

## Measurement of Sound Absorption in a Reverberation Room

Date	24 <sup>th</sup> January 2023	Reference	20230124_Tyst_20mm
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Standards	DS/EN ISO 354:2003, DS/EN ISO 11654:1997		
Differences	Test chamber is 82 m <sup>3</sup> which is less than the 150 m <sup>3</sup> described by ISO 354. The test sample size is reduced (<10 m <sup>2</sup> ) due to the smaller test chamber.		

## Test Sample

Manufacturer	TYST ApS
Description	<p><b>TYST 20 mm</b> 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 <sup>2</sup> (2.4 x 2.4 m) + edges 0,19 m <sup>2</sup>
Installation	Lying flat on the floor
Edges	Edges are included in the sample area.

## Test Chamber

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

## Average Environmental Test Conditions

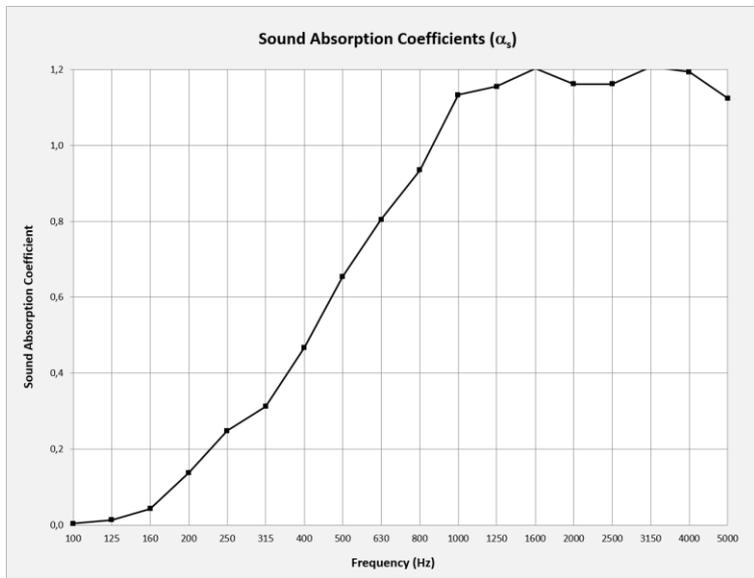
Temperature	19.5 °C
Humidity	32 %
Air Pressure	1040 hPa

## Test Results

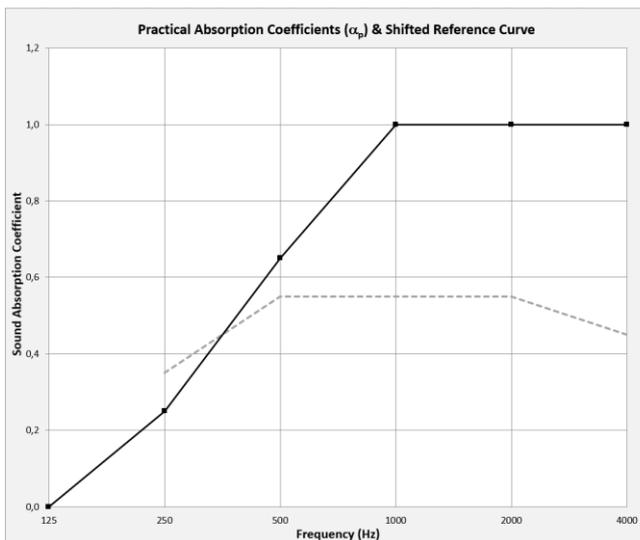
Test Sample

**TYST 20mm**

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



Frequency (Hz)	T <sub>1</sub> (s)	T <sub>2</sub> (s)	α <sub>s</sub>
100	3,87	3,85	0,00
125	3,79	3,72	0,01
160	3,27	3,09	0,04
200	3,21	2,69	0,14
250	3,36	2,45	0,25
315	3,28	2,26	0,31
400	2,95	1,83	0,47
500	2,91	1,58	0,65
630	2,80	1,40	0,80
800	2,47	1,19	0,94
1000	2,14	1,03	1,13
1250	2,15	1,02	1,16
1600	2,04	0,98	1,20
2000	1,90	0,96	1,16
2500	1,66	0,89	1,16
3150	1,44	0,81	1,21
4000	1,26	0,76	1,19
5000	1,09	0,71	1,12



Frequency (Hz)	Reference Curve	α <sub>p</sub>	Shape Indicator
125		0,00	
250	0,35	0,25	
500	0,55	0,65	
1000	0,55	1,00	M
2000	0,55	1,00	H
4000	0,45	1,00	H

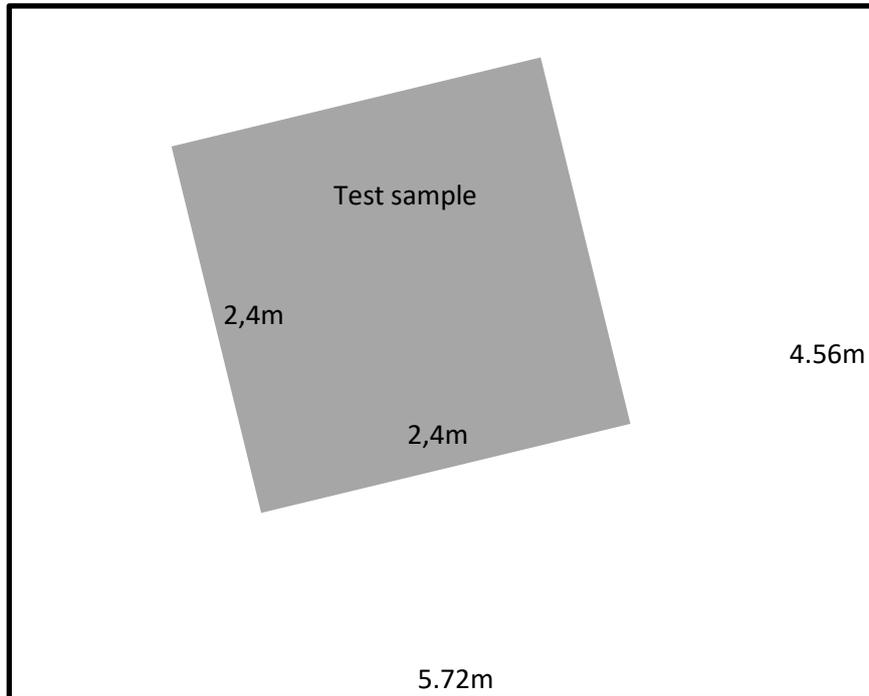
α <sub>w</sub> =	0,55	M H
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Sound Absorption Class	D
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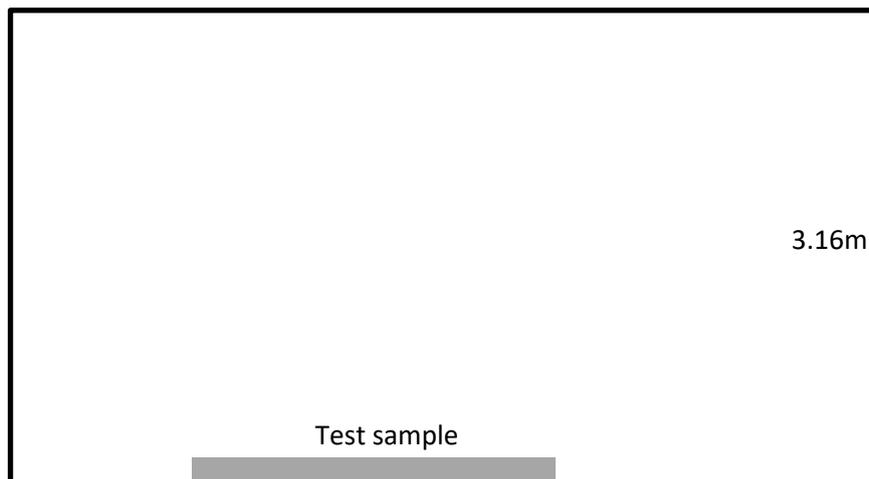
Noise Reduction Coefficient	0,75
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## Test Setup

Test chamber plan view:



Test chamber front view:



## Picture Documentation

