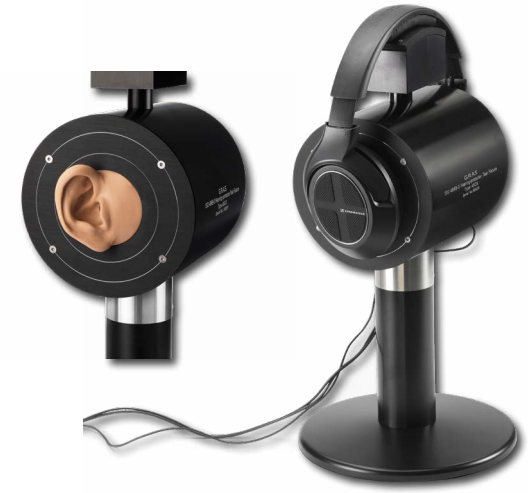
GRAS 45CA

Headphone/Hearing-protector Test Fixture

45CA's robust design makes it ideally suited for binaural testing of active and passive earplugs, as well as circumaural hearing protectors. It is primarily intended for testing the performance of hearing-protection devices but can also be used for testing earphones and headphones. It is fitted with either microphones or ear simulators, depending on the device to test and the standard to comply with. Compliance with ISO 4869-3, IEC 60318-1 and IEC 60318-4 assures technicians, decision makers, and authorities of repeatability and transparent data when developing and verifying hearing protectors. Additionally, all CCP configurations (-2, -4, -6, -8, -10, and -12) are IEEE 1451.4 TEDS v. 1.0 compliant.

The pinnae for 45CA are basically the same as the standard KEMAR pinnae, but rounded to fit the large 45CA base plate. This large base plate reduces or eliminates the risk of leakage. 45CA includes two plugs for measuring the acoustic isolation in a closed ear.

The most common configurations can be ordered fully assembled, calibrated. They are listed below.



45CA Configurations

45CA-1 Headphone/Hearing-Protector Test Fixture, ISO 4869-3 1″ Mic. LEMO—for test of ear muffs

45CA-2 Headphone/Hearing-Protector Test Fixture, ISO 4869-3 ½″ Mic. CCP—for test of ear muffs

45CA-3 Headphone/Hearing-Protector Test Fixture, IEC 60318-1 LEMO—for test of ear muffs and headphones

45CA-4 Headphone/Hearing-Protector Test Fixture, IEC 60318-1 CCP—for test of ear muffs and headphones

45CA-5 Headphone/Hearing-Protector Test Fixture, IEC 60318-4 LEMO—test of ear muffs, ear plugs, headphones, ear phones

45CA-6 Headphone/Hearing-Protector Test Fixture, IEC 60318-4 CCP—test of ear muffs, ear plugs, headphones, ear phones

45CA-7 Headphone/Hearing-Protector Test Fixture, IEC 60318-4 LEMO, with Anthropometric Pinnae—for test of ear muffs, ear plugs, headphones and ear phones

45CA-8 Headphone/Hearing-Protector Test Fixture, IEC 60318-4 CCP, with Anthropometric Pinnae—for test of ear muffs, ear plugs, headphones and ear phones

45CA-9 Headphone/Hearing-Protector Test Fixture, IEC 60318-4 LEMO, High-Frequency with Anthropometric Pinnae—for test of headphones and ear phones up to 20 kHz

45CA-10 Headphone/Hearing-Protector Test Fixture, IEC 60318-4 CCP, High-Frequency with Anthropometric Pinnae—for test of headphones and ear phones up to 20 kHz

45CA-11 Headphone/Hearing-Protector Test Fixture, IEC 60318-4 LEMO, Hi-Res, with Anthropometric Pinnae—for test of headphones and ear phones up to 50 kHz

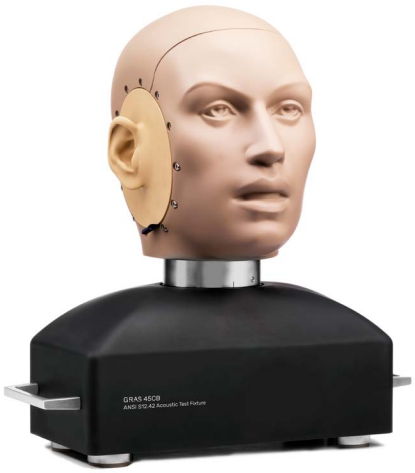
45CA-12 Headphone/Hearing-Protector Test Fixture, IEC 60318-4 CCP, Hi-Res, with Anthropometric Pinnae—for test of headphones and ear phones up to 50 kHz

45CA-13 Headphone/Hearing-Protector Test Fixture, IEC 60318-4 compliant, Low Noise Ear Simulator System with Anthropometric Pinnae—especially suited for ANC headphones and ear phones testing

Specifications	4CA
ISO standard	ISO 4869-3 (45CA-1 & 2)
ITU-T Recommendations	P.380
IEC standard	60318-1 (45CA-3 & 4) 60318-4 (45CA-5 to 45CA-10 & 45CA-13) 60318-4 compatible (45CA-11 & 12)
Self Insertion Loss, measured with closed ear simulators (45CA-1 and 45CA-2)	
80-250 Hz	>50 dB
350 – 4000 Hz	>65 dB
5000 – 20.000 Hz	>55 dB
Weight	11.6 kg
For more specifications, visit www.grasacoustics.com	

GRAS 45CB

Acoustic Test Fixture According to ANSI S12.42



45CB is deigned for standardized, binaural testing of passive and active earmuffs and earplugs. Besides a robust design made for field testing and high sound pressure levels (blasts), it has a very high self-insertion loss, body temperature regulated ear-canals with silicone lining and a huge pinna surround—all to provide the most realistic and repeatable fit.

45CB directly handles sound pressure levels up to 169 dB and, indirectly (using comparision methods), levels up to 190 dB. It has a self insertion-loss better than 65 dB.

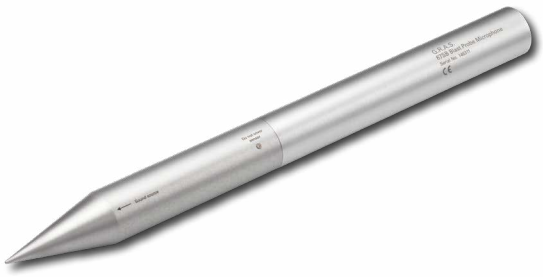
The modified IEC 60318-4 ear simulator with ¼″ microphone extends the frequency range as required by the standard. The 14-mm long ear canal extension is designed to let you also test all types of ear plugs.

The silicone-rubber lining of the extension enables leakage-free mounting of both foam plugs and customized molded types. The silicone-rubber lining of the plates ensures leakage-free mounting, as well as high repeatability and reliability.

Also available are 45CB-S1 for lower sound pressure levels and 45CB-S2 for higher sound pressure levels.

GRAS 67SB

Blast Probe Microphone



The 67SB Blast Probe is designed as a reference microphone for impulse measurements according to the ANSI S12.42 standard.

The ⅛″ reference microphone inside it 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.

An adapter is included with the 67SB, so you can perform a verification of the microphone before each use.

67SB is provided with a 1 /4″ threaded hole for mounting directly on a tripod, e.g., AL0006.

Specifications	45CB	67SB
Sensitivity	1.6 mV	1 mV
Dynamic range	50 dB(A) – 169 dB	10 – 20 kHz
Self Iinsertion Loss	100 Hz – 8 kHz: > 74 dB 80 Hz – 12.5 kHz: > 65 dB	52 dB(A) – 174 dB
Standard	ANSI S12.42	ANSI S12.42
Connector	7-pin LEMO	7-pin LEMO
Weight	14.75 kg	650 g

ES France - Département Tests & Mesures
127 rue de Buzenval BP 26 - 92380 Garches
Tél. 01 47 95 99 45
Fax. 01 47 01 16 22
e-mail : tem@es-france.com
Site Web : www.es-france.com