

Achieving reliable test results and being obsessed with sound quality

High resolution audio is quickly becoming an important market driver in personal audio. But it has always been challenging to get repeatable and consistent data in the full audible range.

Previous objective measurement methods have had limitations in the frequency response above 10 kHz and have often been based on human "golden ears". Therefore GRAS has developed the new High Resolution Ear Simulator, which offers a precise method for measuring up to 20 kHz.

Obsessed with sound quality

Meze Audio was founded in 2009 and has quickly become a state-of-the-art manufacturer in the market for premium hi-fi headphones, having received several awards for their "99 Classic" headphone. Designing and manufacturing hi-fi headphones require balanced frequency response, effective noise isolation and headbands neither too tight nor too loose. These are all essential factors, which Meze Audio takes into consideration. When asked about the reason for their rapid success Antonio Meze, Chief Designer and Founder says: *"We build high-end headphones, so we are obsessed with sound quality. We do not follow trends or let them influence the audio quality or design of our products."*

✓ CUSTOMER

Meze Audio

✓ HIGHLIGHTS

- Measure up to 20 kHz.
- Better test results in the audible range
- Improved sealing on supra-aural and circum-aural headphones
- GRAS 45CA Acoustic Test Fixture

✓ KEY LEARNINGS

With the GRAS 45CA and the High Resolution Ear simulator, Meze Audio is able to better correlate the high frequency measurements with what their subjective listen experience tells them. In addition to this the anthropometric pinnae mimics the way the human ear collapses, when circum-aural and supra-aural headphones are mounted. This gives a significant improved sealing.



Antonio Meze (up front), Chief Designer & Founder, and Mircea Fanatan, Managing Director, analyze their measurement data in the Meze Audio Sound Lab.

GRAS

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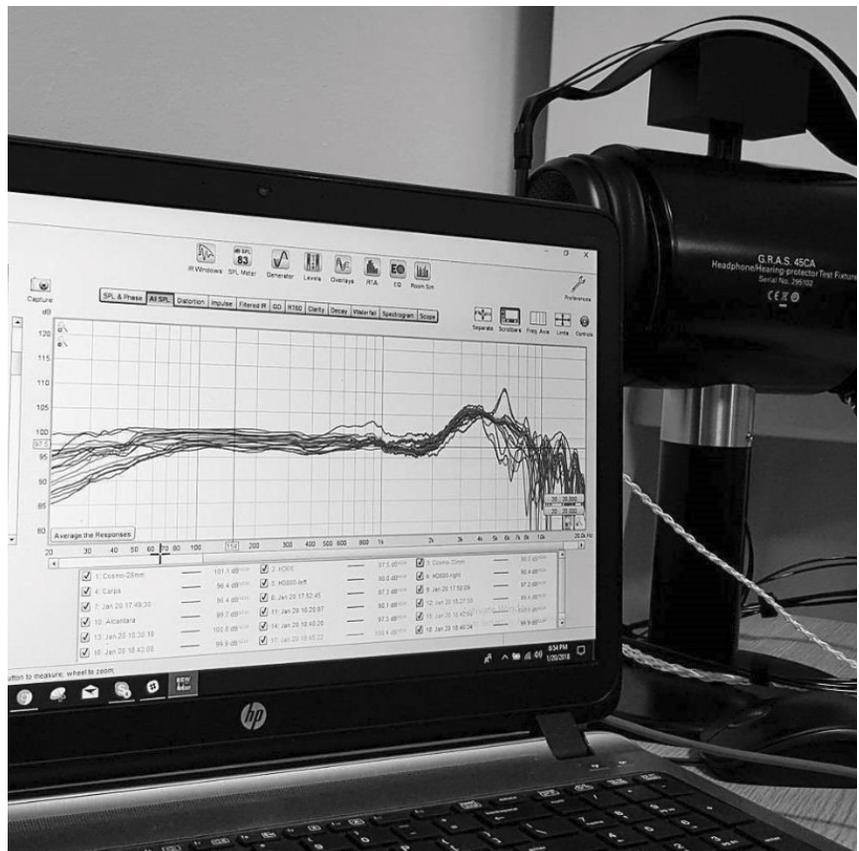
We are using the 45CA Headphone Test Fixture from GRAS every day in our sound lab for final testing of our headphones. With the 45CA and the new High Resolution Ear Simulator we are able to better correlate the high frequency measurements with what our subjective listening impressions tell us

Managing Director Mircea Fanatan,
Meze Audio

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Fine tuning headphones at upper frequencies

With the new High Resolution Ear Simulator, GRAS RA0401, GRAS has changed the common perception of what is measurable, by extending the upper frequency limit. This makes it possible to make objective and quantifiable assessments of the performance of headphones up to 20 kHz. For Meze Audio, reliable and repeatable high frequency data based on a “humanlike” in-situ test method is a key parameter. *“We are using the 45CA Headphone Test Fixture from GRAS every day in our sound lab for final testing of our headphones. With the 45CA and the new Hi-Res Ear Simulator we are able to better correlate the high frequency measurements with what our subjective listening impressions tell us”* Mircea Fanatan, Managing Director at Meze Audio, explains.

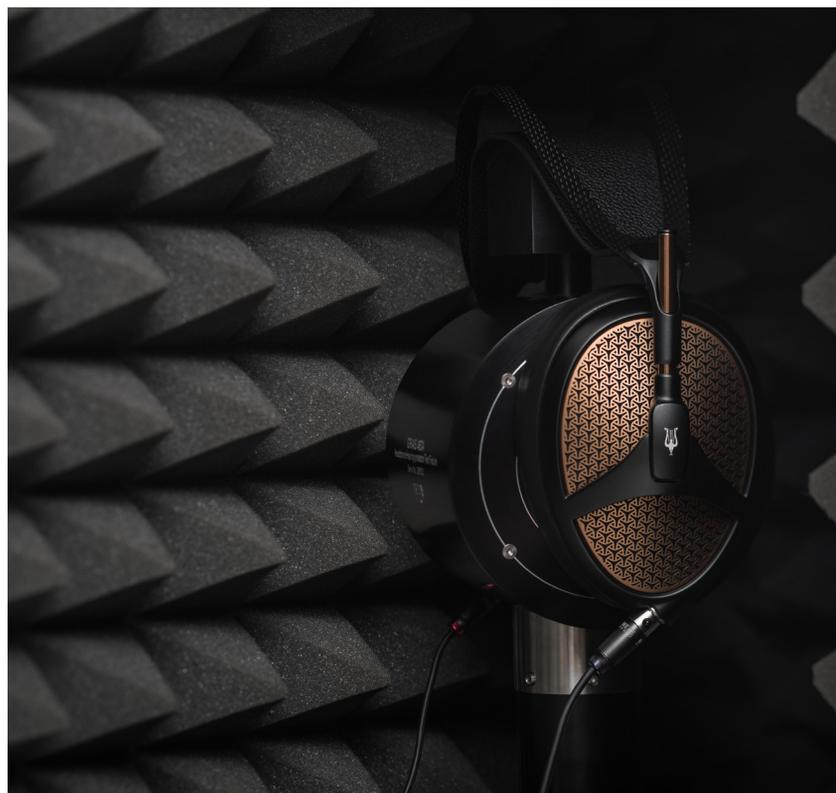


Meze Audio’s test setup with their Meze 99 Classics on the GRAS 45CA Headphone Test Fixture to measure high frequency response and fine-tune the sound quality.

Improved sealing on supra-aural and circum-aural headphones

At GRAS we have made subtle but important changes to our anthropometric pinnae, providing significant improvements in the fit, placement and seal. According to R&D Project Manager Morten Wille at GRAS, this is in particular relevant to better mimic the way the human ear collapses when supra-aural and circum-aural headphones are mounted. When measuring the frequency response of these types of headphones, more reliable and repeatable measurements can be achieved because of the improved collapsibility of the pinna.

Meze EMPYREAN - the First Iso-dynamic Hybrid Array Headphone and the newest addition to Meze Audio's premium headphone portfolio.



"The anthropometric pinna enables us to improve the sealing of our headphones, providing us with repeatable and consistent measurements" Mircea Fanatan elaborates. For Meze Audio the combined advantage of the 45CA, the anthropometric pinna and the High Resolution Ear Simulator provides them better test results in the audible range and a significant improved sealing on their headphones.

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ABOUT GRAS SOUND & VIBRATION A/S

GRAS is a worldwide leader in the sound and vibration industry. We develop and manufacture state-of-the-art measurement microphones to industries where acoustic measuring accuracy and repeatability is of utmost importance in R&D, QA and production. This includes applications and solutions for customers within the fields of aerospace, automotive, audiology, and consumer electronics. GRAS microphones are designed to live up to the high quality, durability and accuracy that our customers have come to expect and trust.

GRAS is represented through subsidiaries and distributors in more than 40 countries. Read more at www.gras.dk