

AKUSOUND

Mått	N_{10}
200x1000x60 mm	33
500x500x50 mm	33
500x1000x60 mm	17
1500x1000x60 mm	5,3
2000x1500x60 mm	3
3000x1500x60 mm	2



Akusound absorption coefficient

SOUND ABSORPTION COEFFICIENT ACCORDING TO ISO 354 AND ISO 11654

Measurement of sound absorption coefficient in a reverberation room



Report number:
16-199-M1
Date
2016-09-26

Frequency f [Hz]	Sound absorption coefficient	
	α_s	α_p
50	0.04	
63	0.07	0.05
80	0.09	
100	0.17	
125	0.21	0.25
160	0.42	
200	0.57	
250	0.74	0.75
315	0.98	
400	1.17	
500	1.19	1.00
630	1.27	
800	1.22	
1000	1.20	1.00
1250	1.16	
1600	1.10	
2000	1.09	1.00
2500	1.06	
3150	1.07	
4000	1.15	1.00
5000	1.15	

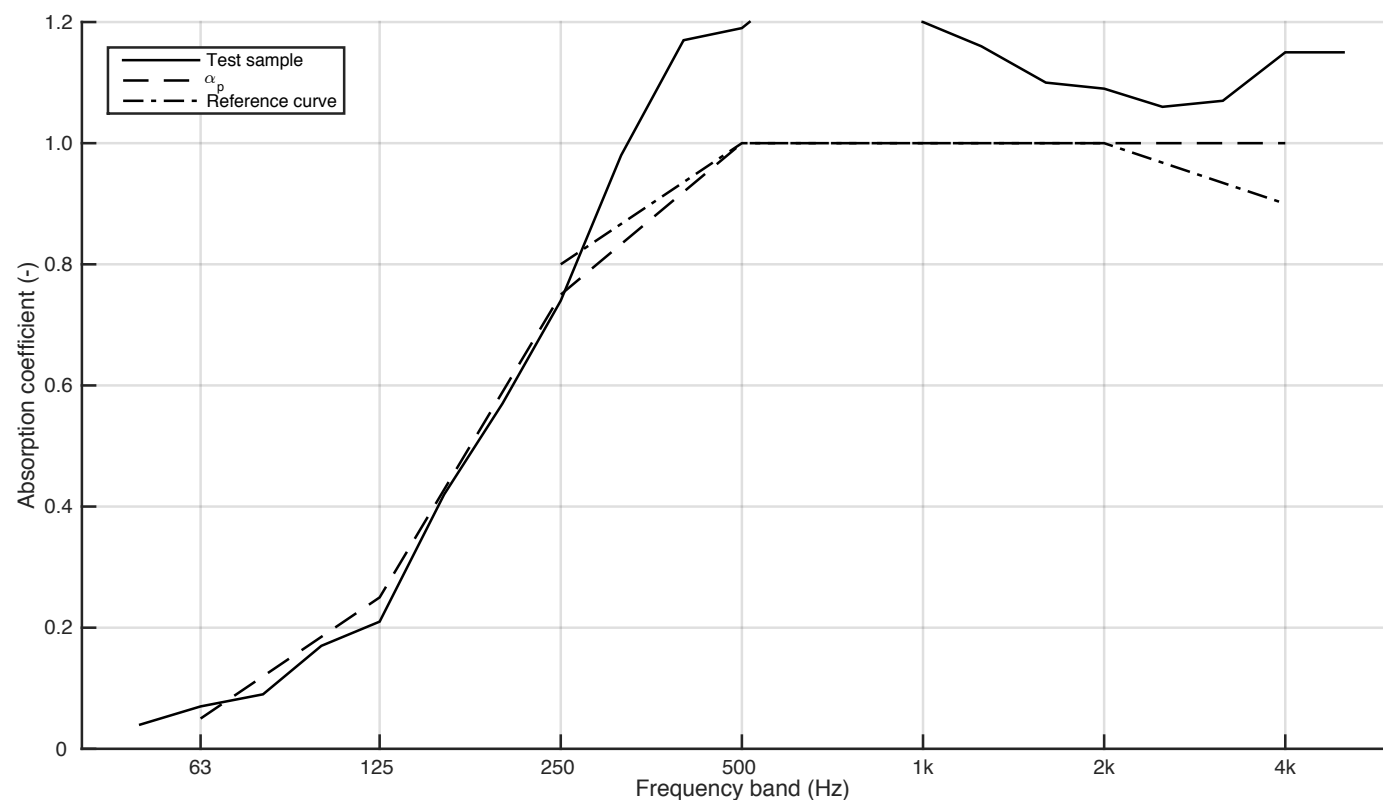
Client: Akustil
 Manufacturer: Akustil
 Product identification: Akusound

Description of test specimen: Akusound wall absorbers placed directly on floor.

Reverberation room volume: 200 m³
 Temperature: 17.0 °C (empty: 16.0 °C)
 Air humidity: 70% (empty: 72%)
 Air pressure: 99.1 kPa (empty: 99.1 kPa)
 Size of specimen: 10 m²

Measurement date: 2016-09-09

Measured by: Johan Jernstedt



$\alpha_w = 1.00$

Absorption class = A

Akusound 20x100

SOUND ABSORPTION AREA ACCORDING TO ISO 354 AND SS 25269

Measurement of sound absorption area in a reverberation room



Report number:
16-199-M2
Date
2016-09-26

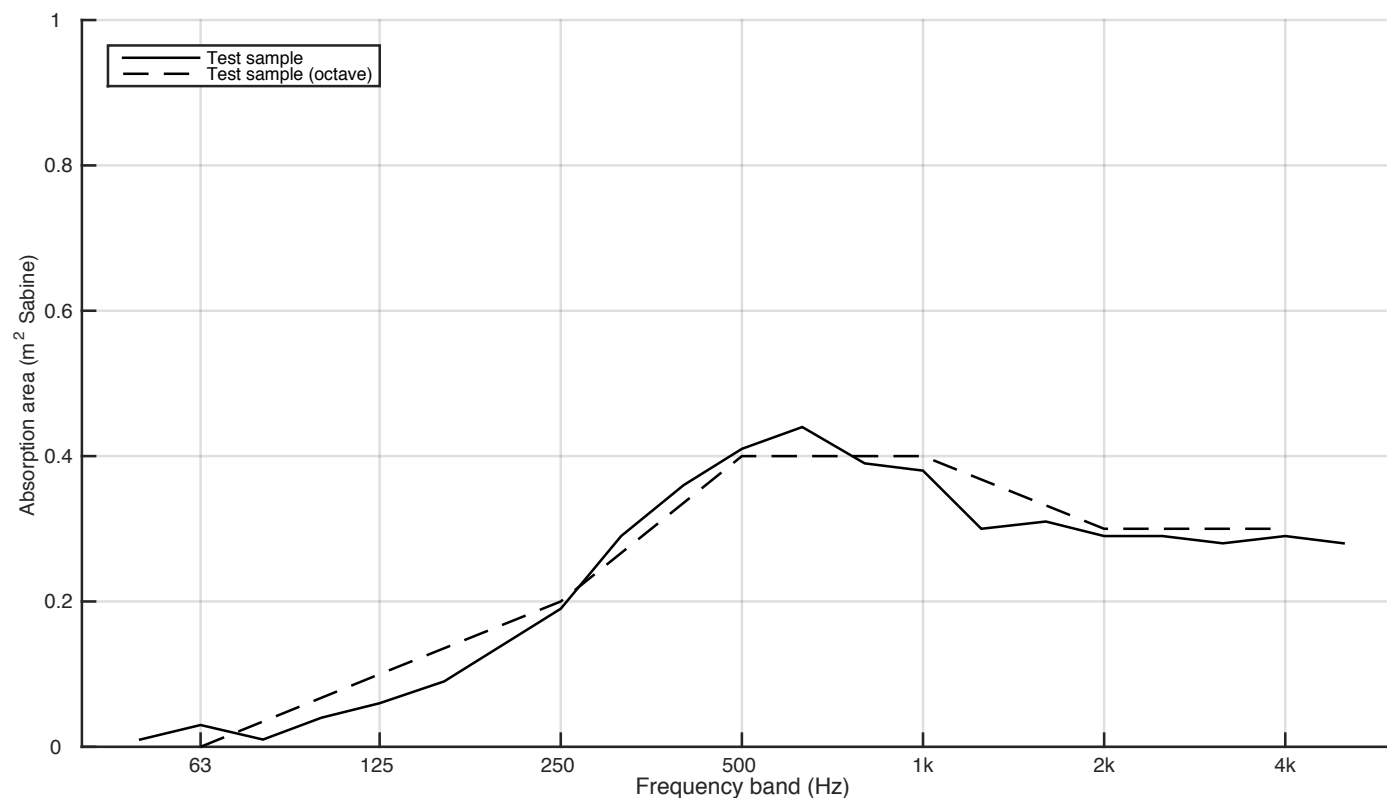
Frequency f [Hz]	Sound absorption area [m ² Sabine]	
50	0.01	
63	0.03	0.0
80	0.01	
100	0.04	
125	0.06	0.1
160	0.09	
200	0.14	
250	0.19	0.2
315	0.29	
400	0.36	
500	0.41	0.4
630	0.44	
800	0.39	
1000	0.38	0.4
1250	0.30	
1600	0.31	
2000	0.29	0.3
2500	0.29	
3150	0.28	
4000	0.29	0.3
5000	0.28	

Client: Akustil
 Manufacturer: Akustil
 Product identification: Akusound 20x100

Description of test specimen: Wall absorber 20x100x6 cm, sound absorption area for a single object placed directly on floor.
 The graph scaling deviates from ISO 354 to make it more readable as the actual size of each object is very small (0.2 square meter).

Reverberation room volume: 200 m³
 Temperature: 19.3 °C (empty: 16.0 °C)
 Air humidity: 63% (empty: 72%)
 Air pressure: 99.1 kPa (empty: 99.1 kPa)
 Number of specimens: 6

Measurement date: 2016-09-09
 Measured by: Johan Jernstedt



$N_{10} = 33$

Akusound 50x50

SOUND ABSORPTION AREA ACCORDING TO ISO 354 AND SS 25269

Measurement of sound absorption area in a reverberation room



Report number:
16-199-M3
Date
2016-09-26

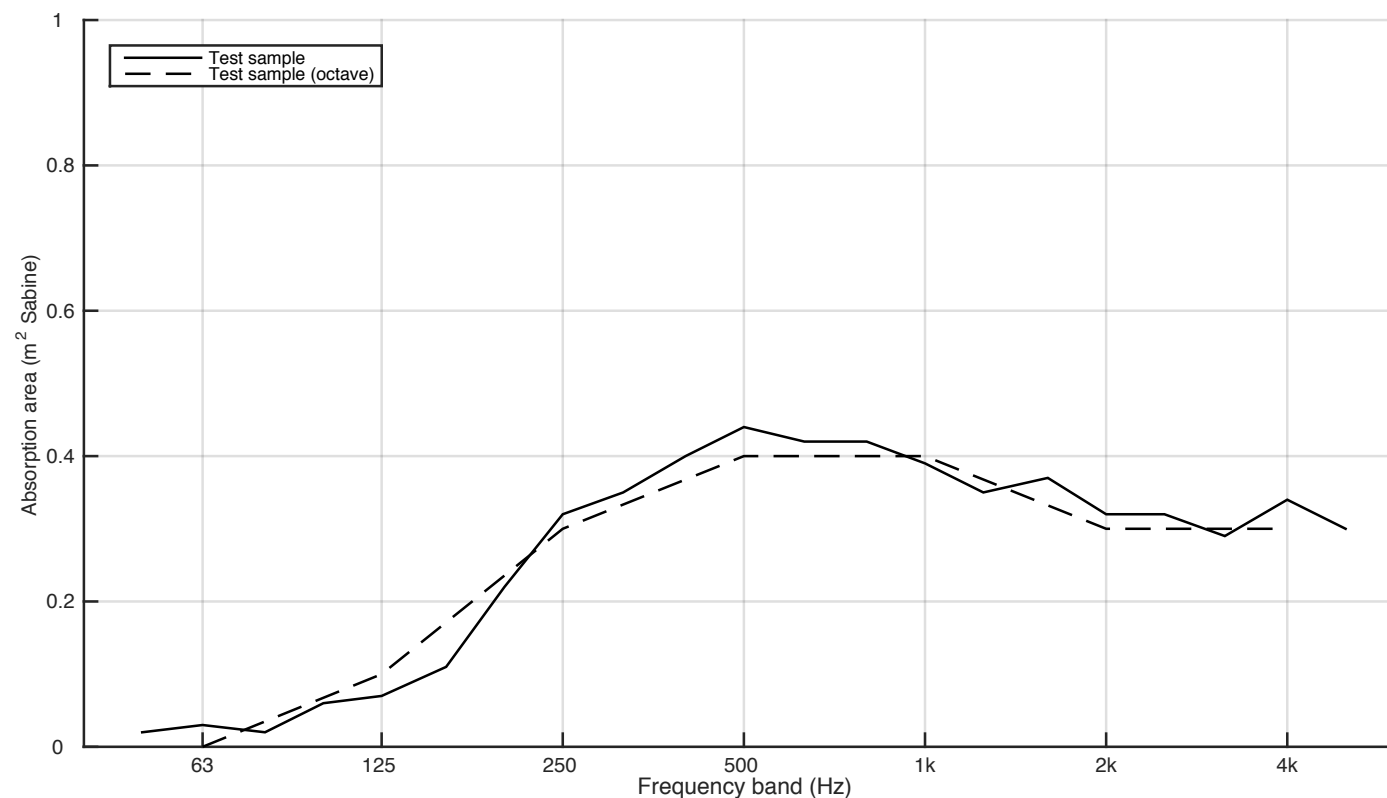
Frequency f [Hz]	Sound absorption area [m ² Sabine]	
50	0.02	
63	0.03	0.0
80	0.02	
100	0.06	
125	0.07	0.1
160	0.11	
200	0.22	
250	0.32	0.3
315	0.35	
400	0.40	
500	0.44	0.4
630	0.42	
800	0.42	
1000	0.39	0.4
1250	0.35	
1600	0.37	
2000	0.32	0.3
2500	0.32	
3150	0.29	
4000	0.34	0.3
5000	0.30	

Client: Akustil
 Manufacturer: Akustil
 Product identification: Akusound 50x50

Description of test specimen: Wall absorber 50x50x6 cm, sound absorption area for a single object placed directly on floor.
 The graph scaling deviates from ISO 354 to make it more readable as the actual size of each object is very small (0.25 square meter).

Reverberation room volume: 200 m³
 Temperature: 17.3 °C (empty: 16.0 °C)
 Air humidity: 68 % (empty: 72 %)
 Air pressure: 99.1 kPa (empty: 99.1 kPa)
 Number of specimens: 6

Measurement date: 2016-00-09
 Measured by: Johan Jernstedt



$N_{10} = 33$

Akusound 50x100

SOUND ABSORPTION AREA ACCORDING TO ISO 354 AND SS 25269

Measurement of sound absorption area in a reverberation room



Report number:
16-199-M4
Date
2016-09-26

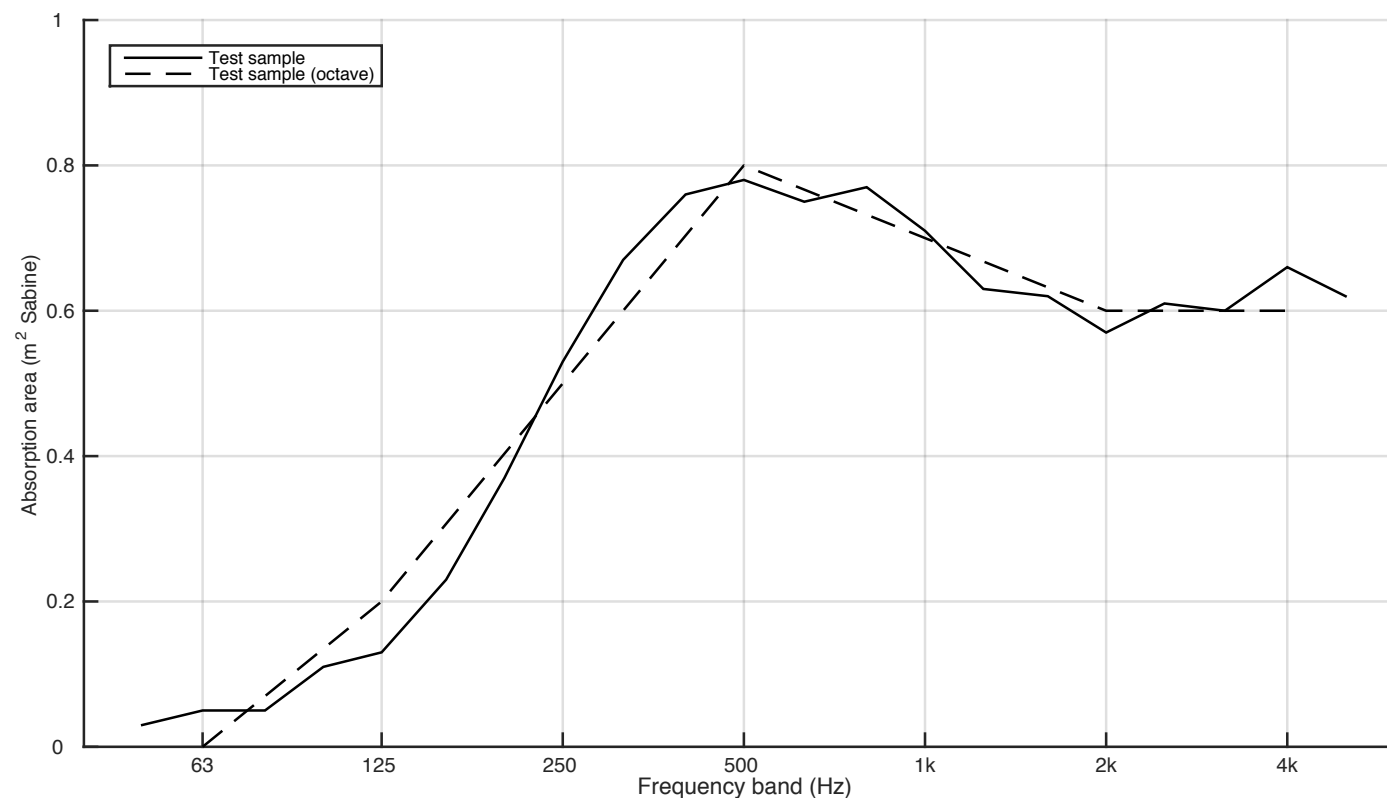
Frequency f [Hz]	Sound absorption area [m ² Sabine]	
50	0.03	
63	0.05	0.0
80	0.05	
100	0.11	
125	0.13	0.2
160	0.23	
200	0.37	
250	0.53	0.5
315	0.67	
400	0.76	
500	0.78	0.8
630	0.75	
800	0.77	
1000	0.71	0.7
1250	0.63	
1600	0.62	
2000	0.57	0.6
2500	0.61	
3150	0.60	
4000	0.66	0.6
5000	0.62	

Client: Akustil
 Manufacturer: Akustil
 Product identification: Akusound 50x100

Description of test specimen: Wall absorber 50x100x6 cm, sound absorption area for a single object placed directly on floor.
 The graph scaling deviates from ISO 354 to make it more readable as the actual size of each object is very small (0.5 square meter).

Reverberation room volume: 200 m³
 Temperature: 18.0 °C (empty: 16.0 °C)
 Air humidity: 67% (empty: 72%)
 Air pressure: 99.1 kPa (empty: 99.1 kPa)
 Number of specimens: 5

Measurement date: 2016-09-09
 Measured by: Johan Jernstedt



$N_{10} = 17$

CALCULATED SOUND ABSORPTION FOR AKUSTIL AKUSOUND

The sound absorption for the wall absorber Akusound from Akustil has been measured and reported in Akustikverkstan Report 16-199-R1. The sound absorption areas for three different sized configurations of 50x50 absorbers have been calculated from the measurement of sound absorption coefficient.

The calculated N_{10} -value is presented in table 4 and the detailed results are presented in M6-M8.

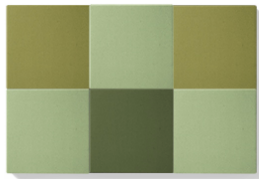
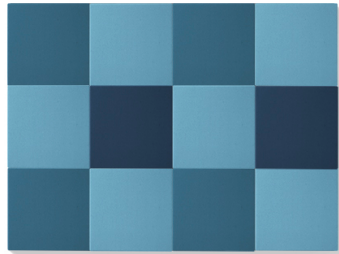
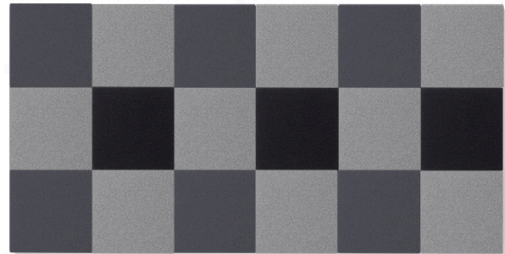
Image	Test object	Measurement protocol	N_{10}
	Akusound Small, 6 Akusound 50x50	M6	6.3
	Akusound Medium, 12 Akusound 50x50	M7	3.0
	Akusound Large, 18 Akusound 50x50	M8	2.0

Table 1: Calculated N_{10} -values for Akusound in three different configurations.

Johan Jernstedt
Master of Science, Civil engineering

Akusound Small, 6 pieces of Akusound 50x50 (150x100)

SOUND ABSORPTION AREA - INTERPOLATED FROM MEASUREMENTS

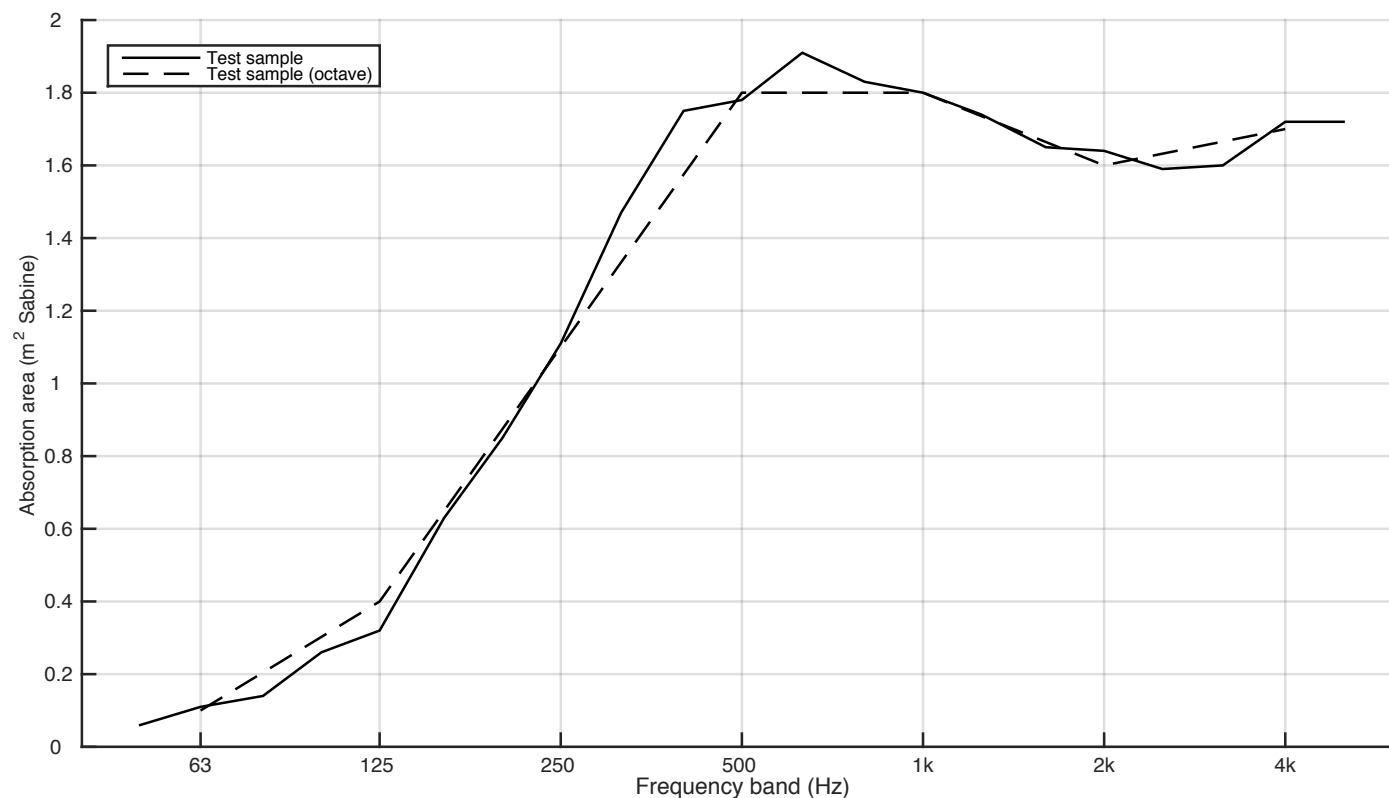
Interpolated sound absorption area from ISO 354 reverberation room measurements, evaluated according to SS 25269

Report number:
16-199-M6
Date
2016-09-15

Frequency f [Hz]	Sound absorption area [m ² Sabine]	
50	0.06	
63	0.11	0.1
80	0.14	
100	0.26	
125	0.32	0.4
160	0.63	
200	0.85	
250	1.11	1.1
315	1.47	
400	1.75	
500	1.78	1.8
630	1.91	
800	1.83	
1000	1.80	1.8
1250	1.74	
1600	1.65	
2000	1.64	1.6
2500	1.59	
3150	1.60	
4000	1.72	1.7
5000	1.72	

Client: Akustil
 Manufacturer: Akustil
 Product identification: Akusound

Description of test specimen: Sound absorption area of 6 Akusound 50x50 wall absorbers, total area 150 x 100 cm, thickness 6 cm. Values are calculated from Akusound absorption coefficient measurements (16-199-M1). The scale deviates from ISO 354 to increase readability.



$N_{10} = 6.3$

Akusound Medium, 12 pieces of Akusound 50x50 (200x150)

SOUND ABSORPTION AREA - INTERPOLATED FROM MEASUREMENTS

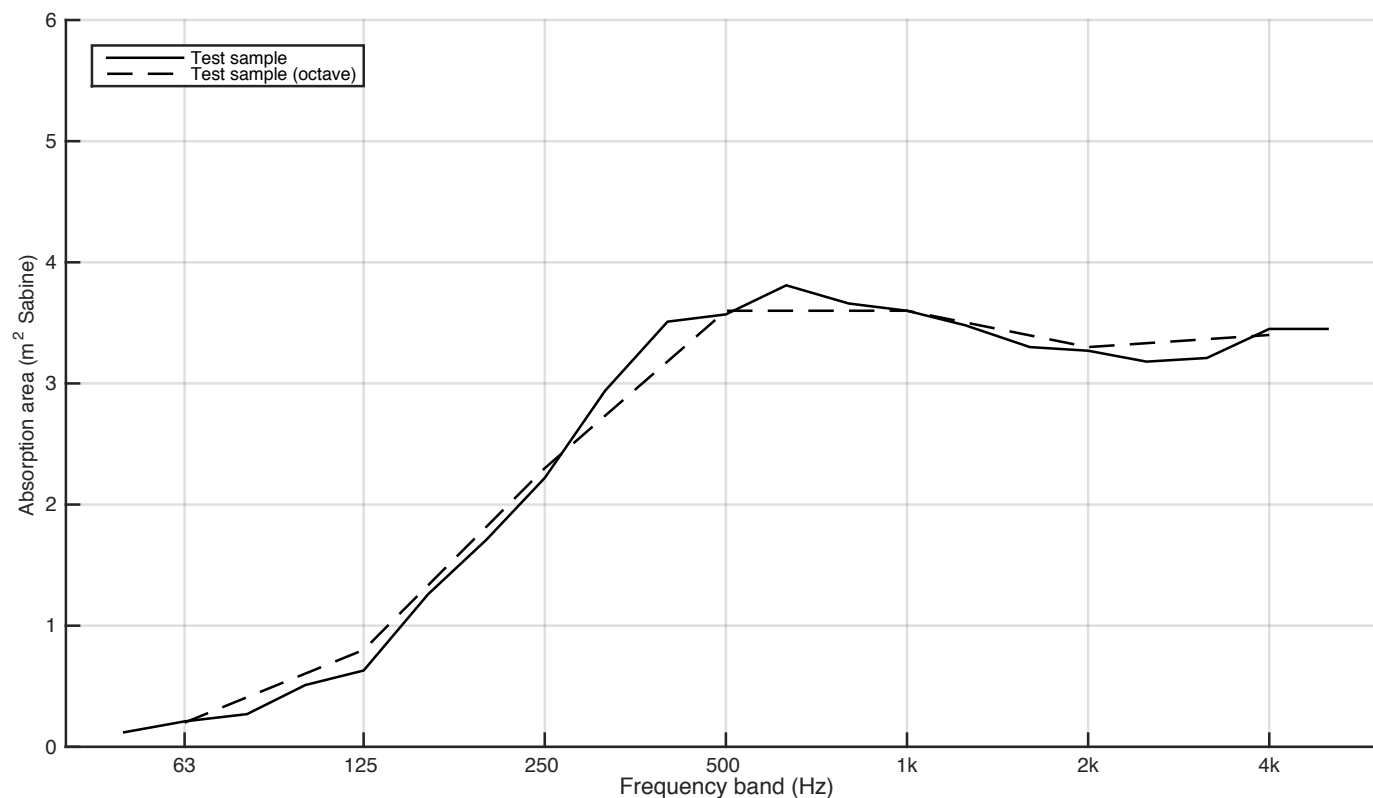
Interpolated sound absorption area from ISO 354 reverberation room measurements, evaluated according to SS 25269

Report number:
16-199-M7
Date
2016-09-15

Frequency f [Hz]	Sound absorption area [m ² Sabine]	
50	0.12	
63	0.21	0.2
80	0.27	
100	0.51	
125	0.63	0.8
160	1.26	
200	1.71	
250	2.22	2.3
315	2.94	
400	3.51	
500	3.57	3.6
630	3.81	
800	3.66	
1000	3.60	3.6
1250	3.48	
1600	3.30	
2000	3.27	3.3
2500	3.18	
3150	3.21	
4000	3.45	3.4
5000	3.45	

Client: Akustil
 Manufacturer: Akustil
 Product identification: Akusound

Description of test specimen: Sound absorption area of 12 Akusound 50x50 wall absorbers, total area 200 x 150 cm, thickness 6 cm. Values are calculated from Akusound absorption coefficient measurements (16-199-M1).



$N_{10} = 3$

Akusound Large, 18 pieces of Akusound 50x50 (300x150)

SOUND ABSORPTION AREA - INTERPOLATED FROM MEASUREMENTS

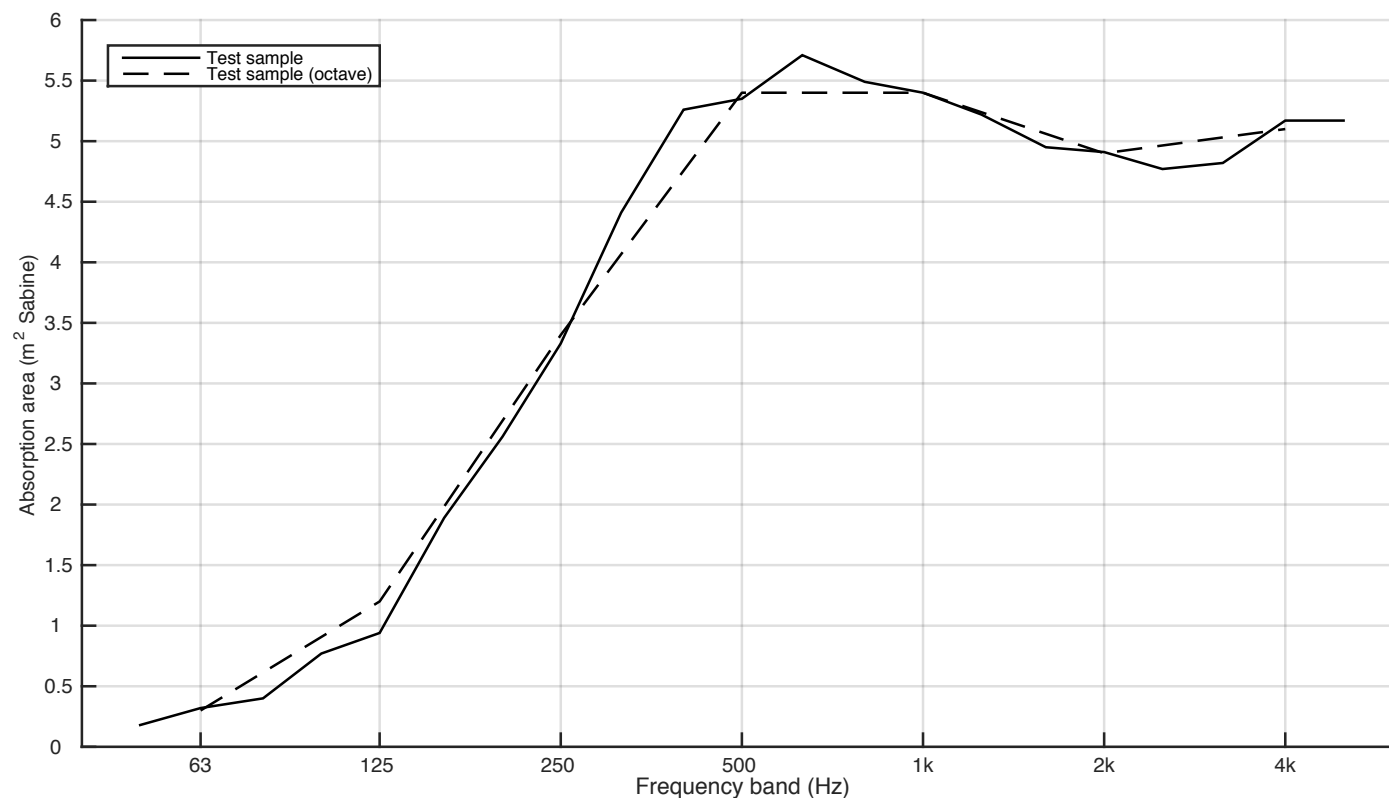
Interpolated sound absorption area from ISO 354 reverberation room measurements, evaluated according to SS 25269

Report number:
16-199-M8
Date
2016-09-15

Frequency f [Hz]	Sound absorption area [m ² Sabine]	
50	0.18	
63	0.32	0.3
80	0.40	
100	0.77	
125	0.94	1.2
160	1.89	
200	2.56	
250	3.33	3.4
315	4.41	
400	5.26	
500	5.35	5.4
630	5.71	
800	5.49	
1000	5.40	5.4
1250	5.22	
1600	4.95	
2000	4.91	4.9
2500	4.77	
3150	4.82	
4000	5.17	5.1
5000	5.17	

Client: Akustil
 Manufacturer: Akustil
 Product identification: Akusound

Description of test specimen: Sound absorption area of 18 Akusound 50x50 wall absorbers, total area 300 x 150 cm, thickness 6 cm. Values are calculated from Akusound absorption coefficient measurements (16-199-M1).



$N_{10} = 2$