

How to Optimize Acoustic Test Performance and Reduce Costs with EQset™ Microphones



An Engineer's Guide to Smarter End-of-Line Acoustic Testing

Trust is a premium currency in audio manufacturing—and nowhere is it more fragile than at the end-of-line testing stage. Whether you're producing earphones, smart speakers, or any other audio device, your brand clients expect precise, repeatable test results that validate performance to their spec, across every unit, every time.

But for those managing **acoustic test stations** and **production line microphone systems**, the reality is far more complex. From calibration drift to environmental instability, traditional testing setups are often too error-prone, time-consuming, or costly to scale efficiently.

Here's how you can **streamline your test process**, reduce variability, and build client trust—without sacrificing accuracy or throughput.



How Do You Guarantee Acoustic Consistency Without Micromanaging Hardware?

In high-volume audio manufacturing, consistency is everything. But using standard test microphones means dealing with **unit-to-unit variation in sensitivity and frequency response**, even when sourced from the same model or vendor. These small deviations create ripple effects: inconsistent pass/fail behavior, false negatives, or—worse—defective products passing QA.

Production line microphones with fixed sensitivity and pre-equalized frequency response curves offer a game-changing alternative. With less than ± 0.2 dB variation across units and no need for correction curves, engineers can achieve true **interchangeability**.

That means:

- Identical results across duplicate test stations
- Faster test duplication when expanding lines
- Simplified configuration for automation platforms

BOTTOM LINE?

Consistent acoustic testing becomes the default, not the exception—and brand clients notice the difference.

Can You Cut Test Station Setup Time in Half?

Typical test setups require entering microphone sensitivity manually, importing TEDS data, applying calibration curves, and verifying serial-specific parameters. Across dozens of test benches, this adds up to **hours of setup time** and elevated risk of error.

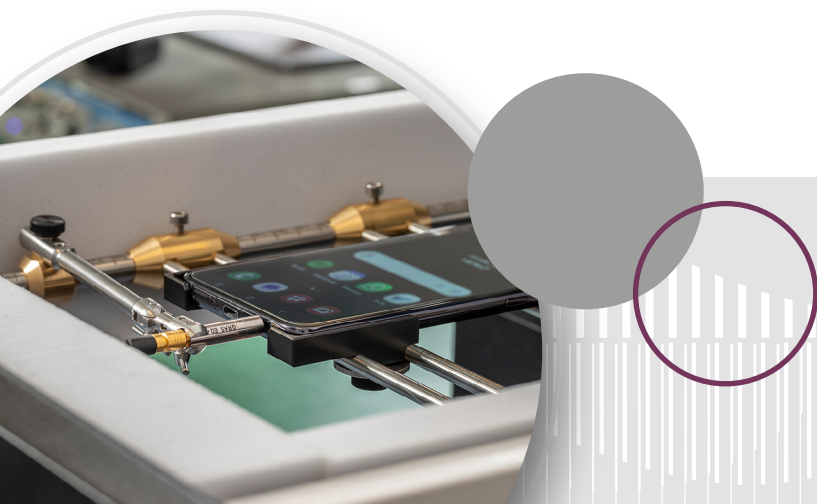
Switching to **plug-and-play production test microphones** with **uniform fixed sensitivity** eliminates these steps entirely.

You can:

- Standardize gain settings across stations
- Skip TEDS imports or correction file handling
- Replace microphones without reconfiguring software or recalibrating your signal chain

BOTTOM LINE?

Test station setup becomes faster, simpler, and far less error-prone—freeing up your team to focus on production, not parameters.



Does Your QA Process Scale Without Breaking Compliance?

When global brand customers provide you with **strict acoustic test limits**, your ability to comply depends on every station delivering repeatable data—no matter where in the world it's located.

Traditional microphones are **highly sensitive to temperature, humidity, and static pressure**, requiring location-specific adjustments or additional calibration cycles. But newer **environmentally stable microphones for end-of-line testing** overcome this by maintaining tight tolerances even as conditions shift.

That means:

- No climate-based recalibration
- Consistent results across sites or geographies
- Fewer audits and smoother certification processes

BOTTOM LINE?

Your QA process scales confidently across sites—without compromising compliance, consistency, or customer trust.

How Can You Maintain Precision and Still Reduce Testing Costs?

You shouldn't have to choose between high test accuracy and operational efficiency. Traditional acoustic test systems often create hidden costs: excess spares, calibration labor, correction file maintenance, and training for mic-specific handling procedures.

By adopting **low-maintenance microphones designed for production lines**, manufacturers can eliminate many of those overheads.

Features like:

- Operation with standard CCP or phantom power
- No external calibration files or unique serial handling
- Long-term signal stability under continuous use

BOTTOM LINE?

Precision is preserved, while streamlined hardware and stable performance cut complexity and long-term test costs.



Engineers Build Trust Through Accurate, Repeatable Data

Clients don't measure your QA system by your equipment list—they measure it by your consistency. The fewer adjustments needed per unit tested, the more credible your results become. When test data holds up to scrutiny across batches, shifts, and sites, you're not just meeting specifications—you're **building long-term trust**.

Optimized Microphone Solutions for Scalable Production Testing

Engineered for production line testing, the EQset series offers plug-and-play precision with standardized sensitivity and robust stability across models.

EQset microphone family portrait:



	GRAS 40PM	GRAS 40PM-1	GRAS 40PO-L	GRAS 40PO-H
Freq range	20 Hz to 20 kHz	20 Hz to 20 kHz	10 Hz to 40 kHz	10 Hz to 40 kHz
Dyn range	30 dB(A) to 120 dB	30 dB(A) to 125 dB	30 dBA to 128 dB	36 dBA to 138 dB
Sensitivity	25 mV/Pa	20 mV/Pa	25 mV/Pa (-32 dB ref 1V/Pa)	8 mV/Pa (-42 dB ref 1V/Pa)



Learn more about EQset and the next generation of production line microphones.



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Looking for Seamless Analyzer Integration?

GRAS EQset production line microphones—including the 40PM, 40PM-1, 40PO-L, and 40PO-H—are fully compatible with **Audio Precision analyzers**, ensuring a smooth integration into existing test setups. Whether you're building a new end-of-line test station or optimizing an existing one, this pairing allows you to combine **precision hardware with trusted analysis tools**, resulting in a unified solution for scalable, repeatable acoustic testing.

Read more about production testing solutions from AP

