


Measurement of Sound Absorption in a Reverberation Room

| | | | |
|--------------|---|-----------|---|
| Date | 24 th January 2023 | Reference | 20230124_TYST_40mm |
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| Standards | DS/EN ISO 354:2003, DS/EN ISO 11654:1997 | | |
| Differences | Test chamber is 82 m ³ which is less than the 150 m ³ described by ISO 354. The test sample size is reduced (<10 m ²) due to the smaller test chamber. | | |

Test Sample

| | |
|--------------|--|
| Manufacturer | TYST ApS |
| Description | <p>TYST 40 mm Acoustic panel of Ecophon glass fibre covered with cloth.</p>  <p>The diagram shows a cross-section of the test sample. A red horizontal line represents the floor. On top of it is a rectangular panel. The panel has a grey interior labeled 'Glass fibre' and a yellow border labeled 'Cloth'. Arrows point from the labels to the corresponding parts of the panel.</p> |
| Sample area | 8 panels with total area 5,76 m ² (2.4 x 2.4 m) + edges 0,38 m ² |
| Installation | Lying flat on the floor |
| Edges | Edges are included in the sample area. |

Test Chamber

| | |
|--------------|--|
| Volume | 82,4 m ³ |
| Dimensions | 4,56 x 5,72 x 3,16 m |
| Surface Area | 117,1 m ² |
| Diffusers | 4 units 2.44 x 1.22 m and 3 units 1.2 x 0.8 m hanging diagonally, 14.8 m ² in total |
| Sound Source | Omni-directional, 2 positions |
| Microphones | 6 positions for each source position |

Average Environmental Test Conditions

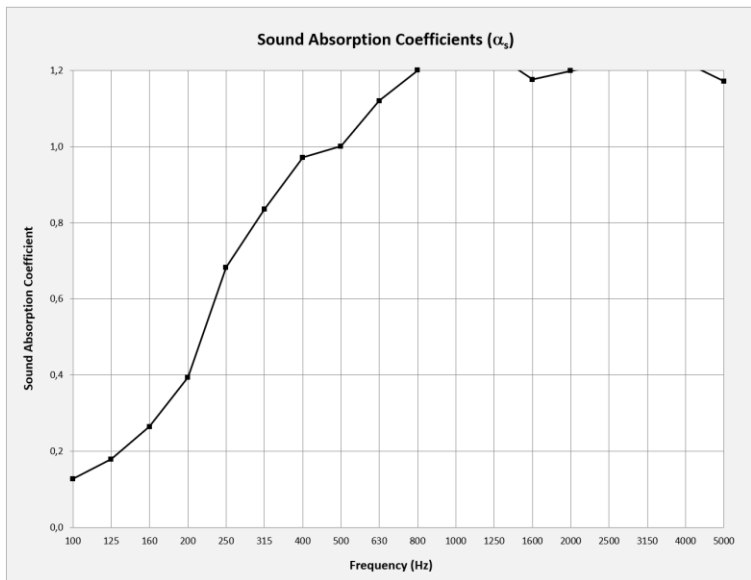
| | |
|--------------|----------|
| Temperature | 19.5 °C |
| Humidity | 32 % |
| Air Pressure | 1040 hPa |

Test Results

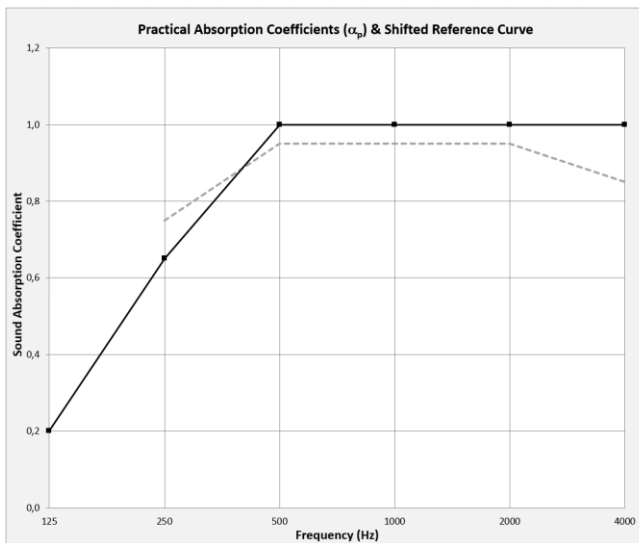
Test Sample

TYST 40mm

The results are presented according to DS/EN ISO 11654:1997 including the size of the graphs.



| Frequency (Hz) | T ₁ (s) | T ₂ (s) | α _s |
|----------------|--------------------|--------------------|----------------|
| 100 | 3,87 | 3,16 | 0,13 |
| 125 | 3,79 | 2,89 | 0,18 |
| 160 | 3,27 | 2,34 | 0,26 |
| 200 | 3,21 | 2,03 | 0,39 |
| 250 | 3,36 | 1,63 | 0,68 |
| 315 | 3,28 | 1,45 | 0,83 |
| 400 | 2,95 | 1,27 | 0,97 |
| 500 | 2,91 | 1,24 | 1,00 |
| 630 | 2,80 | 1,15 | 1,12 |
| 800 | 2,47 | 1,02 | 1,20 |
| 1000 | 2,14 | 0,96 | 1,26 |
| 1250 | 2,15 | 0,96 | 1,24 |
| 1600 | 2,04 | 0,97 | 1,18 |
| 2000 | 1,90 | 0,93 | 1,20 |
| 2500 | 1,66 | 0,86 | 1,22 |
| 3150 | 1,44 | 0,80 | 1,20 |
| 4000 | 1,26 | 0,74 | 1,22 |
| 5000 | 1,09 | 0,69 | 1,17 |



| Frequency (Hz) | Reference Curve | α _p | Shape Indicator |
|----------------|-----------------|----------------|-----------------|
| 125 | | 0,20 | |
| 250 | 0,75 | 0,65 | |
| 500 | 0,95 | 1,00 | |
| 1000 | 0,95 | 1,00 | |
| 2000 | 0,95 | 1,00 | |
| 4000 | 0,85 | 1,00 | |

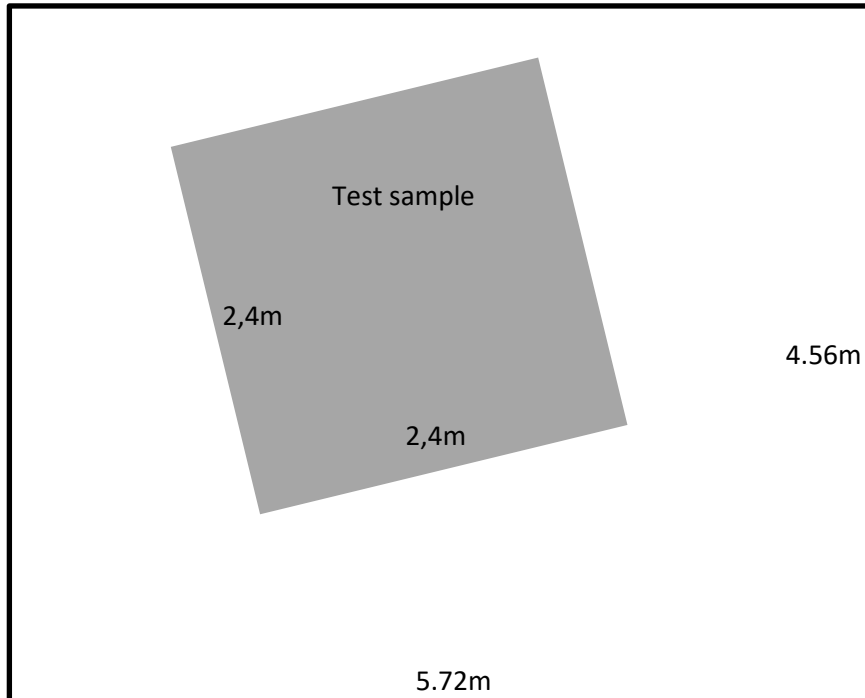
α_w = **0,95**

Sound Absorption Class **A**

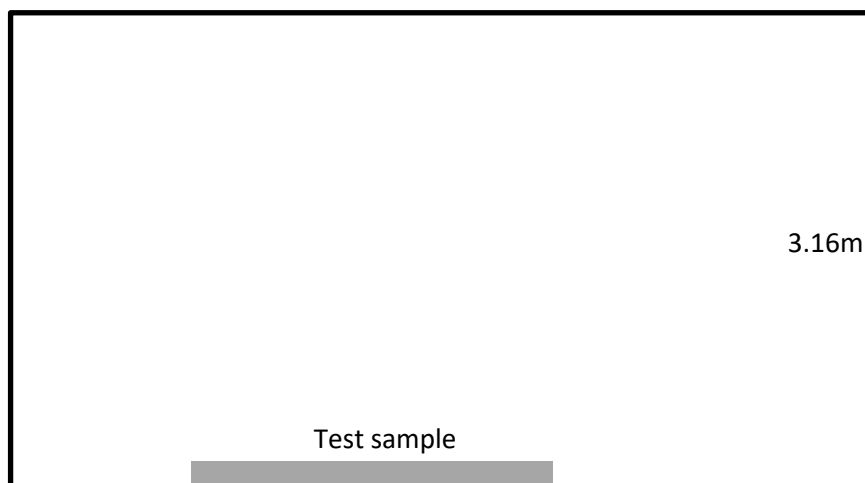
Noise Reduction Coefficient **0,90**

Test Setup

Test chamber plan view:



Test chamber front view:



Picture Documentation

