



Stethoscope Acoustic Test System

IEC 61672-1 Sound Level Measurement | Medical Stethoscope Acoustic Performance Testing



Test Object	Traditional, sound-amplifying and electronic medical stethoscopes
Core Measurement	Sound attenuation, output SPL, harmonic distortion and equivalent input noise
Measurement Basis	IEC 61672-1 compliant sound level measurement
Measurement Method	1/3 OCT point-frequency method
Typical Setup	Electroacoustic analyzer, test sound source, artificial ear / 2 cc coupler and acoustic test box

The Stethoscope Acoustic Test System is designed for acoustic performance testing of medical stethoscopes. It provides a controlled electroacoustic measurement setup for evaluating sound transmission performance, output sound pressure level, distortion and noise behavior. The system helps manufacturers, laboratories and quality control teams replace subjective listening checks with repeatable acoustic measurement data.

Key Features

- IEC 61672-1 compliant sound level measurement for reliable acoustic evaluation.
- Supports traditional passive stethoscopes and sound-amplifying / electronic stethoscopes.
- Measures sound attenuation curve, output SPL, harmonic distortion and equivalent input noise.
- Uses dedicated stethoscope test software with curve display and result evaluation.
- Configurable with test sound source, artificial ear / 2 cc coupler, semi-in-ear adapter and acoustic test box.
- Suitable for R&D; verification, production quality control, batch comparison and laboratory testing.

Test Principle

The test sound source generates controlled acoustic output. The artificial ear / 2 cc coupler measures the sound pressure level at the stethoscope earpiece side. The software measures both the sound source output level and the earpiece output level, then calculates the attenuation value to evaluate the acoustic transmission performance of the stethoscope.

For sound-amplifying stethoscopes, the system can also support harmonic distortion and equivalent input noise testing. Because these products are sensitive to environmental noise, an acoustic test box or anechoic room is recommended for stable and repeatable measurement.



Traditional stethoscope acoustic test installation



Sound-amplifying stethoscope acoustic test installation

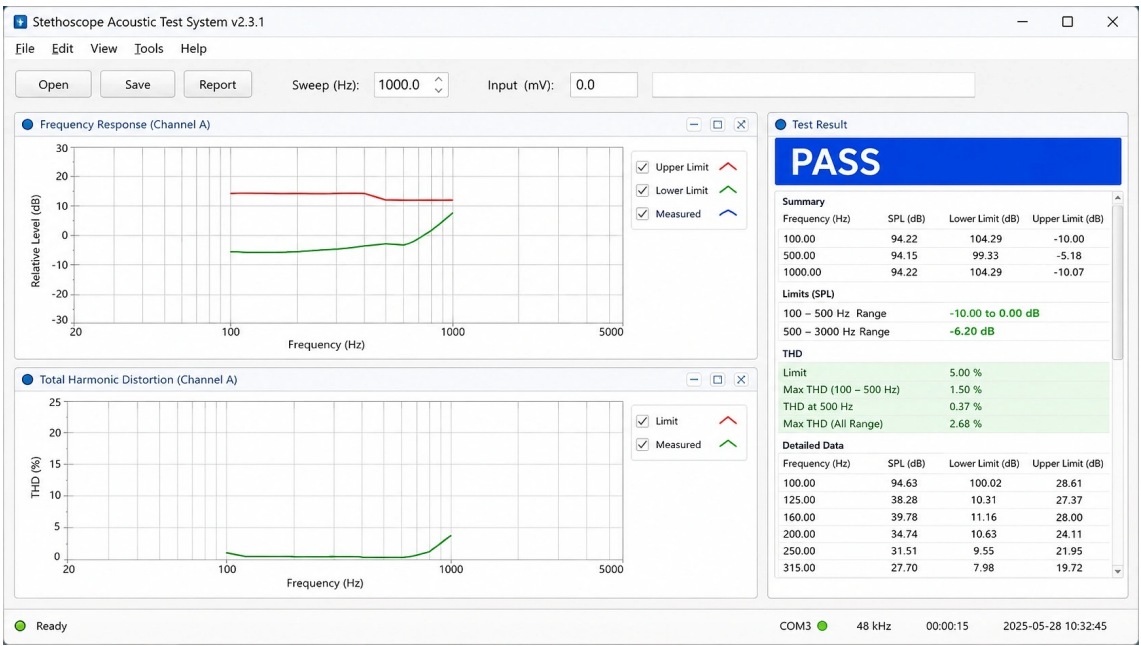
What the System Tests

Sound Attenuation Curve Evaluates how much sound is reduced through the stethoscope acoustic path.	Output Sound Pressure Level Measures the sound pressure level delivered to the earpiece side.
Harmonic Distortion Evaluates distortion performance of sound-amplifying or electronic stethoscopes.	Equivalent Input Noise Checks internal noise performance of sound-amplifying stethoscopes.
Frequency Response Behavior Helps compare acoustic performance at different test frequencies.	Production and R&D; Data Supports design comparison, batch verification and laboratory acoustic evaluation.

System Composition

The system can be configured according to the stethoscope type, required test items and acoustic environment. A typical configuration includes measurement hardware, acoustic fixtures and operation accessories.

Module	Typical Components / Function
Measurement and Analysis Unit	Electroacoustic analysis system, dedicated stethoscope test software, sound pressure type test microphone and sound calibrator.
Acoustic Test Fixtures	Test sound source, artificial ear / 2 cc coupler, semi-in-ear adapter and acoustic test box.
Operation Accessories	Monitor, keyboard, mouse, optional foot switch and connection cables.



Stethoscope acoustic test software interface with curve display and PASS result indication.

Measurement Functions

Sound Attenuation Measurement	Measures the level difference between sound source output and earpiece output.
Output SPL Measurement	Measures output sound pressure level at the stethoscope earpiece side.
Harmonic Distortion Test	Used for sound-amplifying stethoscope evaluation.
Equivalent Input Noise Test	Used to evaluate internal noise of sound-amplifying stethoscopes.
Measurement Method	1/3 OCT point-frequency method.
Measurement Trigger	Mouse, keyboard or foot switch.
Instrument Noise	< -75 dBV, Z-weighting.

Technical Specifications

Acoustic and Signal Specifications

Test Sound Source	AH6156 test sound source
Test Sound Source Frequency Range	20 Hz to 8 kHz
Electrical Signal Input Frequency Range	20 Hz to 20 kHz
Electrical Signal Input Amplitude Range	25 dB to 130 dB
Microphone Reference Sensitivity	50 mV/Pa, 1/3 OCT
Electrical Signal Output Frequency Range	20 Hz to 20 kHz
Electrical Signal Output Amplitude Range	1 mV to 10 V RMS
Output Sound Pressure Level	60 dB and 94 dB

Coupler and Acoustic Environment

Coupler / Artificial Ear	AWA6161 or AWA6161A
Equivalent Coupler Volume	2 cm ³
Acoustic Test Box	AH8585 test box
Recommended Environment	Acoustic test box or anechoic room for sound-amplifying stethoscope testing

Power, Environment and Dimensions

Power Supply	220 V / 50 Hz AC
Operating Temperature	0 C to 40 C
Relative Humidity	20% to 90% RH
Atmospheric Pressure	86 kPa to 106 kPa
Main Unit Dimensions	440 mm x 325 mm x 151 mm
Acoustic Test Box Dimensions	500 mm x 470 mm x 430 mm
Main Unit Weight	Approx. 8 kg
Acoustic Test Box Weight	Approx. 27.5 kg

Compliance and Regulatory Assurance

The Stethoscope Acoustic Test System is designed for medical stethoscope acoustic performance testing, including sound attenuation, output sound pressure level, harmonic distortion and equivalent input noise measurement.

The system uses IEC 61672-1 compliant sound level measurement to support repeatable acoustic evaluation of traditional and sound-amplifying stethoscopes. Stethoscope-specific test methods may also refer to YY/T 1035-2021 and YY 91035-1999 when required by the customer's internal procedure or target market.

Final test methods, acceptance criteria and documentation requirements should be confirmed according to the stethoscope type, intended market and regulatory pathway.

Typical Applications

- Medical stethoscope and electronic stethoscope manufacturers.
- Medical device testing laboratories and acoustic measurement laboratories.
- R&D; verification, design comparison and internal validation.
- Production quality control, batch consistency inspection and outgoing inspection.
- Technical documentation support and laboratory test method development.

Configuration Support

Traditional Stethoscope Only Main unit, software, test sound source, 2 cc coupler and sound calibrator.	Traditional + Sound-Amplifying Add acoustic test box, additional coupler/adapters and suitable test accessories.
R&D; and Laboratory Testing Confirm software display, curve comparison, calibration documents and test method requirements.	Production QA Confirm operation workflow, trigger method and routine inspection requirements.

Technical Inquiry	KingPo Technology Development Limited
Please confirm your stethoscope type, required tests, acoustic environment, coupler / fixture needs, report format and delivery scope before quotation.	Factory Address: No.9 University Road, Songshan Lake, Dongguan 523770, China Tel: +86-769-81627526 Email: sales@kingpo.hk Website: www.dgkingpo.com