

Test report 1

MEASUREMENT OF SOUND ABSORPTION IN A REVERBERATION ROOM ACCORDING TO ISO 354

Manufacturer: Modo Luce S.r.l. Via Venezia, 13 – 31028 Vazzola (TV) Italy

Test specimen: lighting fixture model cilinder SOFT VELVET, diameter 100 cm, height 30 cm, velvet fabric (polyester + cotton) internal material polyester fiber. Height from the floor 98 cm.

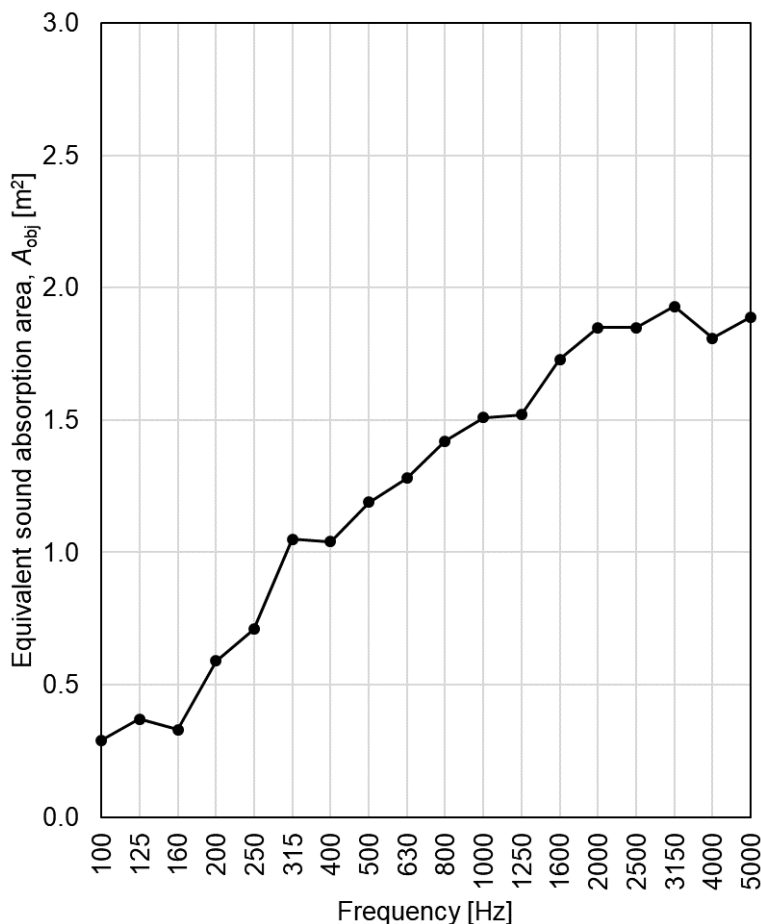
Applicant: Modo Luce S.r.l.

Test specimen assemblers: Modo Luce S.r.l.

Test date: 19/02/2019.

Test specimen description, mounting and position in the reverberation room: see page 2.

Freq, f [Hz]	T_1 [s] empty room	T_2 [s] room with test specimen	A [m ²] (*)	A_{obj} [m ²] (**)
100	21.12	13.76	0.87	0.29
125	19.14	11.83	1.11	0.37
160	14.62	10.28	0.99	0.33
200	12.53	7.59	1.78	0.59
250	14.71	7.67	2.14	0.71
315	15.17	6.34	3.16	1.05
400	13.48	6.08	3.11	1.04
500	12.61	5.45	3.58	1.19
630	11.43	5.02	3.84	1.28
800	10.73	4.61	4.25	1.42
1000	9.29	4.17	4.53	1.51
1250	8.35	3.95	4.56	1.52
1600	7.62	3.53	5.18	1.73
2000	6.43	3.13	5.54	1.85
2500	5.32	2.83	5.56	1.85
3150	4.34	2.47	5.78	1.93
4000	3.24	2.10	5.43	1.81
5000	2.52	1.73	5.67	1.89



Note:

(*) The equivalent sound absorption area of the test specimen, A , has been calculated using the formula:

$$A = 55,3 \frac{V}{c} \left(\frac{1}{T_2} - \frac{1}{T_1} \right) - 4V(m_2 - m_1) \quad [\text{m}^2]$$

where: V [m³] is the volume of the empty reverberation room;
 c [m/s] is the propagation speed of the sound in air;
 T_1 [s] is the reverberation time of the empty reverberation room;
 T_2 [s] is the reverberation time of the reverberation room after the test the specimen has been introduced;
 m_1 [m⁻¹] is the power attenuation coefficient of the empty reverberation room, calculated according to ISO 9613-1;
 m_2 [m⁻¹] is the power attenuation coefficient of the reverberation room, calculated according to ISO 9613-1,

(**) The sound absorption coefficient α_s [], Has been calculate using the formula

$$\alpha_s = \frac{A}{S} \quad []$$

where: A [m²] is the equivalent sound absorption area of the test specimen;
 S [m²] is the area covered by the test specimen

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Test specimen set-up: according to ISO 354 standard. Perimeter without reflecting elements according to in-situ use.



Test specimen description: lighting fixture model cylinder SOFT VELVET, diameter 100 cm, height 30 cm, velvet fabric (polyester + cotton) internal material polyester fiber. Height from the floor 98 cm.

Test conditions:

Area of test specimen:	3	-
Average air temperature in reverberant room:	15	°C
Average air relative humidity in reverberant room:	48	%
Atmospheric pressure:	101,3	kPa

Test room: volume 211,2 m³; surface 214,38 m².

Measuring apparatus: analyzer Svantek 948 matr. 11534, preamplifier Svantek SV 12L s/n 25396, microphone Svantek SV 22 s/m 4013758, power amplifier with pink noise Svantek, omnidirectional sound source Svantek.

Test procedure: 4 microphone positions and 4 source positions in reverberant room, with 2 samplings for each combination of microphone and source positions. Specimen on plastic supports, empty room measurements were carried out with plastic supports.

Note: measurements results in this test report are referred to the measured test specimen; there are no deviations from declared test methods.

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