IEC 711 Ear Simulator RA0045

Product Data and Specifications

Typical applications

- ***Insert-earphone measurements***
- ***Earphone-production tests***
- ***IEC 60318-4 Standard measurements***
- ***ANSI S3.25 Measurements***
- ***ITU-T P.57 Type 2 Recommendation measure ments***

Fig. 1 IEC Ear Simulator RA0045

The IEC 711 Ear Simulator Type RA0045 (Fig. 1) is for making acoustic measurements on earphones coupled to the human ear by ear inserts such as tubes, ear moulds, or ear tips. It is delivered with a built-in G.R.A.S. ½" pressure microphone Type 40AG and an individual calibration chart for the ear simulator.

Important: The microphone should not be removed from the coupler since this will jeopardise the factory calibration.

The RA0045 complies with the following international requirements:

- IEC 60318-4 Ed. 1.OB: *Occluded-ear simulator for the measurement of earphones coupled to the ear by ear inserts*.
- ITU-T Recommendations P.57 (08/96) Series P: *Telephone transmission quality, Objective measuring apparatus: Artificial ears*.

It is also part of the G.R.A.S. Artificial Ear Type 43AC.

The RA0045 can be used with a standard preamplifier, e.g. a ½" Preamplifier Type 26AK or a ¼" Preamplifier Type 26AC fitted with an adapter. For a ¼" preamplifier, use either the straight Adapter RA0003 or the right-angled Adapter RA0001 (as in the case of the G.R.A.S. Artificial Ear Type 43AC).

The acoustic input impedance of the RA0045 closely resembles that of the human ear and, as a result, loads a sound source in very much the same way.

In accordance with ITU-T Recommendation P.57 (08/96): Series P: *Telephone transmission quality, Objective measuring apparatus: Artificial ears, Type 3.1-3.4*, the RA0045 can be used with the following G.R.A.S. pinna simulators for testing telephones:

- Low-leak Pinna Simulator Type RA0056
- High-leak Pinna Simulator Type RA0057

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G.R.A.S.
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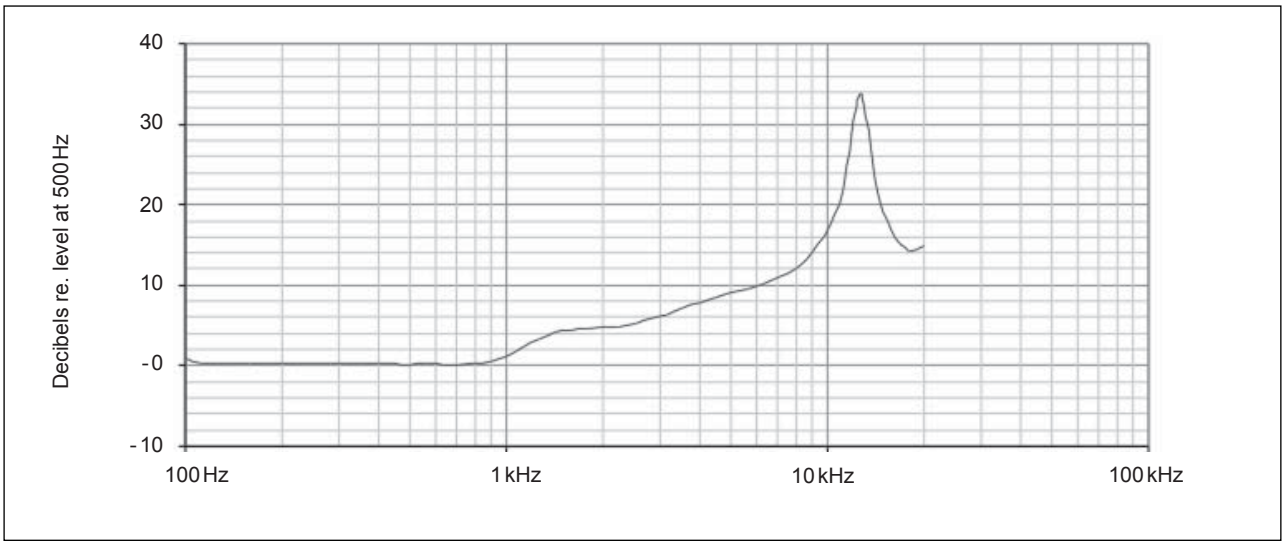

Fig. 2 RA0045 - typical ear simulator frequency response re. 500 Hz

The RA0045 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 groves. Fig. 2 shows a typical coupler frequency response of the RA0045.

Specifications

Standards:

IEC 60318-4 (1981): Occluded-ear simulators for the measurement of earphones coupled to the ear by ear inserts.

ITU-T Recommendation P.57 (08/96) "Series P: Telephone transmission quality, Objective measuring apparatus : Artificial ears"

Resonant frequency:

13.5 kHz ±1 kHz

Effective volume at 500 Hz:

1260 mm^3

Dimensions:

Height: . . . . . 23.0 mm
Diameter: . . . . . 23.75 mm
Weight: . . . . . .52 g

Environmental calibration conditions:

Temperature: . . . . . 23 °C ±3 °C
Relative humidity: . . . . . 60 % ±20 %
Barometric pressure: . . . . . 101.3 kPa ±3 kPa

Accessories included:

External-ear Simulator: GR0408

Accessories available:

Calibration Adapter: GR0433
Stop Washer: GR0434

Tube Adapter: GR0436
Ear-mould Simulator: GR0437

Retention Ring: GR0438
Tube Adapter: GR0440

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