

INSTITUTE OF ACOUSTICS TONGJI UNIVERSITY

TEST REPORT

Report No. A09-42-2

(Total 3 pages of this report)

Specimen Name: Acoustic Fiberglass Ceiling ("BEIYANG" "Ceillex")

Test Content: Sound Absorption Coefficient

Client: CHANGZHOU BEIYANG BUILDING MATERIAL CO.,LTD.

Test Organization: Institute of Acoustics, Tongji University



August 28, 2009

NOTES

1. Test report is invalid without the stamp of test organization.
2. Test report is invalid without the signature of tester, verifier
3. Test report is invalid if any altered.
4. This report can not be partly copied without authorization.
5. The test results presented in this report relate only to the item(s) tested.
6. Any dissenting opinions on this test report, Contact test organization within 15 days.

Test Organization: Institute of Acoustics, Tongji University

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Report on Sound Absorption Test in a Reverberation Room

Client: CHANGZHOU BEIYANG BUILDING MATERIAL CO.,LTD.

Specimen Name: Acoustic Fiberglass Ceiling ("BEIYANG" "Ceillex")

Test Date: August 21, 2009

Test Environment: Temperature 27.5 °C Relative Humidity 96%

Specifications: The specimen consisted of 30 units, 600mm long by 600mm wide and 20mm thick, with volume weight of 100kg/m³. The total area of specimen was 10.8m².

Cover:700#

Mounting method: The specimen was mounted with an airspace of 200mm deep behind it.

Test Method: Conformed explicitly with the requirements of GB/T 20247-2006 / ISO 354:2003 :Test for Sound Absorption Coefficients by a Reverberation Room Method:

Test Instruments: Building Acoustics Analyzer B&K4417, Microphone B&K 4166.

Reverberation Room: Dimension: 8.6m(L)×6.8m(W)×5.4m(H); Volume: 268m³;
Floor Area: 54m².

Calculation Formula for Absorption Coefficient:

$$\alpha_s = \frac{55.3V}{C.S} \left(\frac{1}{T_m} - \frac{1}{T_0} \right)$$

Where

α_s is the sound absorption coefficient;

V is the volume, in cubic meters, of empty reverberation room;

S is the area, in square meters, covered by the test specimen;

C is the propagation speed of sound in air, in meters per second;

$C = 331.5 + 0.5 t$; t is temperature(°C).

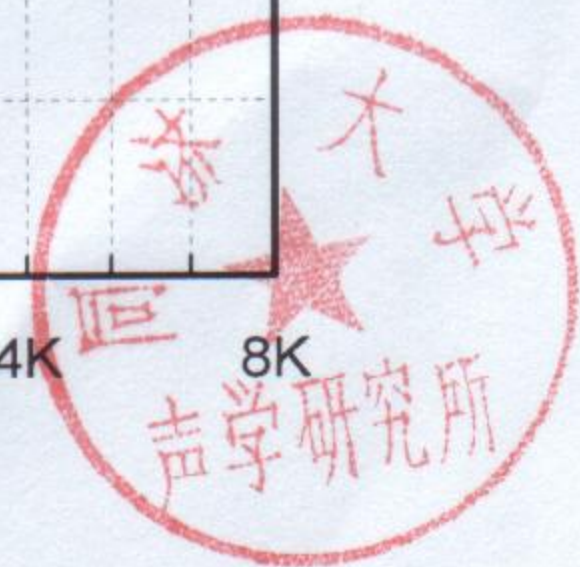
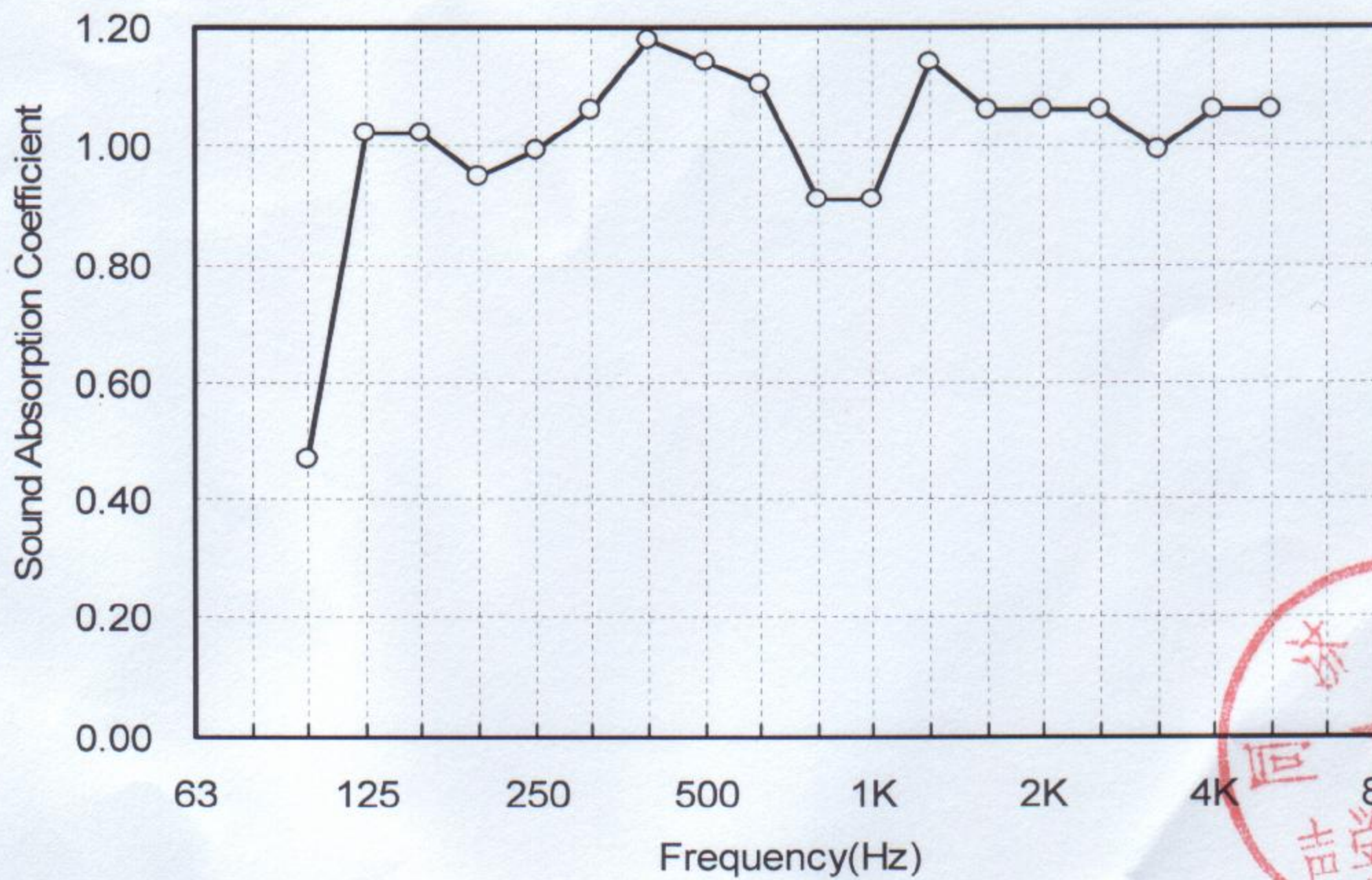
T_0 is the reverberation time, in seconds, of the empty reverberation room;

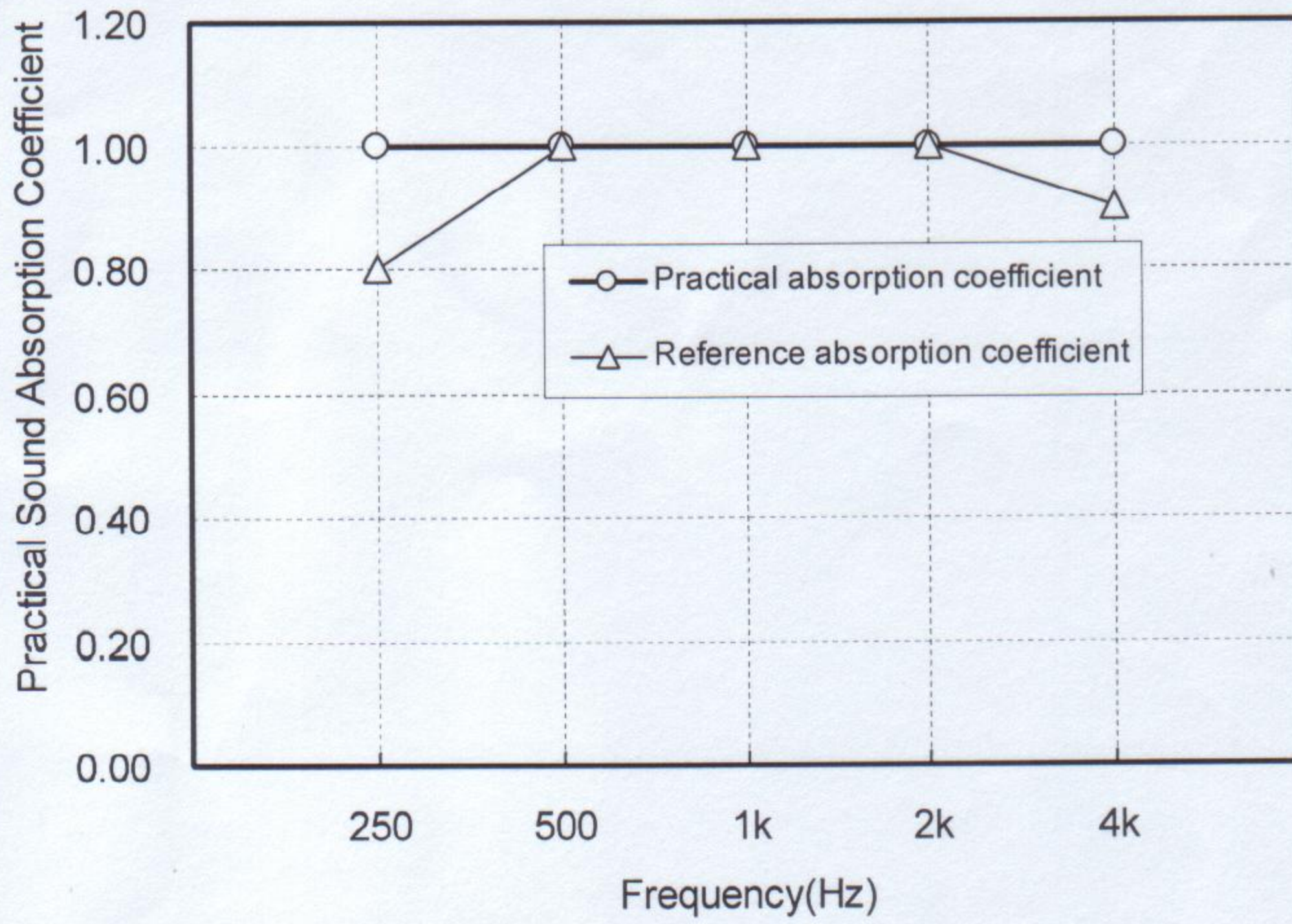
T_m is the reverberation time, in seconds, of the reverberation room after the test specimen has been introduced.



Test Results

Frequency (Hz)	Absorption coefficient α_s	Practical absorption coefficient α_p	Reference absorption coefficient
100	0.47		
125	1.02		
160	1.02		
200	0.95	1.00	0.80
250	0.99		
315	1.06		
400	1.18	1.00	1.00
500	1.14		
630	1.10		
800	0.91	1.00	1.00
1K	0.91		
1250	1.14		
1600	1.06	1.00	1.00
2K	1.06		
2500	1.06		
3150	0.99	1.00	0.90
4K	1.06		
5000	1.06		





Noise Reduction Coefficient: $NRC = 1.05$

(Average Absorption Coefficient of 250Hz, 500Hz, 1000Hz and 2000Hz)

Weighted Absorption Coefficient $\alpha_w = 1.00$, Sound absorption class is A.

(In accordance with EN ISO 11654:1997)

Tested Qian, Huiming Zhu, Fangying

Verified Jiang, Guorong

Test Organization: Institute of Acoustics, Tongji University

Date: August 28, 2009

