DEFENSE



✓ **CUSTOMER**
FalCom

✓ **PRODUCT**
GRAS 45CB

✓ **FALCOM'S POST/**
LinkedIn >

Protecting the Hearing of Those Who Protect Us

Custom Pinnae Development for Tactical Communication Systems

FALCOM



The Challenge: **Preventing Invisible Injuries**

Every year, thousands of veterans return home carrying a sound they can never turn off.

Tinnitus and hearing damage caused by noise exposure are the number one service-related disability among military personnel. Beyond the immediate hearing loss, long-term consequences can include social isolation, reduced communication ability, and increased risk of cognitive decline later in life.

Modern defense operations rely heavily on **tactical communication headsets and hearing protection systems.** These systems must simultaneously:

- Protect the user from dangerous impulse noise
- Preserve situational awareness
- Enable clear communication in extreme environments

For manufacturers developing these systems, **accurate acoustic testing on human-representative ear simulators is essential.**



GRAS
An Axiometrix Solutions Brand

The Customer: FalCom (GN Group)

Founded within the **GN Group,** FalCom develops **modular tactical communication systems** designed to protect the hearing of military operators while ensuring reliable communication in hostile environments.

Their systems combine:
- Tactical headsets
- Communication hubs
- Mission-specific audio configurations

The goal is simple but critical:
Enable operators to complete their mission without sacrificing their hearing.

The Need for Realistic Ear Simulation

To validate the acoustic performance of tactical headsets and hearing protection systems, FalCom required a **test solution capable of accurately replicating the acoustic properties of the human ear.**

However, their application involved **special headset geometries and mounting conditions**, meaning that **standard pinnae were not sufficient.**

They needed:
- Highly realistic ear simulation
- Repeatable measurements
- A solution tailored to their product design and testing setup

The GRAS Solution

GRAS collaborated with FalCom to develop **custom pinnae for the GRAS 45CB Acoustic Test Fixture.**

The solution provided:

Custom-designed pinnae
- Optimized for the specific headset interface
- Realistic acoustic impedance and geometry
- Compatible with the **GRAS 45CB Acoustic Test Fixture.**

High-precision acoustic testing
- Enables accurate evaluation of hearing protection performance
- Supports measurement of communication clarity and noise attenuation

Repeatable laboratory conditions
- Allows FalCom engineers to validate designs consistently during development

The Result

With the customized GRAS solution, FalCom can now:

- Validate the **hearing protection performance** of tactical headsets
- Optimize **communication clarity in high-noise environments**
- Ensure their products protect operators from **long-term hearing damage**

This capability supports FalCom's mission:
Protecting the hearing of those who serve.

Why It Matters

Noise-induced hearing loss is **largely preventable** when the right technologies are developed, tested, and deployed.

Through realistic acoustic testing and advanced measurement solutions, GRAS helps defense innovators like FalCom design systems that ensure operators can complete their careers **without permanent hearing damage.**

GRAS Product Used:



GRAS 45CB
Acoustic Test Fixture.
The GRAS 45CB Acoustic Test Fixture is specified and designed for measuring sound isolation of hearing-protectors and ear- and headphones according to the ANSI/ASA S12.42 standard. For testing in accordance with the ISO 4869-3 standard, choose GRAS 45CA.

GRAS 45CB >

For more information,
please contact marketing@grasacoustics.com.

About GRAS Sound & Vibration

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 the 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 Sound & Vibration is represented through subsidiaries and distributors in more than 40 countries and is part of Axiometrix Solutions, a leading test solutions provider comprised of globally recognized measurement brands.

GRAS Sound & Vibration
Skovlytoften 33, 2840 Holte, Denmark, +45 4566 4046, www.GRASacoustics.com

GRAS
An Axiometrix Solutions Brand