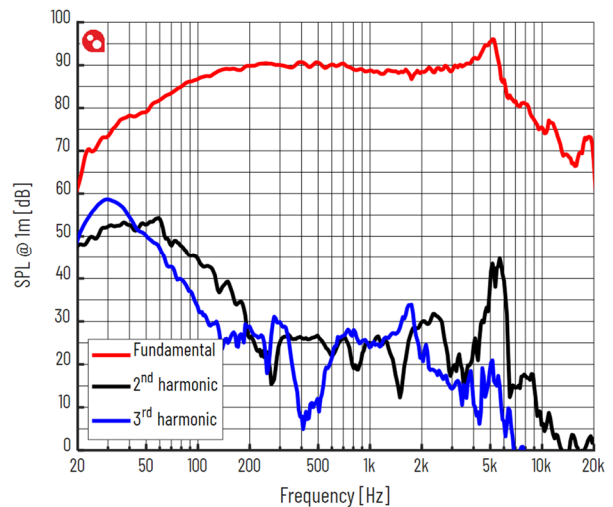


Figure 6 Frequency Response @ 1m, 90dB

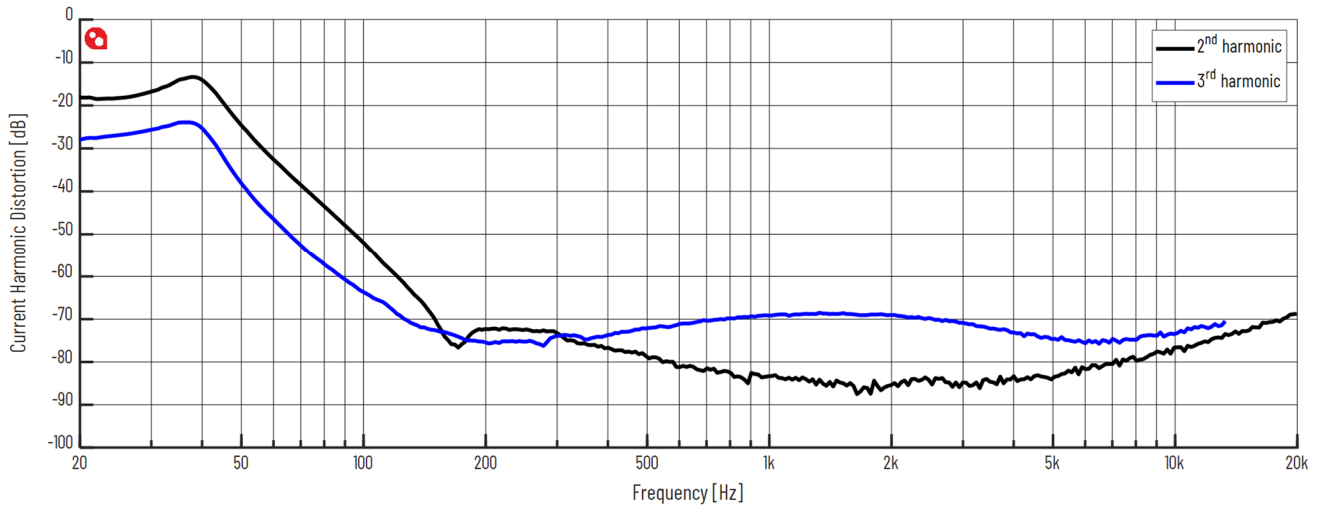


Figure 7 Current Harmonic Distortion @ 2.83Vrms

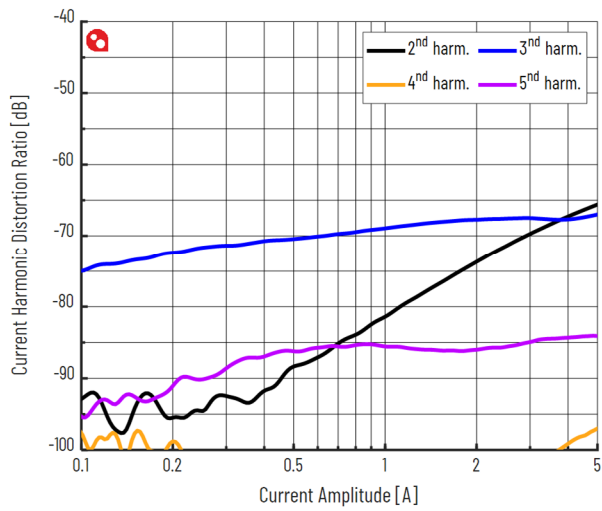


Figure 8 Current Harmonic Distortion @ 1kHz, 0-28.3Vrms

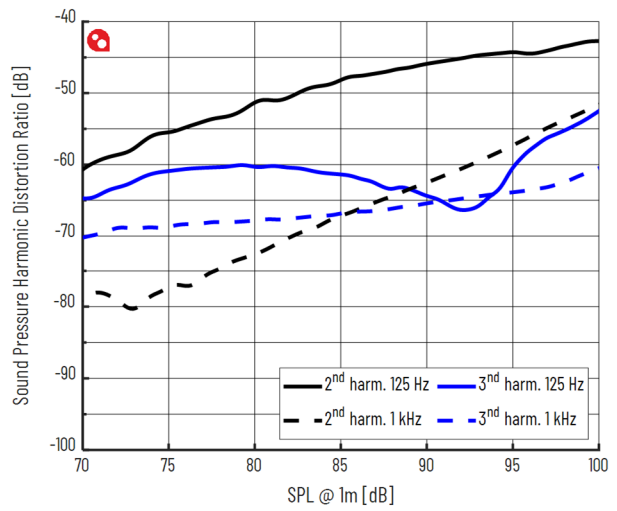


Figure 9 Sound Pressure Harmonic Distortion @ 1m, 0-28.3Vrms

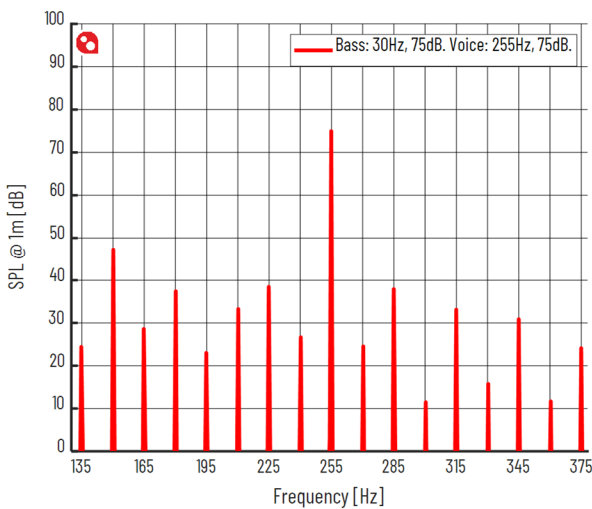


Figure 10 Intermodulation Distortion @ 30Hz 75dB, 255Hz 75dB

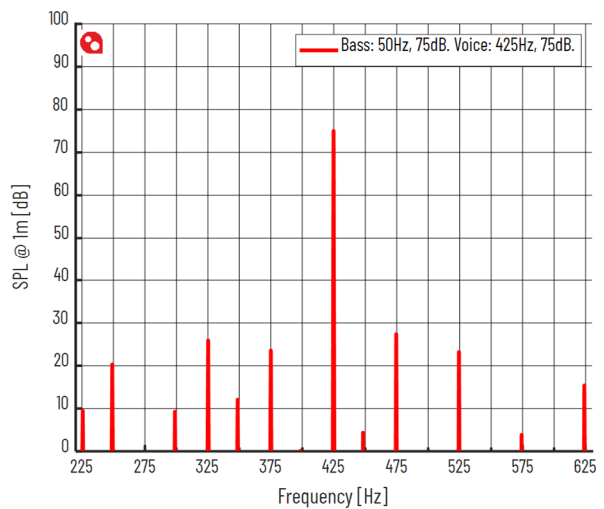
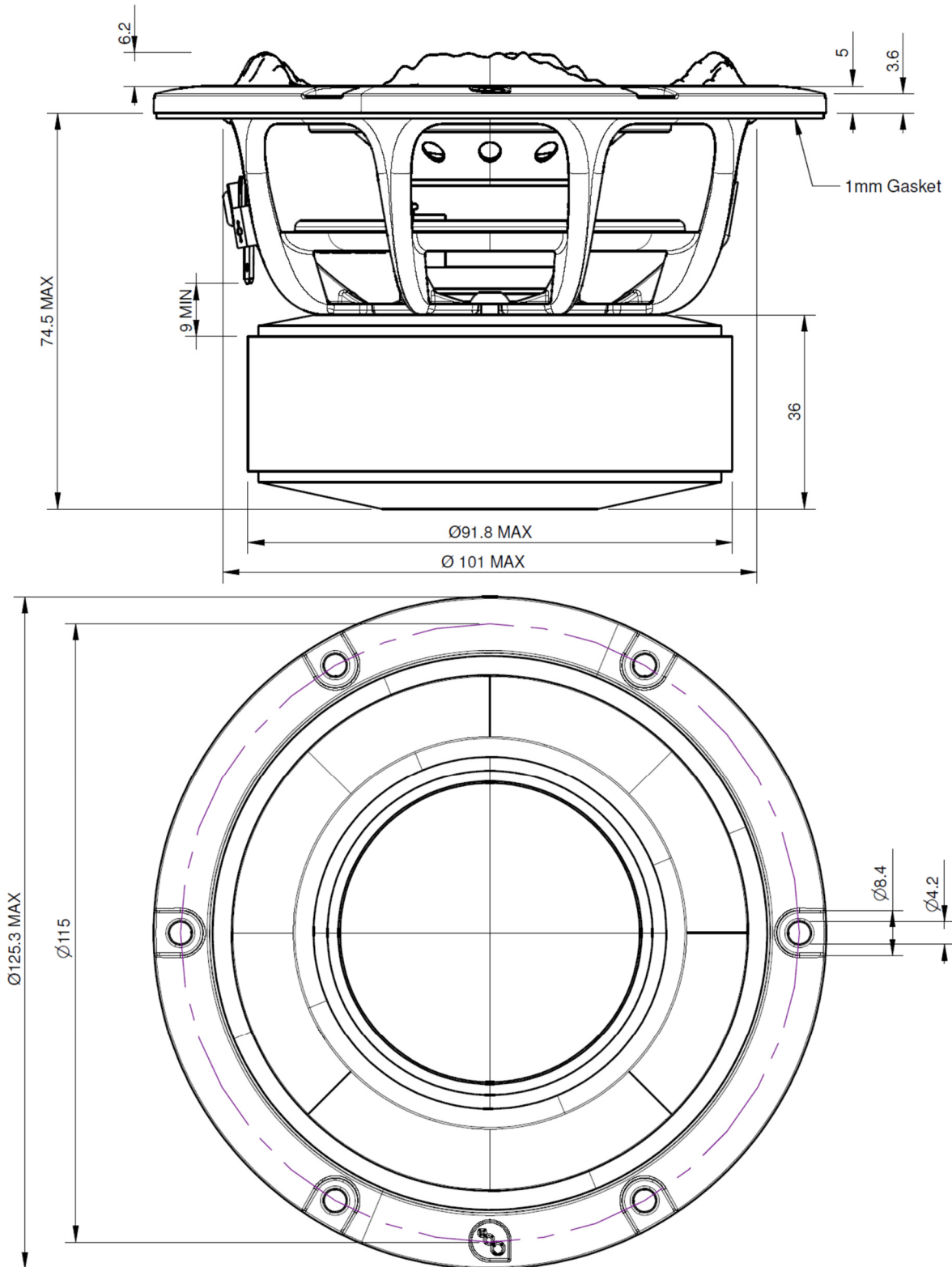


Figure 11 Intermodulation Distortion @ 50Hz 75dB, 425Hz 75dB

## 2 Drawings



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