

# Certificate

## Sound reduction of building elements

Test report 040311.Z01b\*)



Applicant **GLAVERBEL GROUP**  
Chaussée de la Hulpe 166

B- 1170 Brussels

### Foundation

EN 20140-3 : 1995-01  
Laboratory measurements of  
airborne sound insulation of  
building elements  
EN ISO 717-1 : 1996-12  
Acoustics – Rating of sound in-  
sulation in buildings and of  
building elements - Part 1: Air-  
borne sound reduction  
Similar to DIN EN 20140-3 and  
DIN EN ISO 717-1

Specimen	Monolithic glazing
Name	33.2 Stratophone
Size (B x H)	1230 mm x 1480 mm
Construction	3 Float / 0,76 acoustic PVB / 3 Float
Gas Filling	
Area-related mass	16,5 kg/m <sup>2</sup>
Specials	-/-

### Purpose

This test report prove the sound  
reduction for a building ele-  
ment.

### Validity

The values given in this test re-  
port are only valid for the tested  
specimen described.

General conclusions for the  
construction and other func-  
tional details may not be drawn  
from this test report.

### Information for use

Regulations for the use of test  
reports are given in the en-  
closed information sheet „Con-  
ditions and information for use  
of **ift** test reports for publication  
and commercial purposes“.

Weighted sound reduction index  $R_w$   
Spectrum adaption terms  $C$  and  $C_{tr}$



$$R_w (C; C_{tr}) = 36 (0; -3) \text{ dB}$$

LSW GmbH Rosenheim  
July 29<sup>th</sup> 2004

Prof. Fritz Holtz  
Laboratory senior

Dipl. Ing. (FH) Andreas Preuss  
Expert

### Contents

This test report includes 5  
pages

- 1 Test specimen
  - 2 Test procedure
  - 3 Test results
- Data sheet (1 page)



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## 1 Test specimen

### 1.1 Description

#### Cast resin laminate glass

Manufacturer*	Is known to the institute, is not named in this test report
Date of Fabrication*	3 <sup>rd</sup> week 2004
Name	33.2 Stratophone
Size (B x H)	1230 mm x 1480 mm
Visible size (B x H)	1230 mm x 1480 mm
Total thickness	
at Boundary	7,0 mm
at Center	7,0 mm
Area related mass	16,5 kg/m <sup>2</sup>
Construction	3 Float / 0,76 acoustic PVB / 3 Float
Temperature	20° C
Spacer*	
Material / Manufacturer	none
Siccative*	
typ / Manufacturer	
Seal of Spacer*	
outside	
inside	
Gas Filling	
Gas	
Grade of Filling	

The description is based on the documentation of LSW GmbH. Numbers and names of material are given by the applicant (Other data from applicant are marked with „\*“).

### 1.2 Mounting of the test specimen

- Mounted into the test opening according to EN ISO 20140-3 : 1995-01
- The pane is mounted into a timber frame of 25 mm x 25 mm with distance of 5 mm
- The distance to the frame and the test opening is filled with plastic sealant type Perennator 2001 S grey.



## 2 Test procedure

### 2.1 Specimen collection

Production of the specimens in the necessary dimensions by the applicant.

Quantity	1
Supply	March 8 <sup>th</sup> 2004 by applicant
Registry No.	040311.Z01

### 2.2 Procedure

Technical basics

EN 20140-3 : 1995-01 Acoustic - Measurement of sound insulation in buildings and of building elements – part 3: Laboratory measurements of airborne sound insulation of building elements

EN ISO 717-1 : 1996-12 Acoustics – Rating of sound insulation in buildings and of building elements - Part 1: Airborne sound reduction

boundary conditions Up to the standard

Deviation No deviation to the standard test procedure

Test noise Pink noise

Test of reverberation time Means: 2 tests on 2 loudspeaker and 2 circulating microphones

Equation A  $A = 0,16 \cdot \frac{V}{T} \text{ m}^2$

Soundlevel difference 2 loudspeaker positions and 2 microphones moved on circulating paths

Equation R  $R = L_1 - L_2 + 10 \cdot \lg \frac{S}{A} \text{ in dB}$

Legend

- A equivalent absorption area in m<sup>2</sup>
- L<sub>1</sub> Soundpressurelevel sourceroom in dB
- L<sub>2</sub> Soundpressurelevel receivingroom in dB
- R Sound reduction index in dB
- T Reverberation time in s
- V Volume of receiving room in m<sup>3</sup>
- S Testing area of the specimen in m<sup>2</sup>



## 2.3 Equipment

The measurement was carried out using the following equipment:

<b>Apparatus</b>	<b>Type</b>	<b>Producer</b>
Integrating measurement device	Type Nortronic 830	Norsonic-Tippkemper
Microphone-preamplifier	Type 1201	Norsonic-Tippkemper
Microphone	Type 1220	Norsonic-Tippkemper
Calibrator	Type 1251	Norsonic-Tippkemper
Loudspeaker dodecahedron	custom made	LSW GmbH
Amplifier	Type E120, 100 W	FG Elektronik
Rotating microphone	Type 212 / N	Norsonic-Tippkemper

## 2.4 Execution of the test

Date March 11<sup>th</sup> 2004  
 Official in Charge Dipl.-Ing. (FH) Andreas Preuss

## 3 Test results

The values of the measured airborne sound reduction index of the tested element are drawn-up in the diagram of the annexed data sheet as a function of the frequency and are given in a table.

According to EN ISO 717-1:1996-12 the weighted sound reduction index  $R_w$  and the spectrum adaption terms  $C$  and  $C_{tr}$  for the frequency range from 100 Hz to 3150 Hz were calculated as follows:

$$R_w (C; C_{tr}) = 36 (0; -3) \text{ dB}$$

According to EN ISO 717-1 following spectrum adaption terms were calculated:

$$\begin{array}{lll} C_{50-3150} = 0 \text{ dB} & C_{100-5000} = 0 \text{ dB} & C_{50-5000} = 0 \text{ dB} \\ C_{tr,50-3150} = -3 \text{ dB} & C_{tr,100-5000} = -3 \text{ dB} & C_{tr,50-5000} = -3 \text{ dB} \end{array}$$

LSW GmbH Rosenheim  
 July 29<sup>th</sup> 2004

# Sound reduction index according to EN 20140 - 3

Laboratory measurements of airborne sound insulation of building elements

Applicant GLAVE RBEL GROUP, B- 1170 Brussels

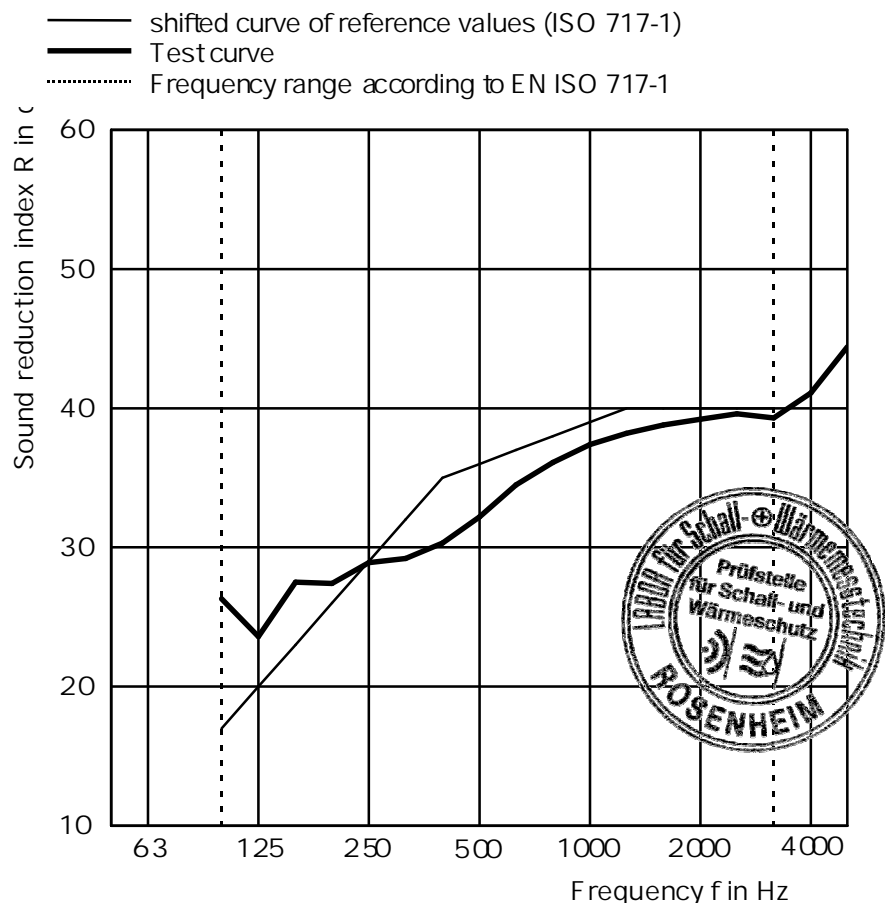
Specimen Monolithic glazing

System 332 Stratophone



Construction of the specimen	Date of the test	March 11 <sup>th</sup> 2004
Solid Pane	Test opening	1,25m x 1,50m = 1,88 m <sup>2</sup>
Size	Laboratory partition wall	Two leaf concrete wall
1230mm x 1480 mm	Test noise	Pink noise
Construction	Volumes of the Testrooms	V <sub>S</sub> = 101,0m <sup>3</sup> V <sub>E</sub> = 67,5m <sup>3</sup>
3 Float /0,76 acoustic PVB 3 Float	Maximum sound reduction	R <sub>w,max</sub> = 62 dB (related to the test area)
Area-related mass	16,5 kg/m <sup>2</sup>	Mounting conditions
Temperature	20° C	Specimen mounted in the test opening and hold by wooden rods (25mm x 25 mm); sealed with plastic sealant
		Climate in the testrooms 20° C /30% RFF

f in Hz	R in dB
50	41,9
63	287
80	260
100	263
125	236
160	27,5
200	27,4
250	289
315	29,2
400	303
500	32,2
630	345
800	361
1000	37,4
1250	382
1600	388
2000	39,2
2500	396
3150	39,3
4000	41,1
5000	44,4



Evaluation according to EN ISO 717-1 (in 1/3rd octave bands):

R<sub>w</sub> (C; C<sub>tr</sub>) = 36 (0; -3) dB      C<sub>50-3150</sub> = 0 dB; C<sub>100-5000</sub> = 0 dB; C<sub>50-5000</sub> = 0 dB  
 C<sub>tr,50-3150</sub> = -3 dB; C<sub>tr,100-5000</sub> = -3 dB; C<sub>tr,50-5000</sub> = -3 dB

Test report No.: 04031.Z01b

LSW GmbH Rosenheim, July 29<sup>th</sup> 2004

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