

GRAS RA0045-S6

Prepolarized Ear Simulator Based on IEC 60318-4 (60711),
High Sensitivity



Standards: IEC 60318-4 (based on), ITU-T
P.57
Eff vol: 1260 mm³ @ 500 Hz
Res freq: 13.5 kHz \pm 1 kHz

The GRAS RA0045-S6 Prepol Ear Sim IEC 60318-4, High Sensitivity is an ear simulator with an acoustic input impedance closely resembling that of an average human ear. The RA0045 includes a 40AD pressure microphone and each RA0045-S6 is individually calibrated with this specific microphone.

Introduction

The RA0045-S6 Prepol Ear Simulator IEC 60318-4, High Sensitivity is a special type of ear simulator for making low level acoustic measurements on earphones coupled to the human ear by ear inserts such as tubes, ear moulds, or ear tips. It has an input impedance closely resembling that of an average human ear, and, as a result, loads a sound source in very much the same way.

It is based on the requirements of IEC 60318-4 "Occluded-ear simulator for the measurement of earphones coupled to the ear by ear inserts."

The RA0045-S6 is measured and calibrated according to the ITU-T Recommendation P.57.

Design

The RA0045-S6 embodies a number of carefully designed volumes connected via well-defined and precisely tuned resistive grooves. In an equivalent electrical circuit, capacitors would represent the volumes, and inductance and resistance would represent respectively air mass and air flow within the resistive grooves.

It includes a [GRAS 40AD 1/2"](#) Prepolarized Pressure Microphone, High Sensitivity. Each RA0045-S6 is individually calibrated with this specific microphone.

Typical Applications and Use

The RA0045-S6 is for measurements on earphones and hearing aids coupled to the human ear by ear inserts such as tubes, ear moulds, or ear tips.

In accordance with ITU-T Recommendation P.57, the RA0045-S6 can be used with the following GRAS pinna simulators for testing telephones:

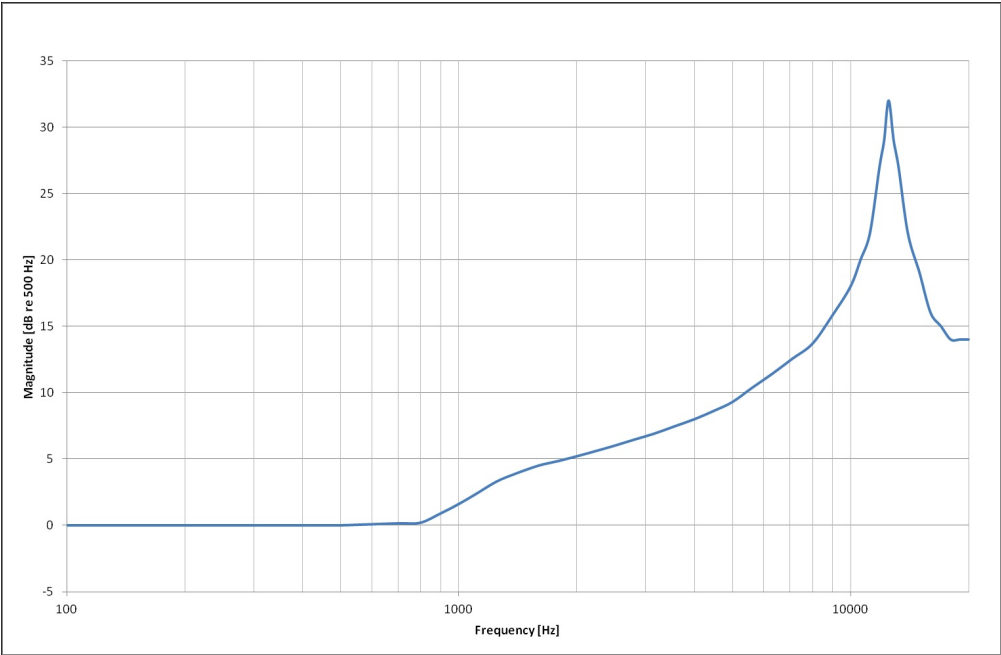
- [GRAS RA0056](#) Low-leak Pinna Simulator.
- [GRAS RA0057](#) High-leak Pinna Simulator.

A comprehensive range of accessories for making measurements in accordance with IEC 60318-4 are available. See the tab Ordering info.

Compatibility

The RA0045-S6 can be used with a standard CCP preamplifier, e.g. the [GRAS 26CA 1/2"](#) Preamplifier or the [GRAS 26CB 1/4"](#) Preamplifier fitted with an adapter. For the 1/4" preamplifier, use either the straight [GRAS RA0003](#) Adapter or the right-angled [GRAS RA0001](#) Adapter

Polarization/Connection		0 V / CCP
Theoretical dynamic range lower limit with GRAS preamplifier	dB(A)	18
Dynamic range upper limit with GRAS CCP preamplifier	dB	138
Resonance frequency	kHz	13.5
Coupler volume	mm ³	0.4 ccm
Humidity range non condensing	% RH	0 to 75
ANSI standard		S3.7
IEC standard		Based on 60318-4
ITU-T recommendations		P.57 Type 2
CE/RoHS compliant/WEEE registered		Yes/Yes, Yes
Weight	g / oz	52 / 1.8



Typical frequency response

Optional items

GRAS RA0088	In Ear Adapter
GRAS GR0433	Calibration Adapter
GRAS GR0434	Stop Washer
GRAS GR0436	Tube Adapter
GRAS GR0437	Ear-mould Simulator
GRAS GR0438	Retention Ring
GRAS GR0440	Tube Adapter
GRAS RA0056	Low-leak Pinna Simulator
GRAS RA0057	High-leak Pinna Simulator
GRAS 26CA	26CA 1/2" CCP Standard Preamplifier with BNC Connector
GRAS 26CB	26CB 1/4" CCP Standard Preamplifier with Microdot Connector
GRAS RA0001	Right-angled Adapter for 1/2" microphone and 1/4" preamplifier
GRAS RA0525	Foam insert for 60318-4 coupler, 10 pcs
GRAS RA0003	Adapter for 1/2" microphone and 1/4" preamplifier

GRAS Worldwide

Subsidiaries and distributors in more
than 40 countries

HEAD OFFICE, DENMARK

GRAS SOUND & VIBRATION

Skovlytoften 33
2840 Holte
Denmark
Tel: +45 4566 4046
www.GRASacoustics.com
gras@grasacoustics.com

USA

GRAS SOUND & VIBRATION

9290 SW Nimbus Avenue
Beaverton, OR 97008
Tel: 503-627-0832
Toll Free: 800-231-7350
www.GRASacoustics.com
sales-usa@grasacoustics.com

UK

GRAS SOUND & VIBRATION

Unit 115, Gibson House,
Ermine Business Park, Huntingdon,
Cambridgeshire, PE29 6XU
Tel: +44 (0) 7762 584 202
www.GRASacoustics.com
sales-uk@grasacoustics.com

CHINA

GRAS SOUND & VIBRATION

Room 315, RuiBo Center(T1)
Lane683, Shenhong Rd,
Minhang District,
Shanghai, China, 201107
Tel: +86 21 64203370
www.GRASacoustics.cn
cnsales@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 and related equipment for industries where acoustic measuring accuracy and repeatability are of the utmost importance. This includes applications and solutions for customers within the fields of aerospace, automotive, audiology, consumer electronics and other highly demanding industries. GRAS microphones are designed to live up to the high quality, durability and accuracy that our customers have come to expect, trust and require.

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. Read more at www.grasacoustics.com

grasacoustics.com

GRAS
An Axiometrix Solutions Brand