MEDICAL ACOUSTIC TEST EQUIPMENT

Audiometer Calibration System

PURE-TONE AND IMPEDANCE AUDIOMETER VERIFICATION

A modular laboratory system for acoustic output, frequency, distortion, linearity, reference-zero and impedance-related verification of audiometric equipment.

IEC 60645-1 | IEC 60645-5 | IEC 60318 | ISO 389

Test Scope
Pure-tone and impedance audiometers

Transducers
Supra-aural, circumaural, insert and bone

Measurement
Level, frequency, distortion and linearity

Typical Users
Metrology, R&D, production and test laboratories

International standards reference. Final supplied configuration and calibration scope are confirmed by quotation.

Product Overview and Customer Value

The Audiometer Calibration System combines an acoustic analyzer, reference couplers and simulators, mechanical interfaces, impedance reference devices and dedicated software in one coordinated laboratory workflow. It supports routine verification, calibration work, product development and comparative testing for pure-tone and impedance audiometers.

01 Broad transducer coverage

Supports supra-aural, circumaural and insert earphones together with bone vibrators and impedance-audiometer output paths.

02 One coordinated measurement chain

Reference devices, signal conditioning, frequency measurement and acoustic analysis are configured as a complete system.

03 Guided software workflow

Dedicated software can guide measurements, apply reference data and produce structured records according to the configured procedure.

04 Laboratory-ready configuration

Useful for metrology laboratories, certification bodies, manufacturers, R&D teams and production quality-control departments.

What the system helps laboratories accomplish

- Verify audiometer output level and frequency using the correct acoustic or mechanical reference interface.
- Evaluate harmonic distortion, level linearity and reference-zero related performance where required by the test procedure.
- Check probe-tone, ipsilateral and contralateral output paths on impedance audiometers.
- Use standard cavities and a digital pressure gauge for impedance and pressure-related verification.
- Keep repeatable measurement records for calibration, quality control and engineering comparison.

Representative system configuration

Final accessories depend on transducer type and requested calibration scope.

International Standards and Test Scope

The system is configured around the applicable audiometer standard and the reference interface required for each transducer. Standard edition, transducer model, reference-zero data and the laboratory uncertainty budget should be confirmed before formal calibration.

Standard	Reference function	Typical system relevance
IEC 60645-1:2017	Equipment for pure-tone audiometry	Performance and verification context for pure-tone audiometers
IEC 60645-5:2004	Instruments for aural acoustic impedance/admittance	Verification context for impedance audiometers and tympanometers
IEC 60318-1	Ear simulator	Measurement of earphone output with the applicable simulator
IEC 60318-3	Acoustic coupler for supra-aural earphones	6 cm3 coupling arrangement where applicable
IEC 60318-4	Occluded-ear simulator	Insert earphones and earphones coupled through ear inserts
IEC 60318-5	2 cm3 coupler	Insert or probe-earphone measurement where applicable
IEC 60318-6	Mechanical coupler	Force-level measurement for bone vibrators
ISO 389 series	Reference zero for audiometric equipment	RETSPL and RETFL values selected by transducer and reference interface

Typical test items

Frequency
Output-frequency verification

Output Level
Air- and bone-conduction level checks

Harmonic Distortion
Acoustic or force-output distortion

Level Linearity
Level-step and range behavior

Reference Zero
RETSPL or RETFL related verification

Impedance Functions
Probe tone, cavity volume and pressure checks

Standards are referenced by function. Always use the applicable official edition and any required national adoption or laboratory procedure.

System Configuration

The following configuration is based on the supplied product specification. Final model, calibration certificate, measurement range and uncertainty should be confirmed in the quotation and delivery documentation.

Measurement, control and software

Component	Model / Reference	Qty.	Purpose
Sound Analyzer	AWA6292	1	Acoustic analysis
Sound Calibrator	AWA6021A	1	Reference level check
Conditioning Amplifier	To be confirmed	1	Signal conditioning
Frequency Counter	To be confirmed	1	Frequency verification
Automatic Measurement Software	15-PATSLM-2	1	Guided tests and records
BNC Test Cable	System accessory	2	Signal connection

Reference devices and mechanical accessories

Component	Model / Reference	Qty.	Purpose
Artificial Mastoid	4930	1	Bone vibrator measurement
6 cm3 Coupler	317-J	1	Supra-aural earphones
IEC 60318-1 Ear Simulator Set	318-J	1	Earphone measurement
Occluded-Ear Simulator and Adapters	711-J	1	Insert earphones
2 cm3 Coupler and Adapters	LXY-2CC-1	1	Probe / insert earphones
Headband Force Measurement System	LXY-TGFM	1	Headband force
Standard Volume Cavity Set	LXY-CG-1	1 set	0.1 to 8.0 cm3, 11 cavities
Digital Pressure Gauge	LXY-SZYLJ	1	Pressure verification
Weight	510 g	1	Force setup accessory

Configuration notes

- The required simulator or coupler is selected according to the earphone, probe or bone-vibrator type.
- The standard cavity set contains at least 11 nominal volumes: 0.1, 0.2, 0.5, 1.0, 2.0, 3.0, 4.0, 5.0, 6.0, 7.0 and 8.0 cm3.
- Computer hardware, display devices and local installation services should be confirmed separately in the final supply scope.

Pure-Tone Audiometer Calibration Workflow

The Pure Tone Audiometer Calibration System connects each transducer to the appropriate acoustic or mechanical reference interface. The measurement chain then evaluates the required output parameters and records the results.

AUDIOMETER UNDER TEST

Pure-tone output
Air and bone conduction

TRANSDUCERS

Supra-aural
Circumaural
Insert earphone
Bone vibrator

REFERENCE INTERFACES

Ear simulator
6 cm3 / 2 cm3 coupler
Occluded-ear simulator
Artificial mastoid

MEASUREMENT CHAIN

Preamplifier
Conditioning amplifier
Acoustic analyzer
Frequency counter

RESULTS

Output level
Frequency
Distortion
Level linearity
Reference-zero checks

Air-conduction verification

Supra-aural, circumaural and insert earphones are connected to the appropriate ear simulator or coupler. Level, frequency, distortion and linearity are evaluated according to the selected procedure.

Bone-conduction verification

The bone vibrator is applied to the artificial mastoid or mechanical coupler with the required static force. Force level and related performance are evaluated using the relevant reference data.

Reference-zero handling

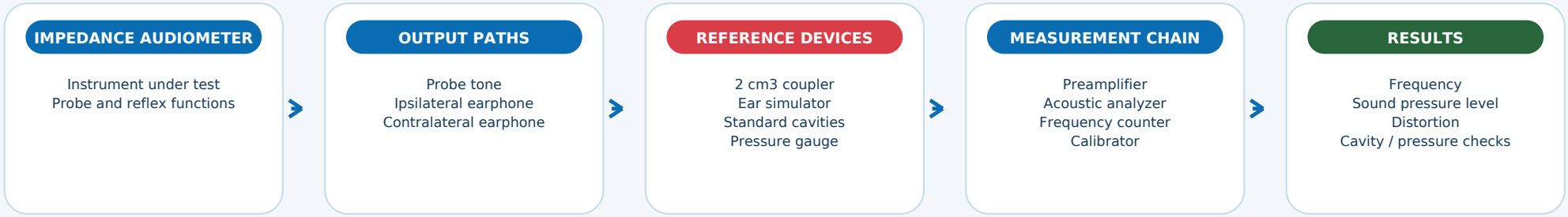
The selected RETSPL or RETFL values must correspond to the transducer, coupler or simulator combination. The software database and correction settings should be reviewed before formal calibration.

Typical operating sequence

Select transducer and reference interface > verify reference device > set frequency and level > run measurement > review and store results

Impedance Audiometer Calibration Workflow

The Impedance Audiometer Calibration System supports acoustic-output checks for probe-tone, ipsilateral and contralateral paths together with standard-cavity and pressure verification. The exact procedure depends on the instrument type and applicable IEC 60645-5 requirements.



Standard volume cavity set

Nominal cavity volumes included in the supplied specification:

0.1 | 0.2 | 0.5 | 1.0 | 2.0 | 3.0 | 4.0 | 5.0 | 6.0 | 7.0 | 8.0 cm3

Eleven cavities support verification across the required nominal volume range.

Automatic measurement software

- Guided measurement steps and device setup
- Built-in reference data for supported interfaces
- Artificial-mastoid sensitivity correction
- Result display and structured record generation

Important

Automatic pass/fail evaluation is valid only when the applicable limits, instrument type, reference interface, standard edition and laboratory procedure have been correctly configured. Calibration traceability and uncertainty remain part of the complete laboratory quality system.

Applications, Selection and Technical Inquiry

To prepare the correct Audiometer Calibration System configuration, KingPo reviews the target standard, audiometer type, transducer models, reference interfaces, calibration documentation and laboratory workflow.

Typical users

Metrology Laboratories

Routine verification and calibration services

Testing and Certification Bodies

Independent compliance and quality evaluation

Audiometer Manufacturers

R&D adjustment, validation and product comparison

Production Quality Control

Incoming, in-process and final inspection support

Please provide before quotation

- Target standard, edition and internal calibration procedure
- Pure-tone, impedance or combined system requirement
- Earphone, insert, probe and bone-vibrator models
- Required test items and expected report format
- Calibration certificate and traceability requirements
- Software language, installation and training requirements

Product Page

Scan the QR code to view the online product page.

dgkingpo.com/product/audiometer-calibration-system/

KingPo Technology Development Limited

Factory Address: No.9 University Road,
Songshan Lake, Dongguan City,
Guangdong Province 523770, China

Tel: +86-769-81627526
Email: sales@kingpo.hk
Website: www.dgkingpo.com

Product appearance and configuration may be updated. Confirm the final scope, standard edition and calibration documentation before ordering.