

ACOUSTICS AND LIGHTING DEPARTMENT

Acoustic Test Laboratory

TEST REPORT N° AC07-26011043/3-Rev01 CONCERNING SOME PANELS

The accreditation by the COFRAC Laboratory Section attests to the technical competence of the laboratories only for the tests covered by the accreditation.

Scope of accreditation available on request and on our web site.

This Test Report certifies only the characteristics of the object submitted for testing and does not prejudge the characteristics of similar products. So it does not constitute a product certification in the sense of Article L 115-27 of the Consumer Code and of the Law of June 3, 1994.

If this report is being issued through electronics and/or physical electronic media, only the paper version of the report signed by CSTB shall be deemed authentic in case of litigation. This report in paper form is kept at CSTB for a minimum period of 10 years.

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It comprises ten pages.

REQUESTED BY: ROCKWOOL France – SAS ROCKFON
111, rue du Château des Rentiers
75013 PARIS

Réf. : BR-70008743
 26011043
 CR/GA

SCOPE

Determine the sound absorption coefficient α_s of panels.

Tests made in the framework of the procedure of attestation of conformity for ceiling according to the harmonised product standard NF EN 13964 planned by the construction products directive (directive 89/106/CEE): initial type testing.

For those measurements, CSTB is notified by the French state for the European community under number N°0679.

REFERENCE TEXTS

The measurements are carried out according to the Standard NF EN ISO 354 (2004) supplemented by NF EN ISO 11654 (1997) for the expression of overall index α_w .

SAMPLES SUBMITTED TO THE TESTS

Samples have been selected by the manufacturer like representative of the current product of factory "Rockwool Lapinus Productie BV" in Netherlands

Date of reception in the laboratory: 26 November 2007

Origin : Requester

Installation : CSTB

SUMMARY LIST OF TESTS**N° test Sample submitted to the test (sampling form from BCCA from 19/11/2007)**

- | | |
|---|---|
| 1 | KRIOS 20 mm with plenum of 200 mm (product code: 544.001.700) |
| 2 | KRIOS 25 mm with plenum of 200mm (product code: 544.001.700) |

This report cancels the one which is dated 18 January 2008

Made at Marne la vallée, the 2nd June 2008

Responsible for the test



Cyrille ROBERT

The head of division



Jean-Baptiste CHÉNÉ

**DESCRIPTION AND INSTALLATION
OF THE PANELS**

Test **1**
Date **29/11/07**
Station **ALPHA**

REQUESTER, ROCKWOOL France – SAS ROCKFON

MANUFACTURER ROCKWOOL ROERMOND

NAME KRIOS

APTITUDE IN THE EMPLOYMENT Unchecked

MAIN CHARACTERISTICS

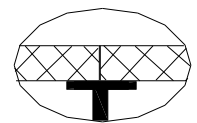
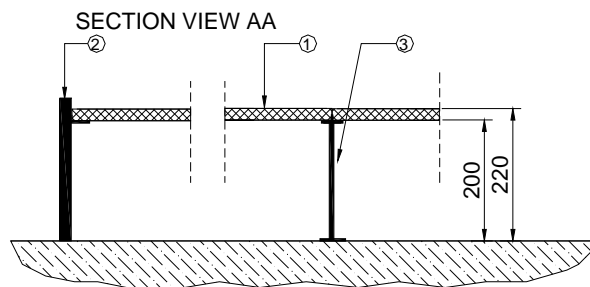
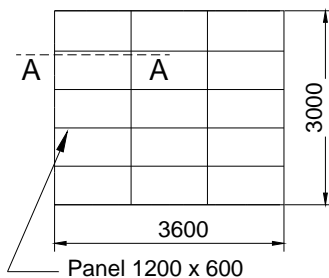
Dimensions of one panel in mm : 1200 x 600
 Thickness of one panel in mm : 20
 Weight per unit of area in kg/m² : 1.8
 Dimensions of sample in mm : 3000 x 3600
 Type of installation : E-220

DESCRIPTION (dimensions are given in mm)

Reference	KRIOS (ROCKFON)
Constitution	Panels of rock wool (volumic mass theoretical = 80 kg/m ³). The visible face is covered with a mineral sheet painted (50 g/m ²). The back face is covered with a glass sheet
Dimensions	1200 x 600 x 20

INSTALLATION

The panels are laid side to side on a metal frame with an air space under panels of 200 mm in height. They are put on the 600 x 600 grid. This grid is composed of tees spaced at interval of 600 mm.



Dimensions in mm

- ① Panel
- ② Metal frame
- ③ Support

Drawings for KRIOS installation

SOUND ABSORPTION COEFFICIENT α_s OF THE PANELS

Test **1**
Date **29/11/07**
Station **ALPHA**

AA

REQUESTER ROCKWOOL France – SAS ROCKFON

MANUFACTURER ROCKWOOL ROERMOND

NAME KRIOS

APTITUDE IN THE EMPLOYMENT Unchecked

MAIN CHARACTERISTICS

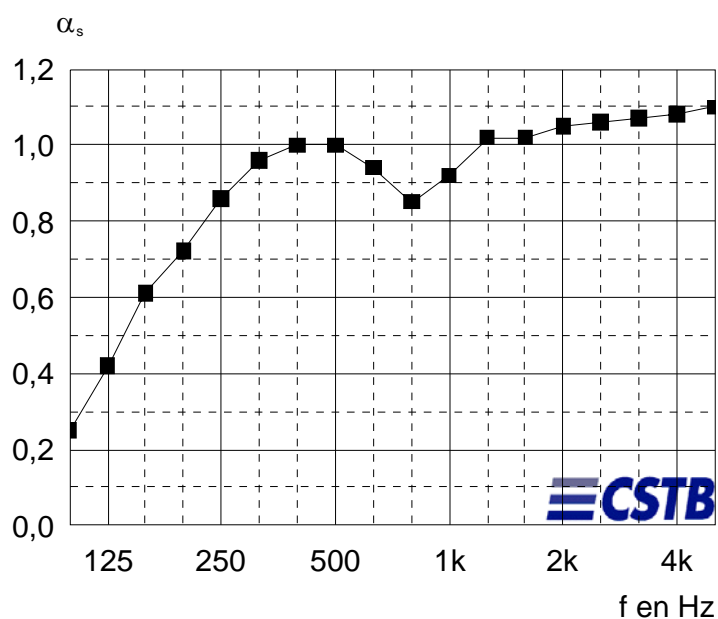
Dimensions of one panel in mm : 1200 x 600
Thickness of one panel in mm : 20
Weight per unit of area in kg/m² : 1.8
Dimensions of sample in mm : 3000 x 3600
Type of installation : E-220

CONDITIONS DE MESURES

EMPTY ROOM: Temperature: 21.5°C
Relative humidity: 42%

ROOM WITH SAMPLE: Temperature: 21.6°C
Relative humidity: 39 %

RESULTS



f	α_s
100	0,25
125	0,42
160	0,61
200	0,72
250	0,86
315	0,96
400	1,00
500	1,00
630	0,94
800	0,85
1000	0,92
1250	1,02
1600	1,02
2000	1,05
2500	1,06
3150	1,07
4000	1,08
5000	1,10
Hz	

$\alpha_w = 1,00$
classement : A

REVERBERATION TIME T

Date **29/11/07**
Station **ALPHA**

TEST N° 1

f (Hz)	T of the empty room (s)	T of the room with sample (s)
100	12.81	6.95
125	11.92	5.10
160	11.89	4.07
200	10.47	3.47
250	10.50	3.08
315	11.08	2.88
400	10.32	2.76
500	9.96	2.72
630	9.21	2.79
800	8.60	2.91
1000	7.67	2.67
1250	7.14	2.42
1600	6.06	2.28
2000	5.39	2.15
2500	4.52	1.98
3150	3.56	1.76
4000	2.64	1.49
5000	2.02	1.26

**DESCRIPTION AND INSTALLATION
OF THE PANELS**

Test **2**
Date **29/11/07**
Station **ALPHA**

REQUESTER ROCKWOOL France – SAS ROCKFON

MANUFACTURER ROCKWOOL ROERMOND

NAME KRIOS

APTITUDE IN THE EMPLOYMENT Unchecked

MAIN CHARACTERISTIC

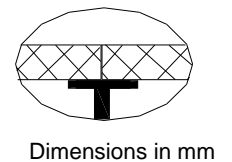
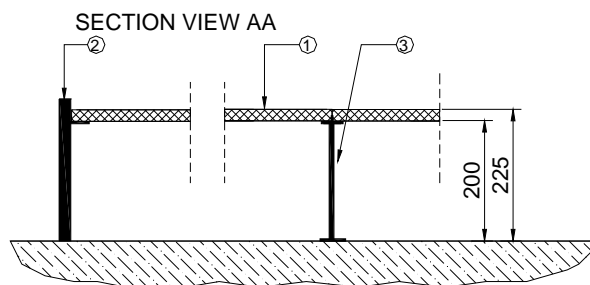
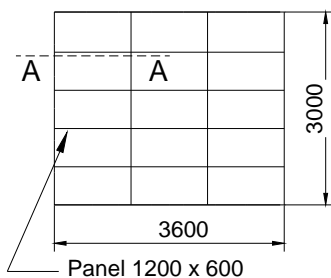
Dimensions of one panel in mm : 1200 x 600
 Thickness of one panel in mm : 25
 Weight per unit of area in kg/m² : 2.3
 Dimensions of sample in mm : 3000 x 3600
 Type installation : E-225

DESCRIPTION (dimensions are given in mm)

Reference	KRIOS (ROCKFON)
Constitution	Panels of rock wool (volumique mass theoretical = 80 kg/m ³). The visible face is covered with a mineral sheet painted (45 g/m ²). The back face is covered with a glass sheet
Dimensions	1200 x 600 x 25

INSTALLATION

The panels are laid side to side on a metal frame with an air space under panels of 200 mm in height. They are put on the 600 x 600 grid. This grid is composed of tees spaced at interval of 600 mm.



- ① Panel
- ② Metal frame
- ③ Support

Drawing for KRIOS installation

SOUND ABSORPTION COEFFICIENT α_s OF THE PANELS

Test	2
Date	29/11/07
Station	ALPHA

REQUESTER **ROCKWOOL France – SAS ROCKFON**

MANUFACTURER **ROCKWOOL ROERMOND**

NAME **KRIOS**

APTITUDE IN THE EMPLOYMENT **Unchecked**

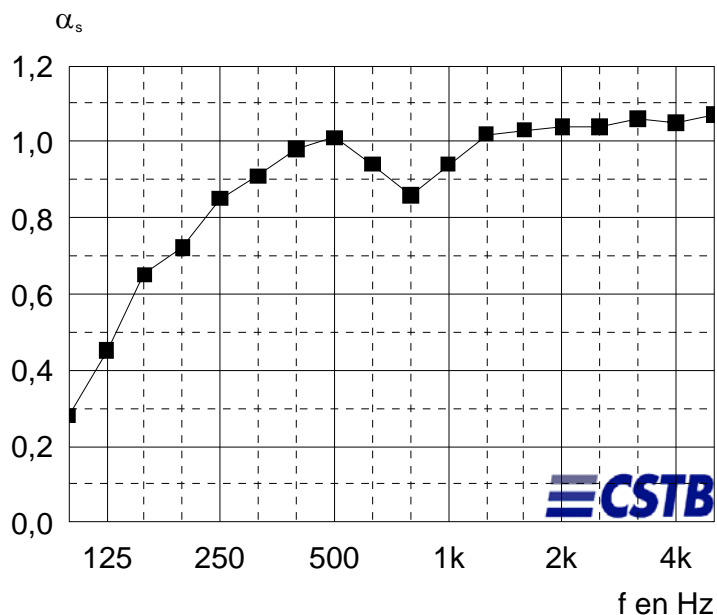
MAIN CHARACTERISTIC

Dimensions of one panel in mm : 1200 x 600
 Thickness of one panel in mm : 25
 Weight per unit of area in kg/m² : 2.3
 Dimensions of sample in mm : 3000 x 3600
 Type of installation : E-225

CONDITIONS OF MESUREMENT

EMPTY ROOM:	ROOM WITH SAMPLE:
Temperature: 21.5°C	Temperature: 21.6°C
Relative humidity: 42%	Relative humidity: 40 %

RESULTS



f	α_s
100	0,28
125	0,45
160	0,65
200	0,72
250	0,85
315	0,91
400	0,98
500	1,01
630	0,94
800	0,86
1000	0,94
1250	1,02
1600	1,03
2000	1,04
2500	1,04
3150	1,06
4000	1,05
5000	1,07
Hz	

$\alpha_w = 1,00$
 classement : A

REVERBERATION TIME T

Date **29/11/07**
Station **ALPHA**

TEST N° 2

f (Hz)	T of the empty room (s)	T of the room with sample (s)
100	12.81	6.52
125	11.92	4.89
160	11.89	3.90
200	10.47	3.49
250	10.50	3.10
315	11.08	3.00
400	10.32	2.79
500	9.96	2.71
630	9.21	2.78
800	8.60	2.89
1000	7.67	2.63
1250	7.14	2.43
1600	6.06	2.27
2000	5.39	2.15
2500	4.52	1.99
3150	3.56	1.76
4000	2.64	1.50
5000	2.02	1.26

APPENDIX 1 – APPARATUS

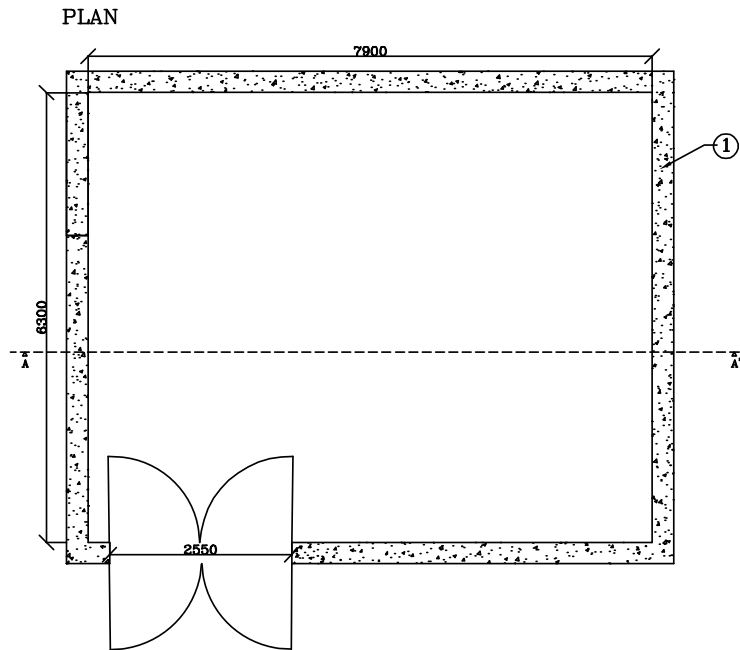
STATION ALPHA

DESIGNATION	BRAND	TYPE	N° CSTB
Microphone network	Bruël & Kjær	Microphone 4166	CSTB 01 0221
	Bruël & Kjær	Préamplificateur 2669	
Microphone network	Bruël & Kjær	Microphone 4166	CSTB 04 1519
	Bruël & Kjær	Préamplificateur 2669	
Rotating arm	Bruël & Kjær	3923	CSTB 97 0162
Amplifier	CARVER	PM600	CSTB 91 0119
Speaker	CSTB-ELECTRO VOICE	Pyramide	CSTB 97 0208
Speaker	CSTB-ELECTRO VOICE	Pyramide	CSTB 97 0205
Real Time Analyser	Bruël & Kjær	2144	CSTB 00 0145
Microcomputer	DELL	OPTIPLEX GX 270	
Calibrator	Bruël & Kjær	4231	CSTB 04 1839

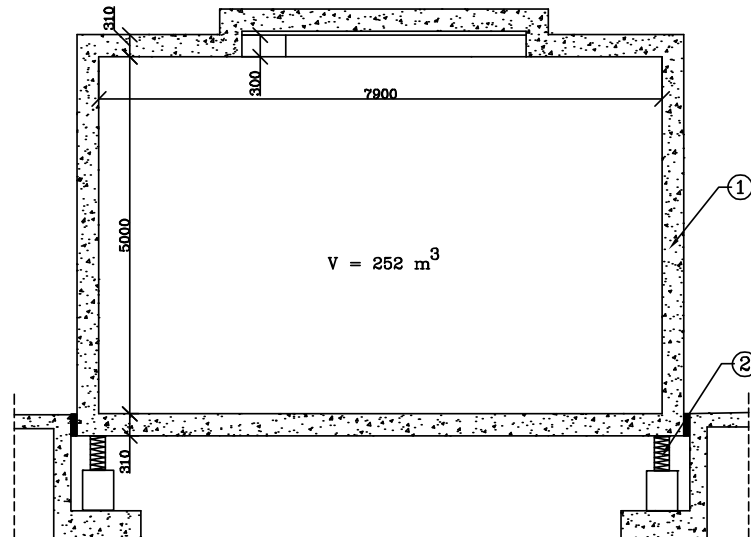
Script of measurement: 6 positions for every microphone (2 microphones) and for every speaker (2 fixed speakers).

APPENDIX 2 – DRAWING OF THE TEST STATION

STATION ALPHA



COUPE AA'



dimensions en mm

		échelle:	1/100
	Poste d'essais équipé de 12 diffuseurs :	POSTE ALPHA (ABSORPTION)	
	7 diffuseurs de 2,05x1,05 m, 4 diffuseurs de 2x1,20 m et 1 diffuseur de 3x1,05 m		
2	Boîte à ressort	ACOUSTIQUE	
1	Béton		
REP	DESIGNATION		

END OF REPORT