

TEST REPORT No. 126374-2

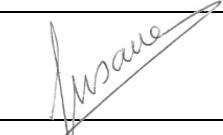
CLIENT: **ISINAC ACOUSTIC WORLD, S.L.**
Av. de Ramón Nieto, 125-bajo,
36205 Vigo (Pontevedra)

AIM: **Measurement of sound absorption in laboratory**

STANDARD: **EN ISO 354:2003**

TEST SPECIMEN: **ISINAC VORTEX panels**

ISSUE DATE: **05/10/2026**

Technical Consultant

Susana Lopez de Aretxaga



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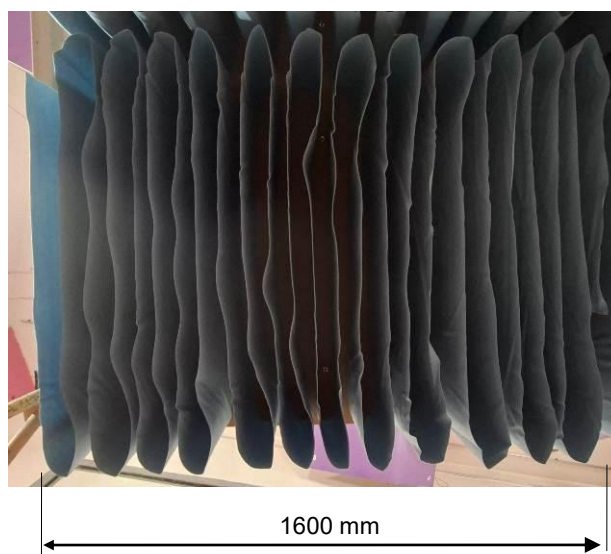
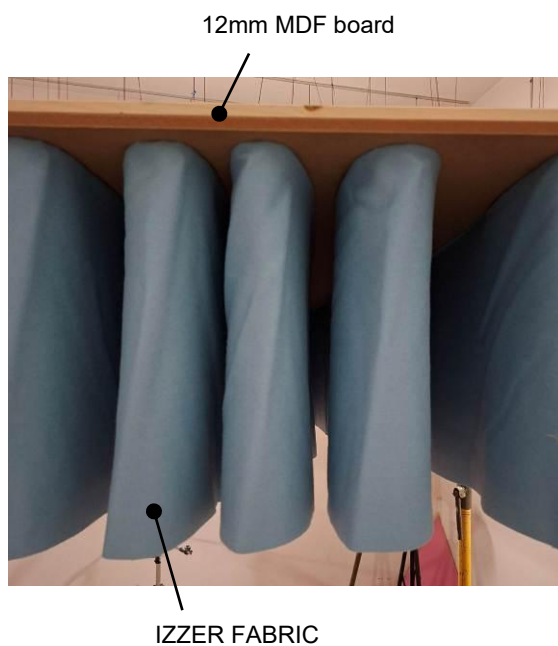
- The results of the current report concern only and exclusively the test specimen.
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- Uncertainty of measurement is available to the client, if required.
- Test specimen reference provided by the client.
- TECNALIA is not responsible for the information provided by the client. This information is not accredited.

1. TEST SPECIMEN DESCRIPTION

The test specimen consists of panels with the following composition according to the information provided by the client.

Description of the panel:

Reference:	ISINAC VORTEX
Composition:	IZZER FABRIC [100% Wool; ≈ 2 mm & 460 gr/m ²] stapled to a 1600 x 1220 mm MDF board, 12 mm thick. Fabric height: 350 mm. ≈ 50 mm between fabric layers.
Nominal dimensions:	1600 x 1220 x 362 mm (length x width x height)

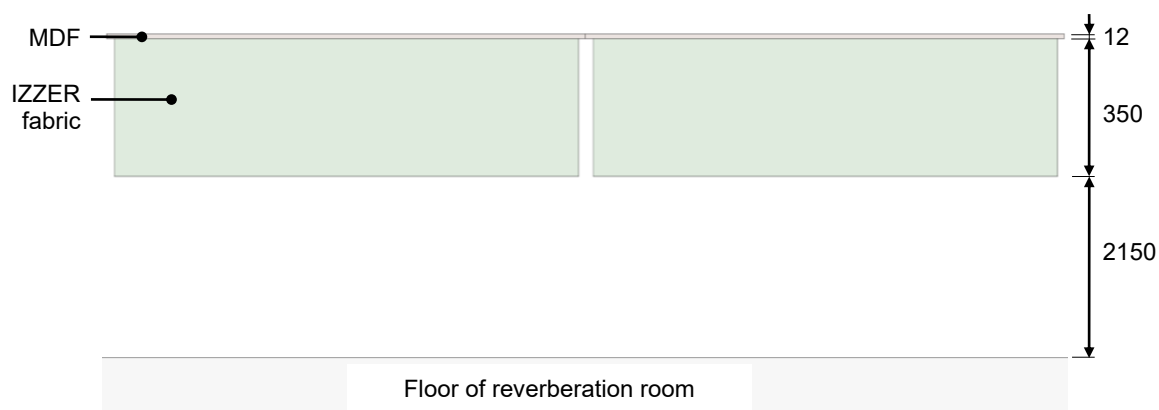
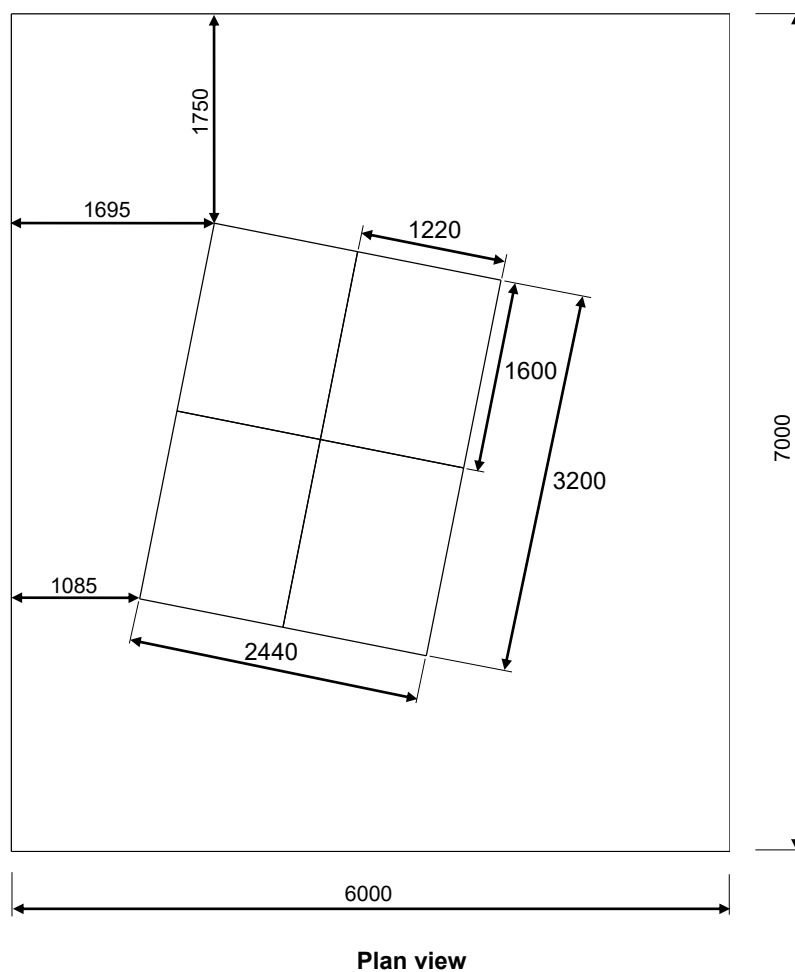


Bottom view of the test specimen

Photos of panel

Test arrangement:

4 panels placed at 2150 mm above the floor of the test room, with butt joint between MDF and IZZER fabric oriented towards the floor of the test room, covering a surface of 7,81 m², according to the following sketches. Wooden beams and metal supports were used to elevate the test specimen above the test room floor.



Test arrangement (126374-2). Cotes in mm



Photos of test specimen assembly

Manufacturer of panels: Client

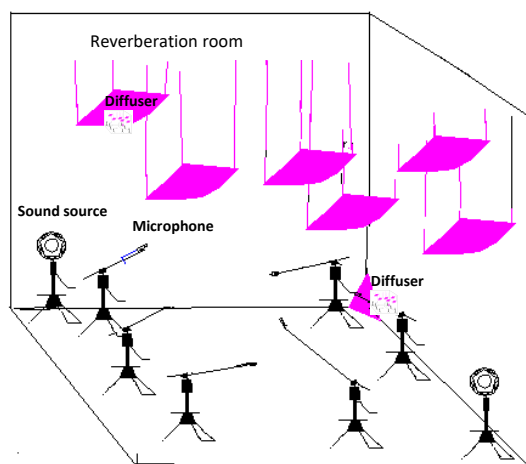
Panels selected and delivered by: Client

Mounting performed by: Tecna

Mounting end date: 9th September 2026

2. LABORATORY TEST FACILITY

The test is performed in the reverberation room. This room is a regular parallelepiped of 7x6x5 meters with a total surface area of 211,8 m² (walls, floor and ceiling). The sound field diffusivity of the room is obtained by means of 17 diffusers (between 1 and 1,2 m²) suspended from the ceiling of the room and eight edged diffusers.



Sketch of the reverberation room

3. EQUIPMENT AND TEST CONDITIONS

Equipment

Microphones	Brüel&Kjær 4943; Serial No. 3188436	Brüel&Kjær 4943; Serial No. 3188435
Preamplifiers	Brüel&Kjær 2669; Serial No. 2025848	Brüel&Kjær 2669; Serial No. 2025844
Analyzer	Nor850-MF1; Serial No. 8501186	
Sound source	Brüel&Kjær 4296; Serial No. 2071428	
Amplifier	LAB 300; Serial No. 970-967	
Equalizer	Sony, SRP-E100; Serial No. 400238	
Calibrator	Brüel & Kjær 4231; Serial No. 2061477	
Climatic conditions meter	Rotronic BL-1D; Serial No. A21050028	

Climatic conditions:	Empty room	Room with test specimen	Uncertainty
Air temperature (°C)	23,1	22,1	±0,5
Relative humidity (%)	65	49	±3
Static pressure (mbar)	965	961	±6

4. TEST PROCEDURE AND EVALUATION

The sound absorption coefficient, α_s , is calculated for the one-third-octave frequency band from 100 Hz to 5 kHz according to standard EN ISO 354:2003, using the following formula:

$$\alpha_s = A_T/S$$

A_T : Equivalent sound absorption area of test specimen (m^2)

S : Area covered by test specimen (m^2)

The equivalent sound absorption area of test specimen, A_T , is calculated according to the formula:

$$A_T = 55,3 \cdot V \cdot \left(\frac{1}{c_2 \cdot T_2} - \frac{1}{c_1 \cdot T_1} \right) - 4 \cdot V(m_2 - m_1)$$

V : Volume of empty reverberation room (m^3)

C_1 : Propagation speed of sound in air in empty reverberation room (m/s)

C_2 : Propagation speed of sound in air in reverberation room with test specimen (m/s)

T_1 : Reverberation time of empty reverberation room (s)

T_2 : Reverberation time of reverberation room with test specimen (s)

m_1 ; m_2 : Power attenuation coefficients, in reciprocal metres, calculated according to ISO 9613-1, using the climatic conditions in the reverberation room

Reverberation time measurement is performed using the interrupted noise method and is obtained by arithmetic average of measurements at 2 source positions and 6 fixed microphone positions for each source position.

Measuring chain is verified just before and after the execution of the test.

The guidelines indicated in the applicable internal procedures have been followed:

- PE.MC-AA-63-E: "Procedure to determine the sound absorption in a reverberation room, according to standard EN ISO 354".
- PE.MC-AA-06-M: "Procedure to manage the test specimens for acoustic tests in laboratory".

5. RESULTS

The following results are featured for the test specimen:

- Sound absorption coefficient, α_s , per one-third octave frequency bands from 100 to 5000 Hz.
- The following parameters obtained according to standard EN ISO 11654:1997, from the sound absorption coefficient α_s :
 - Practical sound absorption coefficient, α_p , in octave frequency bands from 125 to 4000 Hz
 - Weighted sound absorption coefficient, α_w .
 - Shape indicators: L.M.H.

The intermediate data obtained in the test are:

f (Hz)	T ₁	T ₂	A _T
100	9,52	4,92	3,3
125	8,49	4,79	3,0
160	9,42	4,55	3,8
200	10,53	4,26	4,7
250	10,27	3,65	5,9
315	9,64	3,48	6,2
400	9,23	3,41	6,2
500	9,34	3,23	6,8
630	8,63	3,02	7,3
800	8,20	2,77	8,1
1000	7,59	2,66	8,4
1250	6,94	2,52	8,6
1600	6,24	2,41	8,6
2000	5,49	2,23	8,9
2500	4,75	2,01	9,4
3150	3,91	1,79	9,7
4000	3,25	1,60	9,8
5000	2,48	1,32	10,2

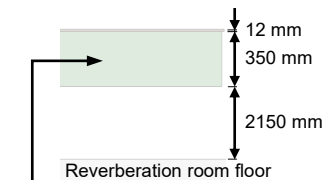
Sound Absorption according to EN ISO 354:2003 Laboratory measurements

CLIENT: **ISINAC ACOUSTIC WORLD, S.L.**

TEST DATE: 10/09/2026

RESULT No.: 126374-2

TEST SPECIMEN: **ISINAC VORTEX** panels

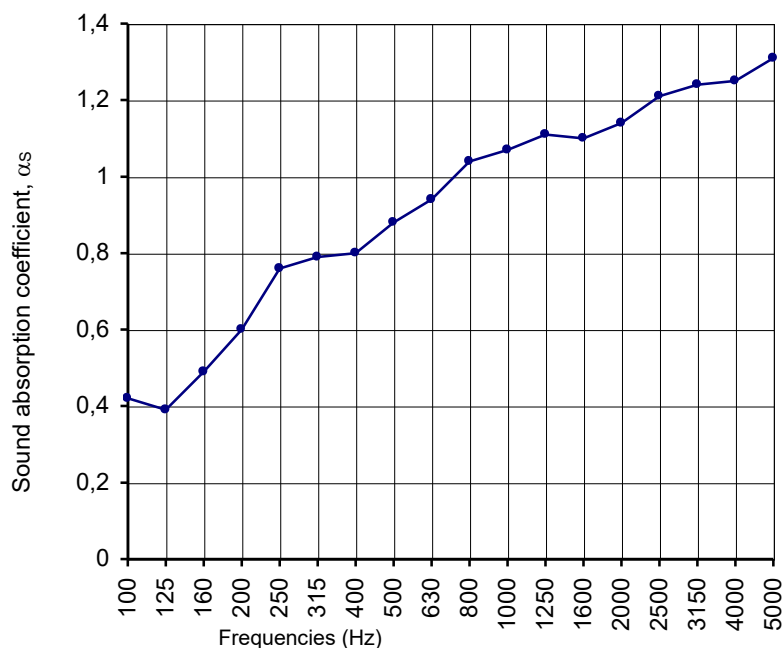


IZZER FABRIC [100% Wool; ≈ 2 mm & 460 gr/m²] stapled to a 1600x1220x12 mm MDF board



Area, S, test specimen: 7,81 m²
Reverberation room volume: 209,6 m³

f (Hz)	α_s	α_p
100	0,42	0,45
125	0,39	
160	0,49	
200	0,60	0,70
250	0,76	
315	0,79	
400	0,80	0,85
500	0,88	
630	0,94	
800	1,04	1,00
1000	1,07	
1250	1,11	
1600	1,10	1,00
2000	1,14	
2500	1,21	
3150	1,24	1,00
4000	1,25	
5000	1,31	



Weighted sound absorption coefficient according to EN ISO 11654:1997
$\alpha_w = 0,90$

