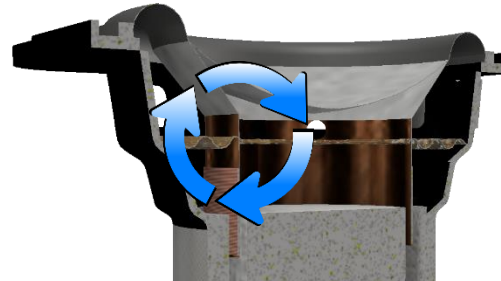


|            |               |
|------------|---------------|
| Data Sheet | AS06504PS-X-R |
|------------|---------------|

PUI Audio's eXtreme Series speakers are purpose-built for superior performance using Klippel-optimized motor designs. Forced-air vented voice coils combine with a high-grade neodymium motor for extreme power handling, extremely flat frequency response, and a surprising amount of bass when used with tuned-port or passive radiator assisted enclosures.



Air is forced into the magnetic loop on both sides of the voice coil for improved heat dissipation

**Features:**

- Paper cone for warm natural sound and improved ruggedness
- Large voice coil diameter for high power handling
- Convenient mounting frame for easy integration
- Venting in the magnetic motor creates forced-air cooling limiting power compression
- Four-layer copper-clad aluminum wire for great transient response
- Water resistant with optional PUI Audio WR coating process
- Low Qts design for use in ultra-small enclosures without inhibiting performance

**Specifications**

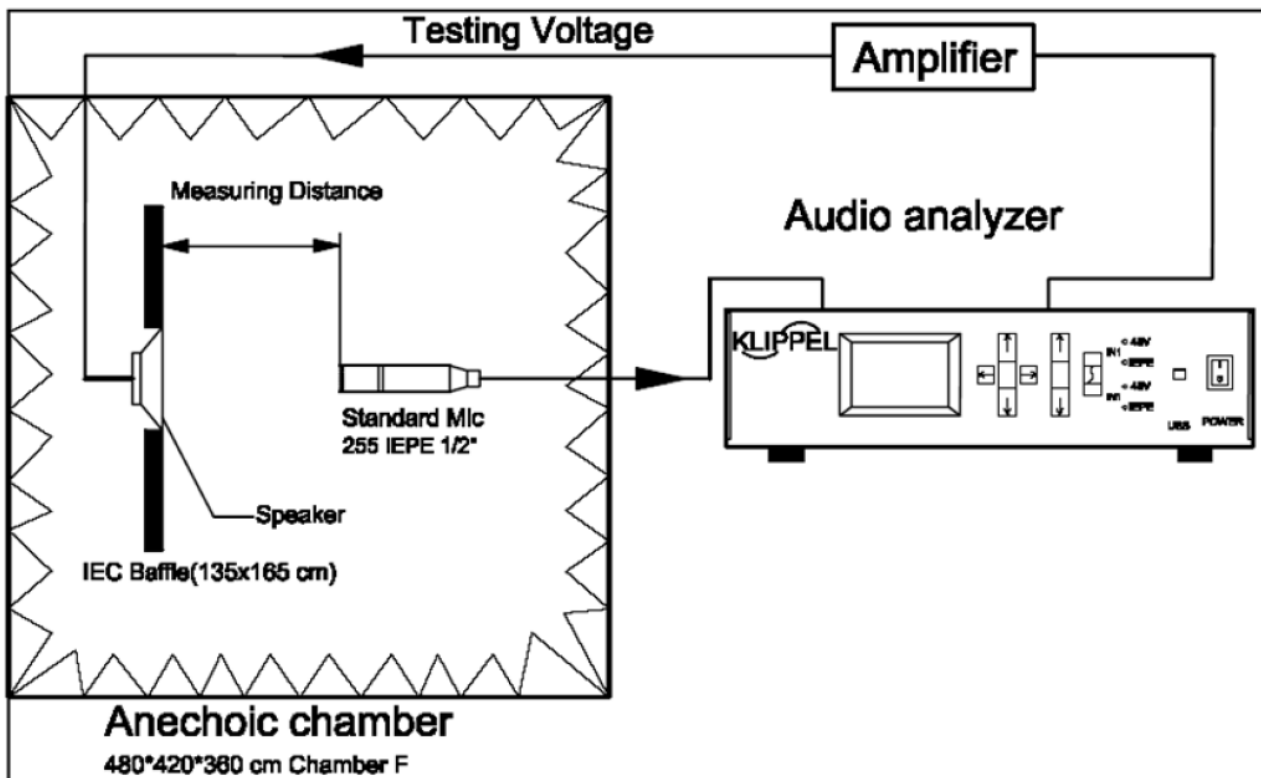
| Parameters   | Values                     | Units             |
|--|----------------------------|-------------------|
| Rated Input Power  | 10                         | Watts             |
| Max Input Power  | 20                         | Watts             |
| Impedance  | 4 ± 15%                    | Ohms              |
| SPL @ 1W/0.5m<br>(Average 0.8, 1.0, 1.2, 1.5 kHz)        | 88 ± 3                     | dB                |
| Resonant Frequency                                       | 130 ± 20%                  | Hz                |
| Frequency Range (-10 dB)                                 | 80 ~ 20,000+               | Hz                |
| Frame Material   | Stamped Steel              | -                 |
| Magnet Material  | NdFeB                      | -                 |
| Weight   | 92                         | Grams             |
| Ingress Protection Rating                                | IP65**                     | **With WR Coating |
| Recommended Sealed Enclosure Volume Range (Qtc ≤ 0.707)* | 0.06 ~ 0.60                | Liters            |
| Recommended Vented Enclosure Volume*                     | 0.60                       | Liters            |
| Vent Size and Tuning Frequency                           | 26mm dia. x 350mm L, 88 Hz | -                 |

\*Recommended enclosure volumes do not include volume displaced by speaker or vent

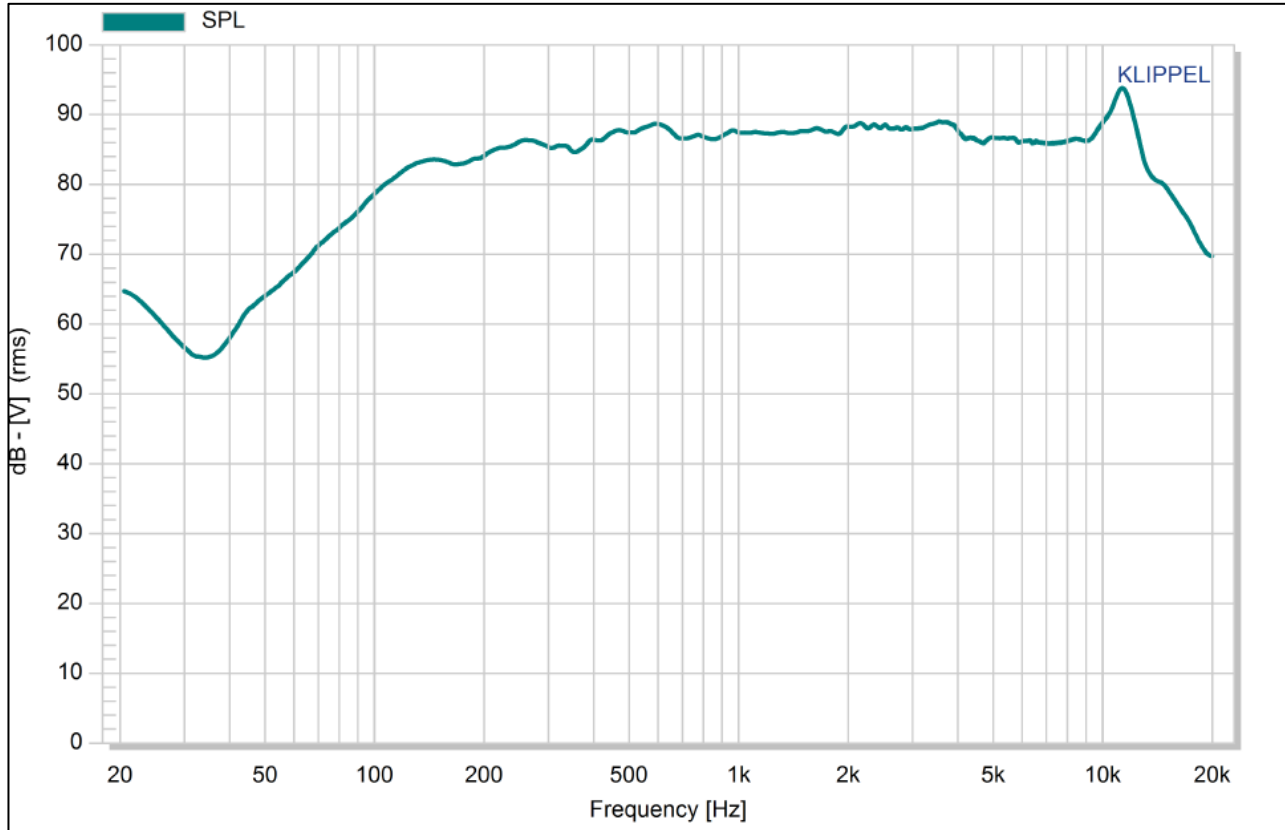
## Speaker Specifications (continued)

|                              |   |    |
|------------------------------|---|----|
| Acceptable Soldering Methods | Hand Solder   | -  |
| Buzz, Rattle, etc.           | Should not be audible with 6.32V sine wave from 90 Hz to 20 kHz                     | -  |
| Environmental Compliances    | RoHS 2015/863/EU, REACH 197   | -  |
| Polarity                     | Cone shall move forward when a positive voltage is applied to the positive terminal | -  |
| Operating Temperature        | -25 ~ +60   | °C |

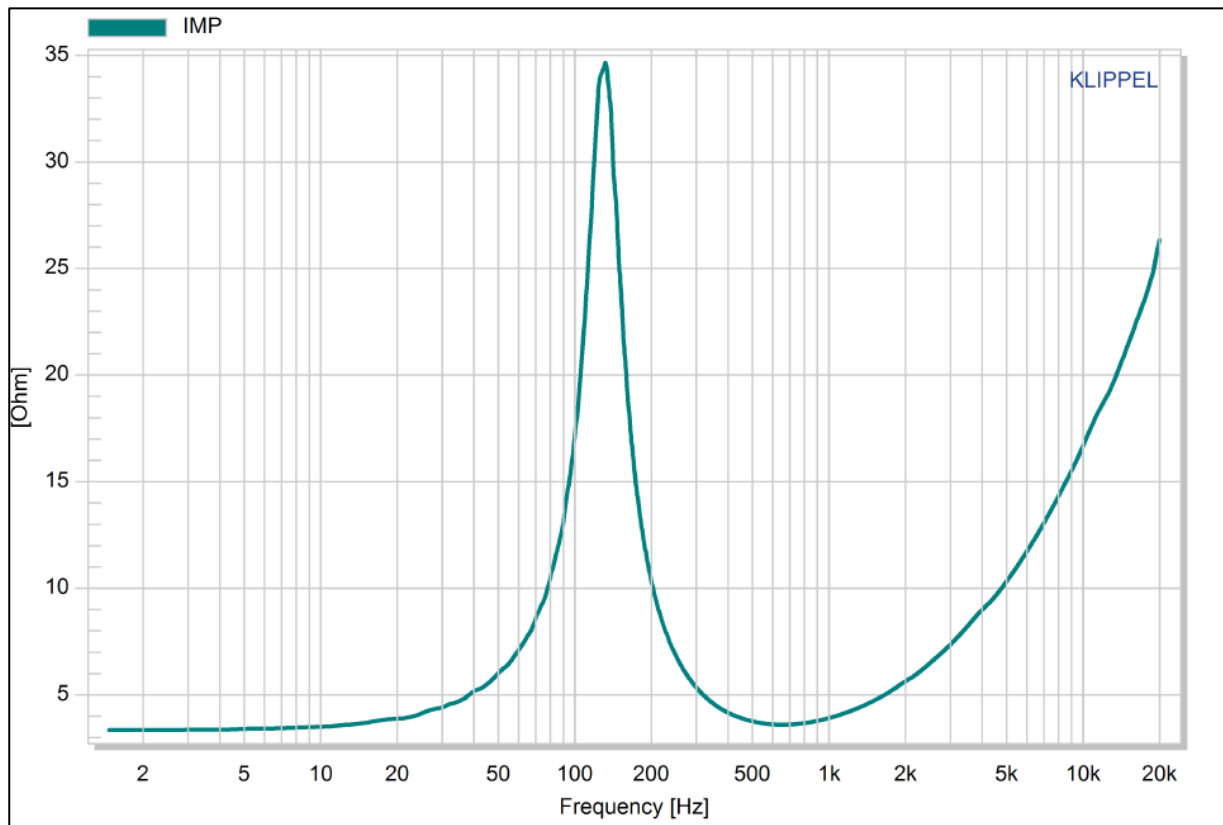
## Measurement Method (1W input power with microphone spaced at 50cm)



### Typical Frequency Response (Tested at 1W/50cm)



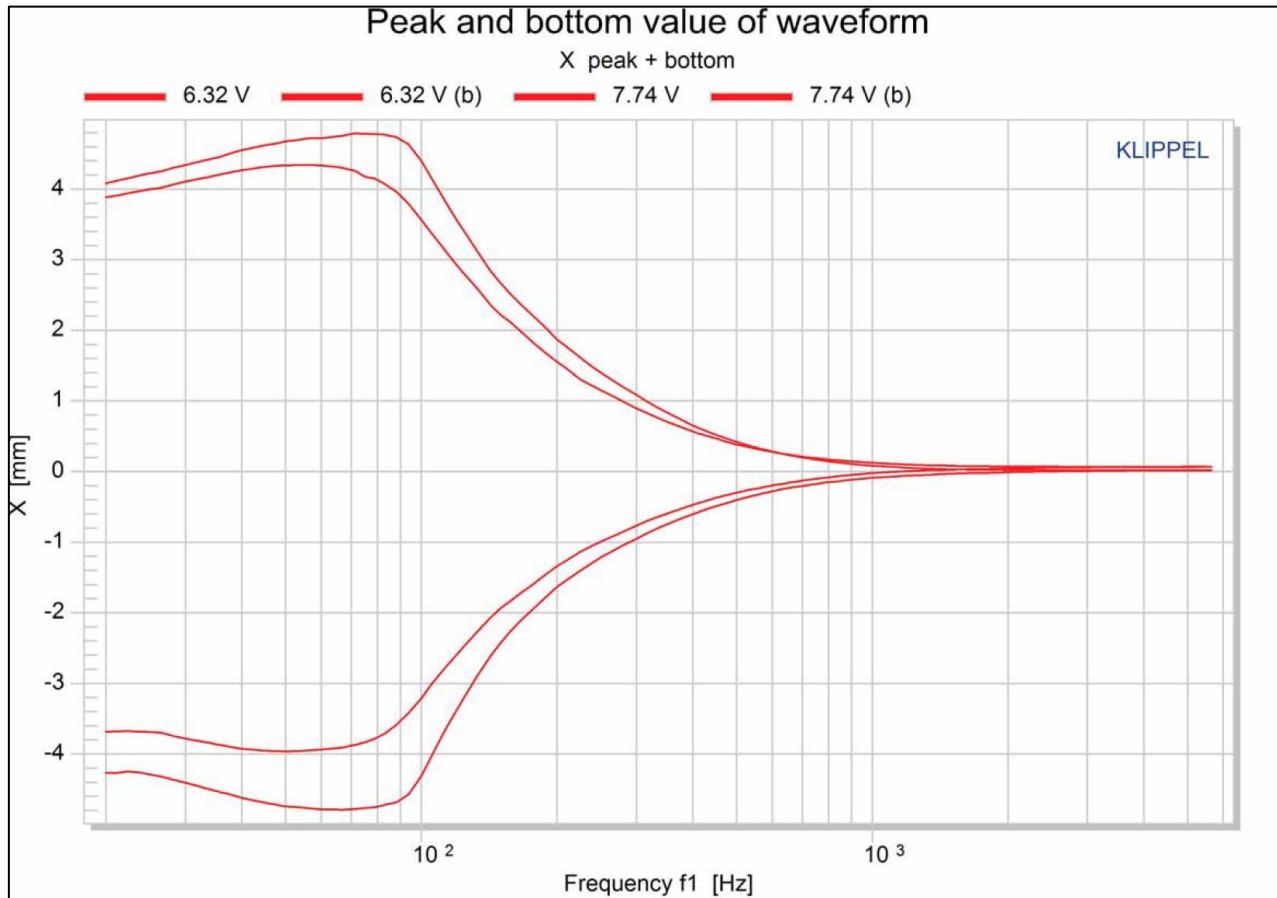
### Typical Impedance Response



### Typical Thiele-Small Parameters (based on Golden Sample, up to 20% variance is normal)

| Specification | Value        | Description                           |
|---------------|--------------|---------------------------------------|
| Re            | 3.32 Ohms    | DC resistance                         |
| Le            | 0.202 mH     | Inductance @ 10 kHz                   |
| Fs            | 132 Hz       | Resonant Frequency                    |
| Mms           | 2.658 grams  | Moving Mass                           |
| Bl            | 4.283 N/A    | Magnet Force Factor                   |
| Qms           | 3.617        | Mechanical Q-factor                   |
| Qes           | 0.417        | Electrical Q-factor                   |
| Qts           | 0.374        | Total Q-factor                        |
| Vas           | 0.188 liters | Equivalent Air Volume of Suspension   |
| Xmax          | 4.75 mm      | One-Way Voice Coil Travel @ 15W Input |

### Klippel Tested Excursion

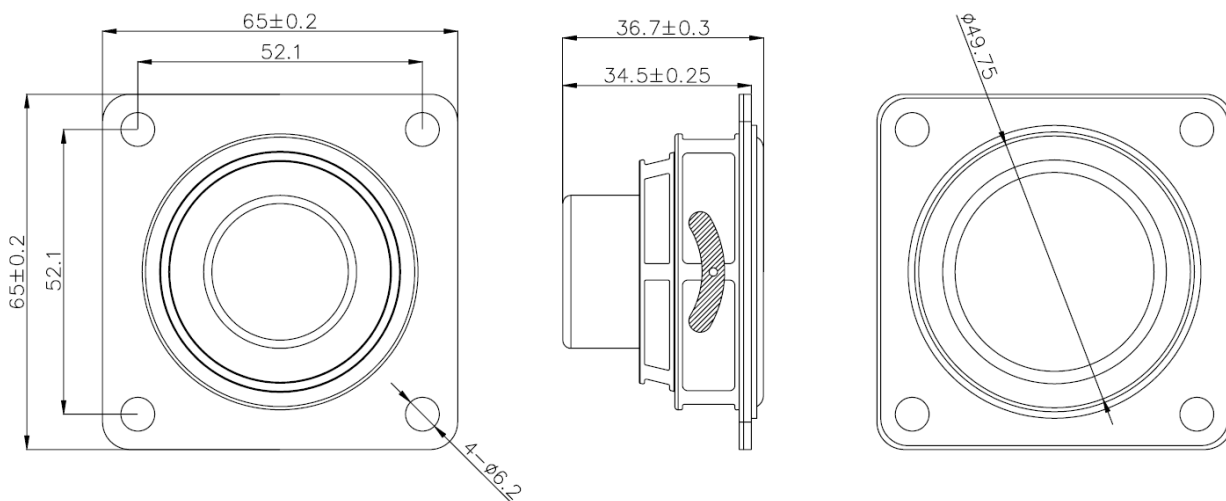


## Reliability Testing

| Type of Test              | Test Specifications   |
|---------------------------|---|
| High Temperature Test     | 96 hours at $+60^{\circ}\text{C} \pm 2^{\circ}\text{C}$ followed by three hours in normal room temperature  |
| Low Temperature Test      | 96 hours at $-20^{\circ}\text{C} \pm 3^{\circ}\text{C}$ followed by three hours in normal room temperature  |
| Humidity Test             | 96 hours at $+40^{\circ}\text{C} \pm 2^{\circ}\text{C}$ with relative humidity between 90% and 95% followed by 6 hours in normal room temperature   |
| Temperature Cycle Testing | <p>The graph illustrates a temperature cycle starting at Room Temperature <math>+25^{\circ}\text{C}</math>. It ramps up in 10 seconds to <math>+60^{\circ}\text{C}</math>, where it remains for 1 hour. It then ramps down in 10 seconds to <math>-25^{\circ}\text{C}</math>, where it remains for 1 hour. The cycle then ramps back up to Room Temperature <math>+25^{\circ}\text{C}</math>. This entire cycle is repeated 4 times, labeled as 'Total 4 Cycles'.</p> |
| Vibration Test            | Frequency $30 \pm 15$ Hz, Amplitude 1.5 mm for 3 Hours. After test, SPL shall not deviate by $\pm 3$ dB from pre-test measurement   |
| Drop Test                 | 75 cm free falling on concrete floor, 10 times.   |
| Load Test                 | Speaker should not fail after applying 20 Hz ~ 20 kHz pink noise with HPF rated power input (RMS), 96 hours.  |

**After each test, SPL shall not deviate by more than  $\pm 3$  dB from pre-test measurement.**

## Dimensions (Left, larger terminal is positive and is indicated by + on the terminal board)



Note: Recommended speaker baffle opening is 53.6mm. Always test-fit prior to closing mechanical design. Please maintain at least 7mm distance between top of frame and next surface.

**Specifications Revisions**

| <b>Revision</b> | <b>Description</b>        | <b>Date</b> |
|-----------------|---------------------------|-------------|
| -               | Released from Engineering | 6/14/2019   |

**Note:**

1. Unless otherwise specified:
  - A. All dimensions are in millimeters.
  - B. Default tolerances are  $\pm 0.5\text{mm}$  and angles are  $\pm 3^\circ$ .
2. Specifications subject to change or withdrawal without notice.

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