

## TEST REPORT

No. : GZIN2305000221CM01\_EN

Date : 2023-06-09

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scan to see the report



GZIN2305000221CM01

CUSTOMER NAME: 60 DEGREES EAST PTY LTD T/A ECO-GREENHAUS  
ADDRESS: 6A/406 BILSEN RD GEEBUNG, BRISBANE, 4034, AUSTRALIA

Sample Name : Slatted and Felt Backed Acoustic Panel

Above information and sample(s) was/were submitted and confirmed by the client. SGS, however, assumes no responsibility to verify the accuracy, adequacy and completeness of the sample information provided by client.

\*\*\*\*\*

Date of Receipt : 2023-05-24  
Testing Period : 2023-05-24 ~ 2023-06-09  
Test result(s) : For further details, please refer to the following page(s)  
(Unless otherwise stated the results shown in this test report refer only to the sample(s) tested)

Signed for  
SGS-CSTC Standards Technical  
Services Co., Ltd. Guangzhou  
Branch.

Toby Yang  
Authorized signatory



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### I、 Test Condition

- 1) Volume of reverberation room:200m<sup>3</sup>;
- 2) Area of test Specimen: 10.8m<sup>2</sup>;
- 3) Specifications: size 1200mm×600mm×21mm;
- 4) Temperature:27°C, Relative humidity:70%;

### II、 Method of Measurement

The measurements were carried out according to "Acoustics Measurement of sound absorption in a reverberation room (GB/T20247-2006/ISO354:2003)" in the acoustic laboratory of South China University of Technology. **The equivalent sound absorption area of the test specimen  $A_T$**  shall be calculated by the following formula

$$A_T = 55.3V \left( \frac{1}{c_2 T_2} - \frac{1}{c_1 T_1} \right) - 4V(m_2 - m_1) \quad (1)$$

Where

$V$  is the volume of the empty reverberation room, m<sup>3</sup>;

$c_1$  is the propagation speed of sound in air during measurement of  $T_1$ , m/s;

$c_2$  is the propagation speed of sound in air during measurement of  $T_2$ , m/s;

$T_1$  is the reverberation time of empty reverberation room, s;

$T_2$  is the reverberation time of reverberation room after the test specimen has been introduced, s;

$m_1$  is the power attenuation coefficient during measurement of  $T_1$ , m<sup>-1</sup>;

$m_2$  is the power attenuation coefficient during measurement of  $T_2$ , m<sup>-1</sup>.

**The sound absorption coefficient  $\alpha_s$**  shall be calculated by the following equation

$$\alpha_s = \frac{A_T}{S} \quad 2)$$

Where

$S$  is the area of the test specimen, m<sup>2</sup>;

$A_T$  is the equivalent sound absorption area of the test specimen.

When the test specimen comprise several identical objects, the equivalent sound absorption area  $A_{obj}$  of an individual object is found by dividing  $A_T$ , by the number of objects,  $n$ ;

$$A_{obj} = \frac{A_T}{n} \quad (3)$$



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Weighted Sound Absorption Coefficient( $a_w$ )-a single number frequency-dependent value which equals the value of the reference curve at 500 Hz after shifting the reference curve stated in ISO 11654:1997 in steps of 0.05 towards the measured value until the sum of unfavourable deviations is less than or equal to 0.10.

Practical Sound Absorption Coefficient( $a_p$ )-a frequency-dependent value of the Sound Absorption Coefficient which is based on measurements on one-third-octave bands in accordance with ISO 354:2003 and which is calculated in octave bands in accordance with ISO 11654:1997. It is the arithmetic mean value of the three one-third-octave Sound Absorption Coefficients within an octave and rounded in steps of 0.05 and maximized to 1.00 for rounded mean values > 1.00.

Shape Indicator-an indicator to be added if a Practical Sound Absorption Coefficient exceed the value of the shifted reference curve by 0.25 or more. If the excess absorption occurs at 250 Hz, "L" will be indicated. If the excess absorption occurs at 500 Hz or 1000 Hz, "M" will be indicated. If the excess absorption occurs at 2000 Hz or 4000 Hz, "H" will be indicated.

The classification system is primarily intended to be used for broad-band applications. The single-number value,  $a_w$ , is used to calculate the sound absorption Class according to the following table.

Sound Absorption Class	$a_w$
A	0.90,0.95,1.00
B	0.80,0.85
C	0.60,0.65,0.70,0.75
D	0.30,0.35,0.40,0.45,0.50,0.55
E	0.15,0.20,0.25
Not classified	0.00,0.05,0.10

### III、 Instrumentation

B&K 2270 Investigation, Power amplifier B&K 2716, Omni directional speaker B&K 4292, Microphone B&K 4189 and accessories.



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## IV、 Test Results

Specifications	Size: 1200mm×600mm×21mm	
Additional Description	Slatted and Felt Backed Acoustic Panels(Area:10.8m <sup>2</sup> ) were laid on a sub-frame with a 200mm airspace. This system was placed in the middle of the floor of the reverberation room and wrapped with 1mm steel panel.	
<b>Test Results</b>		
Frequency (Hz)	$\alpha$	$\alpha_p$
100	0.17	<b>0.25</b>
<b>125</b>	<b>0.24</b>	
160	0.36	
200	0.57	<b>0.65</b>
<b>250</b>	<b>0.62</b>	
315	0.74	
400	0.92	<b>0.85</b>
<b>500</b>	<b>0.82</b>	
630	0.80	
800	0.69	<b>0.65</b>
<b>1000</b>	<b>0.62</b>	
1250	0.66	
1600	0.68	<b>0.65</b>
<b>2000</b>	<b>0.67</b>	
2500	0.66	
3150	0.63	<b>0.60</b>
<b>4000</b>	<b>0.64</b>	
5000	0.60	
$\alpha_w$	<b>0.70</b>	<b>Sound absorption class=C</b>

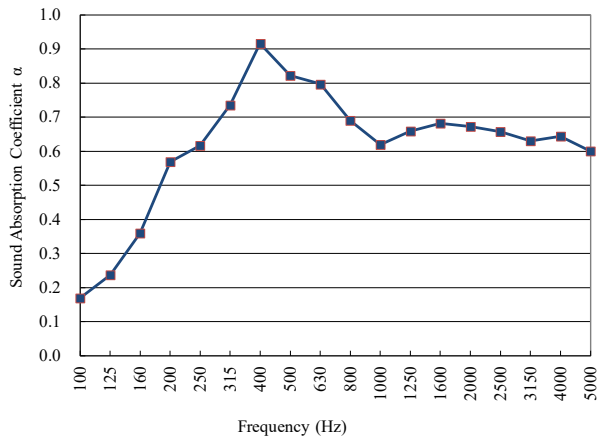


Figure 1. Sound Absorption Coefficient against Frequency

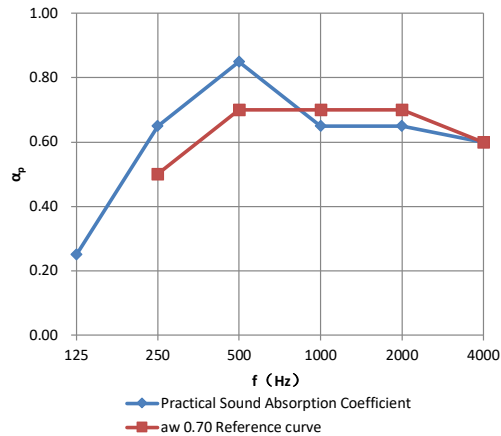


Figure 2. Weighted Sound Absorption Coefficient against Frequency



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## V、 Photographic Records



Appendix information: The above test was carried out by Subtropical Architecture Institute South China University of Technology.

\*\*\*\*\*End of report\*\*\*\*\*



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