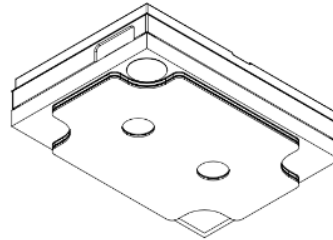
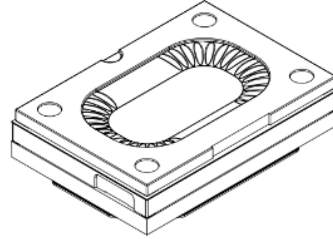


**MEMS-based micro-speaker for headphones, wearables and array applications**



**Features**

- › Small form factor
- › High flexibility for acoustic system integration
- › Low heat generation
- › No magnetic field
- › High input impedance suitable for thin wires or PCB traces

**Description**

Adap is a MEMS-based micro-speaker for occluded-ear headphones, and can also be used as micro-tweeter for wearables and array applications

### Test conditions

Measured with IEC 60318-4 coupler	
Coupler type	IEC 60318-4 (711)
Coupler Volume	1.4cm <sup>3</sup>
Connection tube length	1.6mm
Connection tube diameter	3.7mm

Microphone	GRAS 43AC
Microphone Amplifier	B&K Nexus
Loudspeaker Amplifier	G.R.A.S. 12AU
Measurement System	APx 526

Measurement Signal	Exp. Sweep
Frequency Range (Audio)	10Hz - 20kHz
Frequency Range (Ultrasound)	20kHz - 80kHz
Voltage levels (Audio)	
V <sub>dc</sub>	15V
V <sub>ac</sub>	15V <sub>p</sub>
Voltage levels (Ultrasound)	
V <sub>dc</sub>	15V
V <sub>ac</sub>	5V <sub>p</sub>

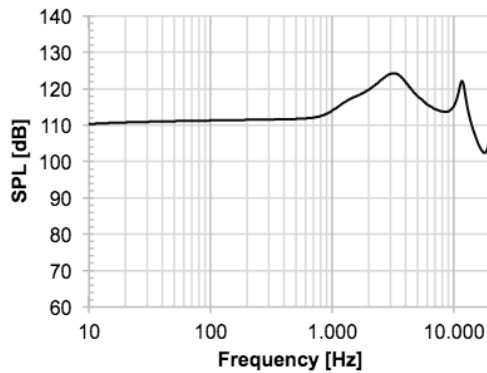
Measured with IEC 60268-5 baffle	
Baffle type	IEC 60268-5
Mic distance	3cm
Reference distance	10cm

Microphone	GRAS 46AC
Microphone diameter	1/2"
Microphone Amplifier	B&K Nexus
Loudspeaker Amplifier	G.R.A.S. 12AU
Measurement System	APx 526

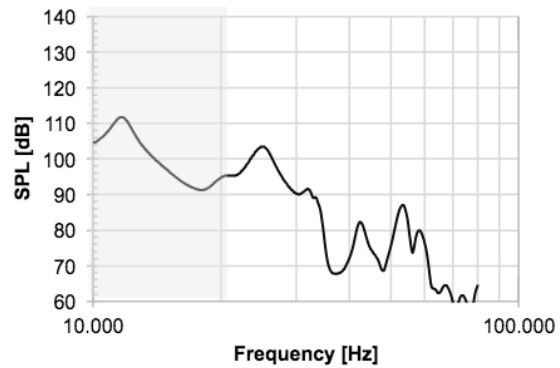
Measurement Signal	Exp. Sweep
Frequency Range (Audio)	1kHz - 20kHz
Frequency Range (Ultrasound)	20kHz - 80kHz
Voltage levels (Audio)	
V <sub>dc</sub>	15V
V <sub>ac</sub>	15V <sub>p</sub>
Voltage levels (Ultrasound)	
V <sub>dc</sub>	15V
V <sub>ac</sub>	5V <sub>p</sub>

### Acoustic parameters IEC 60318-4 coupler

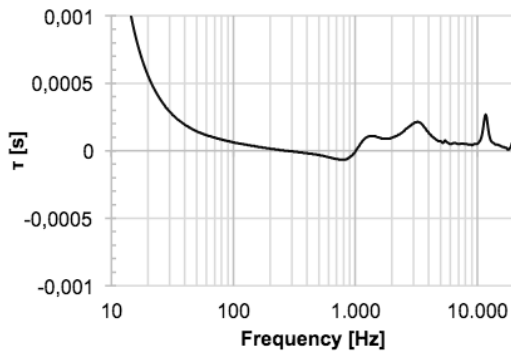
**SPL (@15Vp drive)**  
**Audio Range (10Hz-20kHz)**



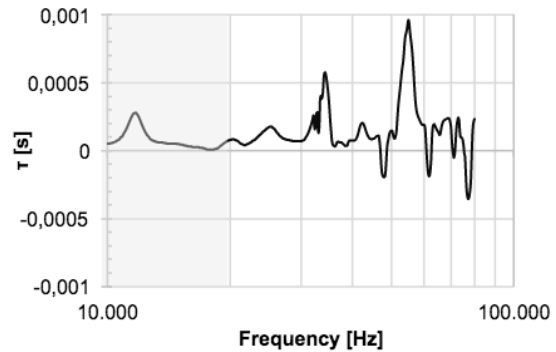
**SPL (@5Vp drive)**  
**Ultrasound Range (20kHz-80kHz)**



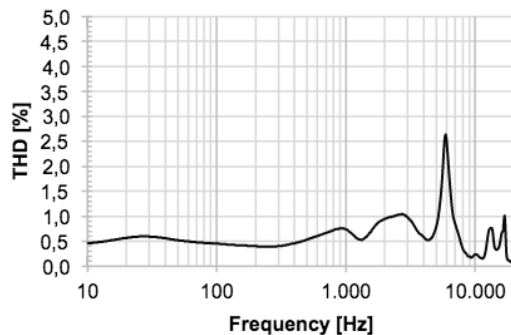
**Group Delay**  
**Audio Range (10Hz-20kHz)**



**Group Delay**  
**Ultrasound Range (20kHz-80kHz)**

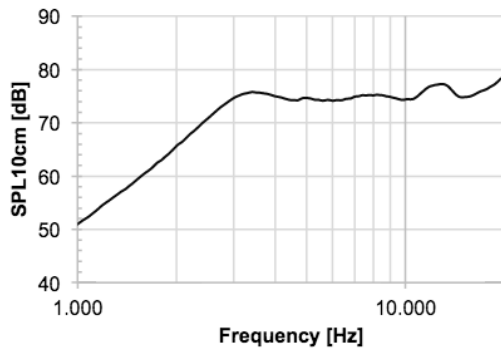


**THD (94dB SPL @1kHz)**  
**Audio Range (10Hz-20kHz)**

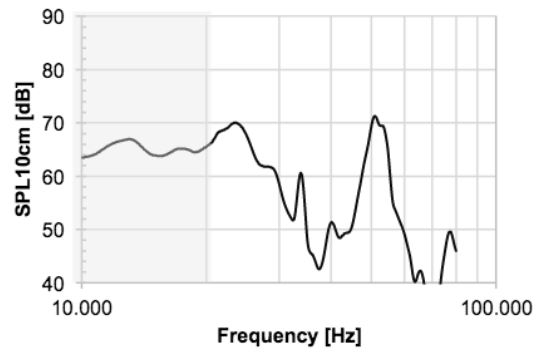


### Acoustic parameters IEC 60268-5 baffle

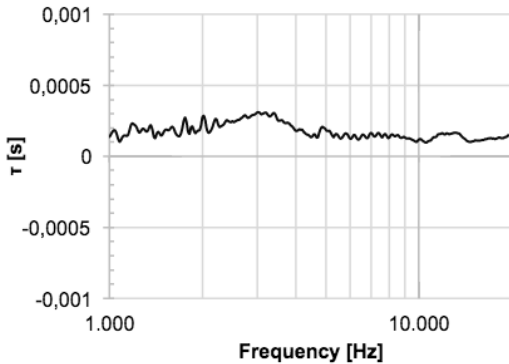
**SPL (@15Vp drive)**  
**Audio Range (1kHz-20kHz)**



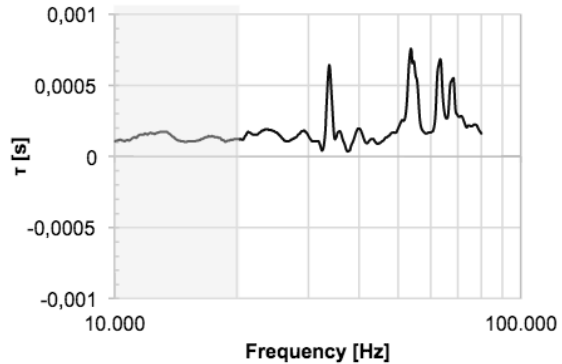
**SPL (@5Vp drive)**  
**Ultrasound Range (20kHz-80kHz)**



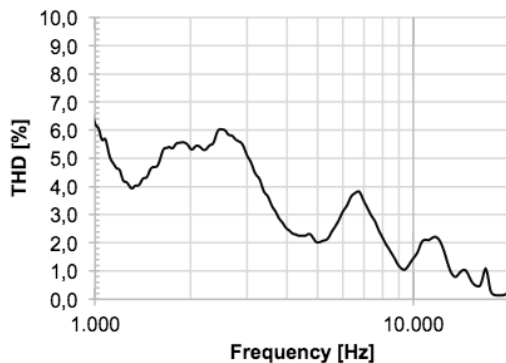
**Group Delay**  
**Audio Range (1kHz-20kHz)**



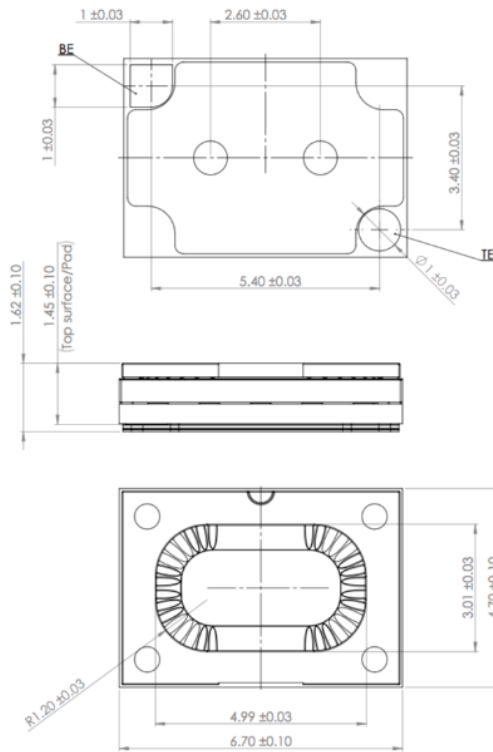
**Group Delay**  
**Ultrasound Range (20kHz-80kHz)**



**THD (60dB SPL @4kHz)**  
**Audio Range (1kHz-20kHz)**



## Mechanical Dimensions



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