NOE
ASIA PACIFIC

for lightweight and cost-efficient acoustic treatment

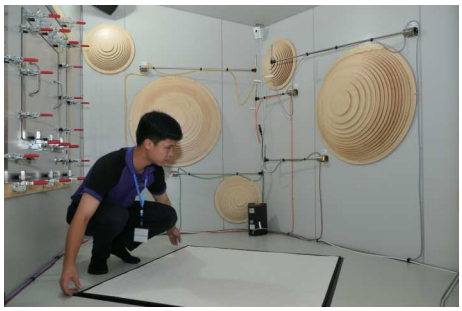
# Acoustic Material Testing and Simulation


Service Guide

# Services to add values on your products *Acoustically*

## Acoustic Performance Testing for Materials

- Acoustic performance of the material can be described with SAC (Sound Absorption Coefficient) and Sound Transmission Loss (STL)
- For both SAC and STL, Impedance Tube Test and Chamber Test are available.

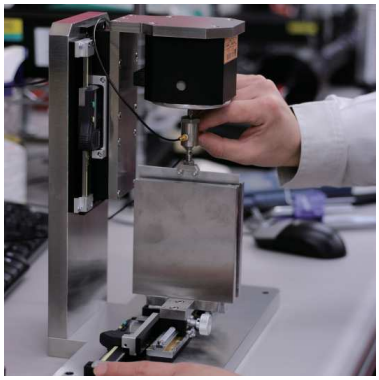


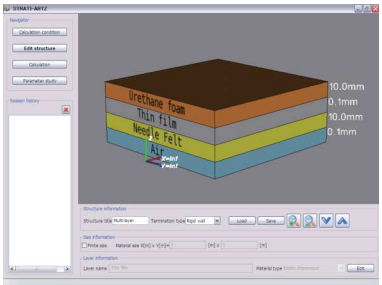
| Impedance Tube Test | |
|---|---|
| Properties to be Measured | Sound Absorption Coefficient (SAC)<br>Sound Transmission Loss (STL) |
| Sample Size | 40 mm $\phi$ , 15 mm $\phi$ (for up to 10,000 Hz) |
| Frequency Range | 200Hz - 5,000Hz (optional up to 10,000Hz ) |
| Applicable Standards | ISO 10534-2, ASTM E1050, JIS A1405-2<br>ASTM E2611 |
| Measurement System | WinZacMTX |
| Objectives and Applications | - Performance evaluation at material development<br>- Validation of simulation and design |

| Chamber Test | |
|---|---|
| Properties to be Measured | Sound Absorption Coefficient (SAC)<br>Sound Transmission Loss (STL) |
| Sample Size | 1.0 m x 1.0 m (SAC),<br>0.6 m x 0.6m or 1.0 m x 1.0 m (STL) |
| Frequency Range | 400Hz - 5,000Hz |
| Applicable Standards | ISO 354, JIS A 1409, SAE J 2883 (SAC)<br>ISO 15186-1, JIS A1441-1 (STL) |
| Measurement System | AbLoss |
| Objectives and Applications | - Performance evaluation of layered structure<br>- Validation for actual use |

## Acoustic Material Characterization and Simulation

- To optimize the acoustic performance of the material, the acoustic simulation is necessary with characterizing parameters.






| Acoustic Material Characterization | |
|---|---|
| Parameters to be Measured | Air flow resistivity, Tortuosity,<br>Viscous and thermal characteristic lengths,<br>Shear modulus, Young's modulus, Poisson's ratio |
| Parameters to be Estimated | Porosity |
| Sample Size | 100 mm x 100 mm (approximately) |
| Applicable Standard | ISO 9053 (Air flow resistivity) |
| Measurement System | AirReSys, Torvith |
| Objectives and Applications | - Prediction of acoustic performance<br>- Optimizing acoustic performance<br>- Obtaining the input data for computer simulation |

| Acoustic Performance Simulation | |
|---|---|
| Properties to be Estimated | Sound Absorption Coefficient (SAC)<br>Sound Tranmission Loss (STL) |
| Required Information | - Layer construction<br>- Parameters obtained by acoustic material characterization |
| Simulation Software | STRATI-ARTZ |
| Objectives and Applications | - Optimization of acoustic performances<br>- Finding optimum layer construction and parameters<br>- Understanding physical characteristics of materials<br>- Obtaining material parameters from database<br>- Prepare for input to large scale simulation software |

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