

67SB Blast Probe According to ANSI S12.42

Product Data

When measuring the properties of a hearing-protection device on an acoustic test fixture in an impulse-signal measurement setup, it is crucial that you monitor the impulse signal for each individual measurement.

The 67SB Blast Probe is designed as a reference microphone for impulse measurements according to the ANSI S12.42 standard. The 67SB can measure impulse signals with an A-duration of $0.5 \text{ ms} \leq \text{impulse} \leq 2.0 \text{ ms}$, and it has a working range of 10 Hz – 20 kHz

The $\frac{1}{8}$ " reference microphone inside the 67SB is ideally suited for capturing impulsive signals with a very fine time resolution. This microphone has an upper limit of 174 dB in the dynamic range.

A calibration adapter is included with the 67SB so you can perform a verification of the microphone before each use. Whether you are in the lab or in the field, the 42AP Intelligent Piston-phone fulfills this calibration need with high accuracy.

The design and concept of the 67SB, and the microphone and preamplifier, comply with the following standards.

- ANSI S12.42 – *"Methods for the Measurement of Insertion Loss of Hearing Protection Devices in Continuous or Impulsive Noise Using Microphone-in-Real Ear or Acoustic Test Fixture Procedures"*
- IEC Standard 61094-1 – *"Specifications for Laboratory Standard Microphones"*



Fig. 1 The 67SB Blast Probe

Main Features

- Compliance with ANSI/ASA S12.42
- Design that handles sound pressure levels up to 174 dB
- Wide dynamic range with a low noise floor
- Delivered with a robust travel case that includes a calibration adapter and a hex key for opening the probe
- Provides a high-quality reference in your testing setup for impulse noises
- Calibration with or without dismounting the microphone from the blast probe

Typical Applications

- Testing in the laboratory or in the field
- Testing with impulse-noise signals

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The following diagram demonstrates the time domain of an impulse noise as measured by the 67SB. The peak measurement of 6000 Pa in this example is approximately 170 dB.

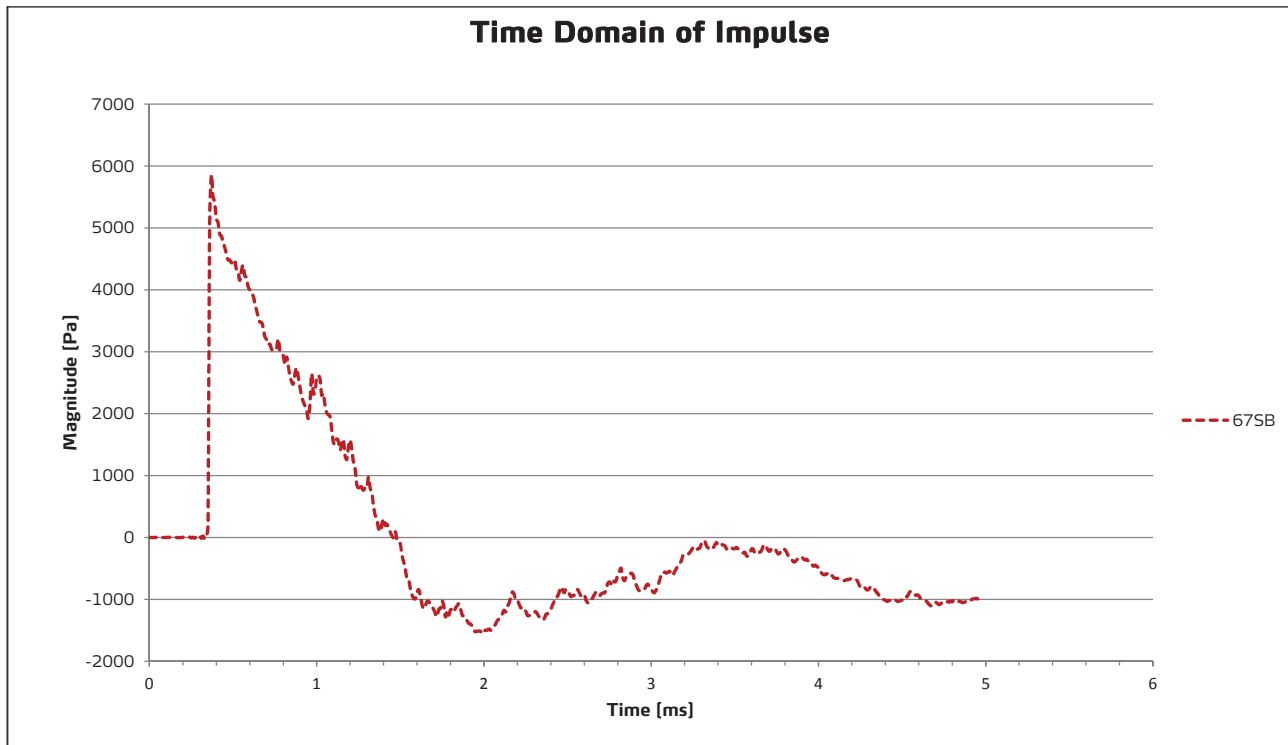


Fig. 2 The time domain of an impulse noise

To make the measurement shown in Figure 2, you need to position the probe and the acoustic test fixture according to the setup described in section 10.4 of ANSI S12.42. The placement of the ATF and the probe can form an angle from the impulse source of between 10° to 30°. This setup is shown in Figure 3.

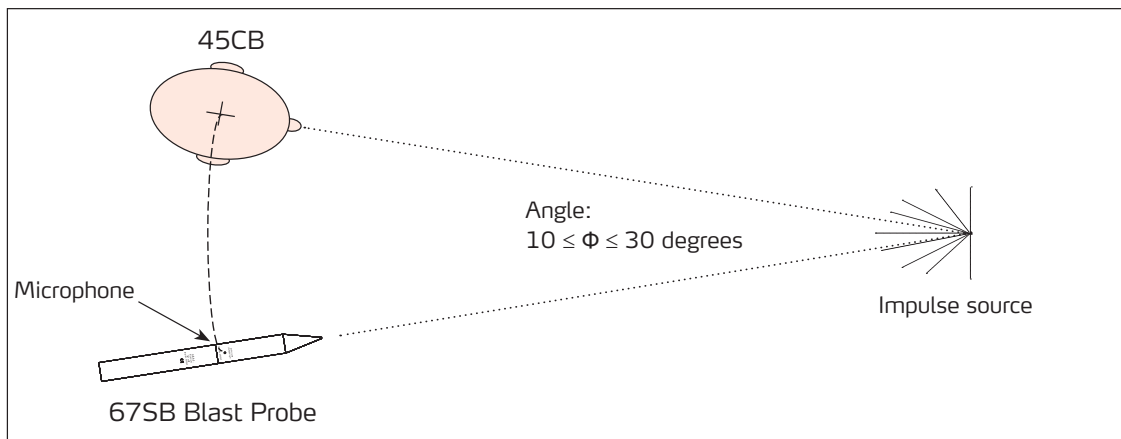


Fig. 3 Guideline for test setup positioning for measuring an impulse noise

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Calibration

There are two ways to calibrate the 67SB.

The most convenient way to calibrate the microphone in the 67SB is while the device is assembled. You can mount the calibration adapter GU0212 directly on the microphone while it is still in the blast probe and perform a calibration. The correction factor for GU0212 is -0.04 dB.

You can also remove the microphone from the blast probe for the standard method of calibration. Mount the GR1423 on the microphone before inserting the microphone into the pistonphone / coupler setup for calibration. No correction factor is necessary for GR1423.

Both the GU0212 and the GR1423 calibration adapters are included with the 67SB.

Ordering Information

67SB Blast Probe According to ANSI S12.42 (includes microphone and preamplifier in the probe housing, two calibration adapter, hex key, and a travel case)

Options

- 12AK 1-Channel LEMO Power Module with gain, filters and SysCheck generator
- AA0008 3-m LEMO extension cable
- AA0009 10-m LEMO extension cable
- 42AP Intelligent Pistonphone

System Integration

Before leaving the factory, the calibration system has been integrated and tested by G.R.A.S.; the individual test certificate is included.



Fig. 4 The 67SB in its robust travel case

Specifications

67SB Specifications

Frequency Range

10 Hz – 20 kHz ±2.0 dB

Temperature range

..... -30 °C to +70 °C

Humidity (non-condensing)

Range: 0 – 95 % RH
Influence (250 Hz): <0.1 dB (0 - 100% RH)

Probe Dimensions

Length 410
Diameter 35 mm

Threads

Protection Grid: M 3.175 × 0.2
Blast probe mounting: ¼" thread

Weight

67SB only 650 g
67SB with case 2750 g

Microphone Specifications

Resonant frequency

90° phase shift: 160 kHz

Nominal open-circuit sensitivity

at 250 Hz: 1 mV/Pa

Polarization voltage

..... 200 V

Dynamic range

Upper limit (3% distortion): .174 dB re. 20 µPa
Thermal noise: 44 dB(A) re. 20 µPa

Capacitance

Polarized: 3.5 pF

Temperature coefficient (250 Hz)

-40 °C to +150 °C: 0.01 dB/°C

Static-pressure coefficient

250 Hz at 25 °C: -0.01 dB/kPa

Influence of axial vibration equiv. to 1 m/s²

..... 59 dB re. 20 µPa

Venting

..... Rear-vented

Microphone Dimensions

Length (with protection grid): 6.7 mm
Diameter (with protection grid): 3.5 mm
Length (without protection grid): 6.1 mm
Diameter (without protection grid): 3.2 mm
Diaphragm ring diameter 3.0 mm

Preamplifier Specifications

Input impedance

..... 20 GΩ, 0.5 pF

Output impedance

Typical 75 Ω

G.R.A.S. Sound & Vibration continually strives to improve the quality of our products for our customers; therefore, the specifications and accessories are subject to change.