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PI 88

IMPEDANCE TUBE

SOUND ABSORPTION |
SOUND TRANSMISSION LOSS

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PRECISION SOUND AND VIBRATION INSTRUMENTS AND SENSORS

PLACID IMPEDANCE TUBES

Sound Absorption | Sound Transmission Loss

PI88 ISO 10534-2, ASTM E1050-12, ASTM E2611-17

The Impedance tube (also known as Kundt Tube) measures, calculates and lets the user analyze Parameters like the Sound normal incidence absorption(Absorption Coefficient, Reflection Coefficient, Impedance, Admittance) and Sound Transmission/ sound insulation (Transmission Loss, Transmission Coefficient) of the material under test.

The results can be used to compare the basic absorption performance of the material and for acoustics simulations. In practice, the absorbers can be quite large and their structure and configuration may be complex and part of acoustic designs. Furthermore, they will be exposed to real sound fields where the incident sound may come from many directions.

ACOUSTIC MATERIAL TESTING

- Sound Absorption Coefficient (alpha)
- Sound transmission Loss (TL)
- Standard lists :
  ISO10543-2, ASTM E1050-12,
  ASTM E2611-17
- Frequency Range: 50-10000Hz

FEATURES

- Transfer function method 2 microphones
- Wide range Testing
- Plug and Play DAQ System

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SPECIFICATION	TYPE PI8810	TYPE PI8803	TYPE PI88016
Inner Diameter	100 mm	30 mm	16mm
Frequency Range	50 Hz to 1600 Hz	800 Hz to 6400 Hz	2.5 kHz to 10 kHz
Measurement	Sound Absorption, Sound transmission Loss		
Data acquisition	4 Channels IEPE input A/D converter 16/24 bit		
Microphones	¼" Class1 or 2 Frequency range 20Hz to 20kHz with BNC to SMB connector		
Power Amplifier	50 W. Class D		
Sound Source	4" loudspeaker 20W 4ohm		
Sound calibrator	94 / 114 dB at 1000 Hz		
Standards	ISO10543-2, ASTM E1050-12, ASTM E2611-17		
Ambient conditions	0 – 40 C (32 – 140 F), 10 – 90% RH, 650 – 1080 hpa		
Storage temperature & humidity	-10 – 50 C (14 – 122 F), 0 – 70% RH		

APPLICATION

- testing of material characteristics and verifying material compliance before implementing the materials in the assemblies
- design of acoustic comfort in aircraft, helicopters, ships, yachts and vehicle interiors by selecting the optimal acoustic treatments and noise barriers
- research and development of noise control products by benchmarking competitive products
- research jobs for students and universities
- validating and calibrating theoretical computational methods such as acoustic modelling

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FOR ABSORPTION

Sound absorption measurement obtains Absorption Coefficient, Reflection Coefficient, Impedance and Admittance of testing materials

The results can be used to compare the basic absorption performance of the material and for acoustics simulations. In practice, the absorbers can be quite large and their structure and configuration may be complex and part of acoustic designs. Furthermore, they will be exposed to real sound fields where the incident sound may come from many directions.

The Impedance tube kit can determine the sound absorption coefficient as well as the transmission loss.

PI8810
100 mm Impedance tube, frequency range 50 Hz – 1600 Hz

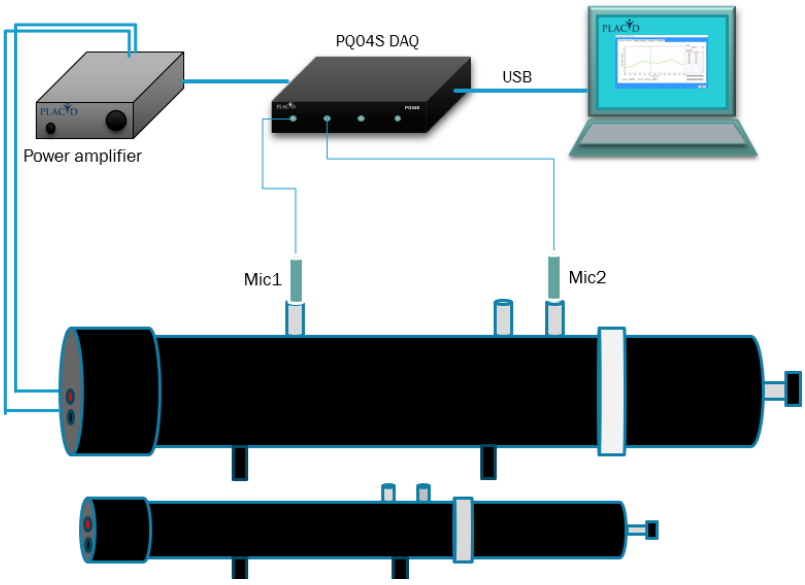
PI8803
30 mm Impedance tube, frequency range 800 – 6400 Hz

PI88016
16mm Impedance tube, frequency range 2500 – 10000 Hz

Microphones
1/4" Class 1 or 2 (optional), 20 Hz to 20 kHz (BNC to SMB connector)

Impedance tube can measure sound absorption coefficient as well as transmission loss, ISO10543-2, ASTM E1050-12.

SOUND ABSORPTION MEASUREMENT SETUP



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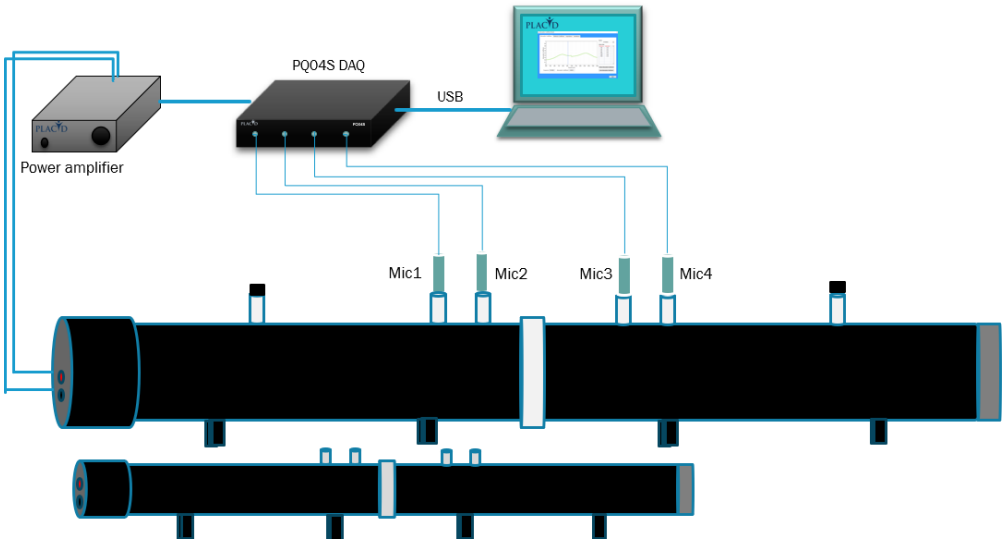
SOUND TRANSMISSION LOSS MEASUREMENT SETUP



SOUND ABSORPTION / TRANSMISSION LOSS DESCRIPTION

Measurement	Sound Absorption	Sound Transmission Loss
Tubes	50 Hz to 1600 Hz 100 mm Diameter Tube 100 mm Sample holder 800 to 6400 Hz 30mm Diameter Tube 30mm Sample holder 2500 Hz to 10000 Hz *16 mm Diameter Tube *16 mm Sample holder	50 Hz to 1600 Hz 100 mm Diameter Tube 100 mm Extension holder 800 to 6400 Hz 30mm Diameter Tube 30mm Extension holder 2500 Hz to 10000 Hz *16 mm Diameter Tube *16 mm Extension tube
Data Acquisition	4 Channels IEPE input A/D converter 16/24 bit	4 Channels IEPE input A/D converter 16/24 bit
Microphones	X2 ¼" Class 1 or 2, 20 Hz to 20 kHZ with BNC to SMB connector	X4 ¼" Class 1 or 2, 20 Hz to 20 kHZ with BNC to SMB connector
Microphones cable	X2 BNC to SMB	X4 BNC to SMB
Power amplifier	50W ultralow distortion	50W ultralow distortion
Power amplifier cable	Banana cable	Banana cable
Sound Source	4" loudspeaker 20W 4ohm	4" loudspeaker 20W 4ohm
Sound Calibrator	94/114 dB at 1000 Hz	94/114 dB at 1000 Hz
Measurement Software	Sound Absorption testing	Sound Transmission Loss testing

*OPTIONAL

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