

Notified Body number: 2018

TEST REPORT No. 031-4 SŠF/12 A en  
Date: 17 of April 2012

Page (pages)

1 (5)

## Determination of the airborne sound reduction index

(test name)

Test method: *LST EN ISO 10140-2:2010 Acoustics – Laboratory measurement of sound insulation of building elements. Part 2: Measurements of airborne sound insulation (ISO 10140-2:2010); LST EN ISO 10140-1:2010 Part 1: Application rules for specific products (ISO 10140-1:2010); LST EN ISO 10140-4:2010 Part 4: Measurement procedures and requirements (ISO 10140-4:2010); LST EN ISO 10140-5:2010 Part 5: Requirements for test facilities and equipment (ISO 10140-5:2010).*

(number of normative document or test method, description of test procedure, test uncertainty)

Specimen description: Top swing Classic window. Material: pine finger jointed. Measurements: width – 1230 mm, height – 1480mm. Profiles: frame 57×95mm, sash 76×65mm. Hardware: Spilka. Gaskets: trelleborg, between bead and glass. Frame gasket: Schlegel QL3004. Fixation and places of fixation: glass fixation is in all corners, middle part of top and bottom, and sides. Glass unit: 3kL6.4LowE+4+4LowE – two cell glazing unit (three glasses), filled with argon gas, the outer 6.4mm laminated glass with selective coating, middle 4mm clear glass and inner glass 4 mm selective, 11mm aluminium spacer (Saint Gobain). Spacers (glazing packer): 24×3×100mm.

(identification of the specimen)

Customer: LTD STAĻI Ķingas, Priekuļi distr., Priekuļi County, LV-4126 Latvia

(name and address of enterprise)

Manufacturer: LTD STAĻI Ķingas, Priekuļi distr., Priekuļi County, LV-4126 Latvia

(name and address of enterprise)

Test result:

Name of quantity, unit	Test method	Test result
Weighted sound reduction index $R_w$ ( $C$ ; $C_{tr}$ ; $C_{100-5000}$ ; $C_{tr,100-5000}$ ), dB	LST EN ISO 717-1:1999	40 (-1;-4; -1;-4;) dB

**Note.** The testing are carried out in purpose for conformity assessment of the product according to LST EN 14351-:2006+A1:2010

Test place: Science Laboratory of Building Thermal Physics, Institute of Architecture and Construction of Kaunas University of Technology

(name of the test laboratory)

Specimen delivery date: 2012-04-16 Test date: 2012-04-16

Sampling: The test specimen sampled by customer. Order description N° 031-4/12, 2012-04-12

Additional information: Application, 2012-04-02, drawing

(any deviations, complementary tests, exceptions and any information related with particular test)

Annex: 1 - Measurement results, 2 - Schematic view of the test, 3 - Cross section of the specimen

(the numbers of the annexes should be pointed out)

Technical manager:

(approves the test results)

J. Ramanauskas

(n., surname)

Tested by:

(technically responsible for testing)

V. Dikavičius

(n., surname)

S. p.

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### Installation of the sample and measurement

Sample has been installed into the hole (1500×1250) of the dividing wall between two reverberating chambers by workers of the laboratory. The installation of the specimen is described on the drawing in Annex 2. The airborne sound reduction index has been determined by using the precision integrated noise spectra meter, positional microphone and loudspeaker.

### Methods and equipment

The airborne sound reduction index R was determined in accordance with requirements of LST EN ISO 10140-1:2010 [1], LST EN ISO 10140-2:2010 [2], LST EN ISO 10140-4:2010 [3], LST EN ISO 10140-5:2010, [4]. Weighted sound reduction index  $R_w$  was determined in accordance with requirements LST EN ISO 717-1:1999 [5].

The thickness of the reverberating chamber's walls is 0,25m. The thickness of the covering masonry shell is 0,38m. The dimensions of the floor of sound chamber are 4,9x4,8m, height – 3,5÷3,0m (the coming down by steps ceiling). The dimensions of the floor of the sound receiving chamber are 4,8x4,3m, height – 3,5÷3,0m (the coming down by steps ceiling). The chamber's volumes are 80 and 68,56m<sup>3</sup>.

### Equipment of the measurement:

Microphone L&D (Larson & Davis) 2560 Nr.2572; Initial microphone amplifier L&D, PRM 900C Nr.3782; Precision integrated noise spectra meter and noise generator L&D, 2800 B Nr.0527; Microphone LD Nr.2546, Initial microphone amplifier PRM900C Nr.3777 calibration certificate VMC Nr.794567 AV 3.3-00-807, 2011-03-07; Calibrator of sound level LD CAL200 Nr.0712 calibration certificate VMC Nr.794566 AV 3.3-00-806, 2011-03-07

Loudspeaker

made to order

Power amplifier

made to order

Microphone positioning system

made to order

Relative humidity and temperature sensor

Testo 615, No. 3070000244Gb

Static pressure

Barometer Aneroider No. 1685

- Sources:** [1] *LST EN ISO 10140-1:2010 Acoustics. Measurement of sound insulation in buildings and of building elements. Part 1: Application rules for specific products (ISO 10140-1:2010).*  
[2] *LST EN ISO 10140-2:2010 Acoustics. Measurement of sound insulation in buildings and of building elements. Part 2: Measurement of airborne sound insulation (ISO 10140-2:2010).*  
[3] *LST EN ISO 10140-4:2010 Acoustics. Measurement of sound insulation in buildings and of building elements. Part 4: Measurement procedures and requirements (ISO 10140-4:2010).*  
[4] *LST EN ISO 10140-5:2010 Acoustics. Measurement of sound insulation in buildings and of building elements. Part 5: Requirements for test facilities and equipment (ISO 10140-5:2010).*  
[5] *LST EN ISO 717-1:1999 Acoustics- Rating of sound insulation in buildings and of building elements. Part 1. Airborne sound insulation (ISO 717-1:1999).*

### Distribution:

Customer  
ASI, SŠFM laboratory

Original  
Original

### Contact person:

Vidmantas Dikavičius, tel. +370 37 350799

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3(5)

Annex 1 - Measurement results

## Sound reduction index, R, in accordance with ISO 10140-2

(test name)

**Test method:** LST EN ISO 10140-1:2010, LST EN ISO 10140-2:2010, LST EN ISO 10140-4:2010, LST EN ISO 10140-5:2010

(number of normative document or test method, description of test procedure, test uncertainty)

**Manufacturer:** LTD STAĻI Ķingas, Priekuļi distr., Priekuļi County, LV-4126 Latvia  
(name and address of enterprise)

**Client:** LTD STAĻI Ķingas, Priekuļi distr., Priekuļi County, LV-4126 Latvia  
(name and address of enterprise)

**Product identification:** Top swing Classic window (wooden)  
(identification of the product)

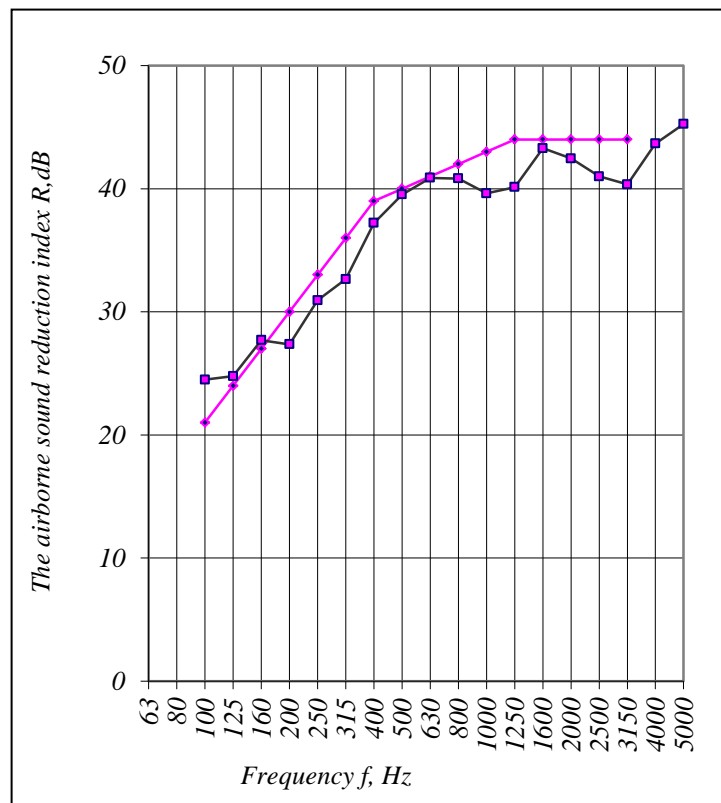
**Test element mounted by:** Laboratory person

**Description of test facility, test element and test arrangement, including reference to ISO 10140-2:2010, where applicable:**

<b>Test room identification:</b>	horizontal	<b>Relative humidity in the test rooms:</b>	45,0 %
<b>Area, S, of the test element:</b>	1,88 m <sup>2</sup>	<b>Static pressure:</b>	0,102 MPa
<b>Air temperature in the test rooms:</b>	20,0 °C	<b>Receiving room volume:</b>	68,56 m <sup>3</sup>
<b>Test date:</b>	2012-04-16		

**Name of test institute:** Science Laboratory of Building Thermal Physics, Institute of  
Architecture and Construction of Kaunas University of Technology

Frequency <i>f</i> , Hz	<i>R</i> , dB 1/3 octave
50	
63	
80	
100	24,5
125	24,8
160	27,7
200	27,4
250	30,9
315	32,6
400	37,2
500	39,5
630	40,9
800	40,8
1000	39,6
1250	40,1
1600	43,3
2000	42,5
2500	41,0
3150	40,4
4000	43,7
5000	45,2



Rating in accordance with LST EN ISO 717-1:1999

$R'_w(C; C_{tr}) = 40 (-1; -4)$  dB;  $C_{50-3150} =$  dB;  $C_{tr,50-5000} =$  dB;  $C_{100-5000} = -1$  dB;  $C_{tr,100-5000} = -4$  dB

Tested by: V. Dikavičius

(technically responsible for testing)

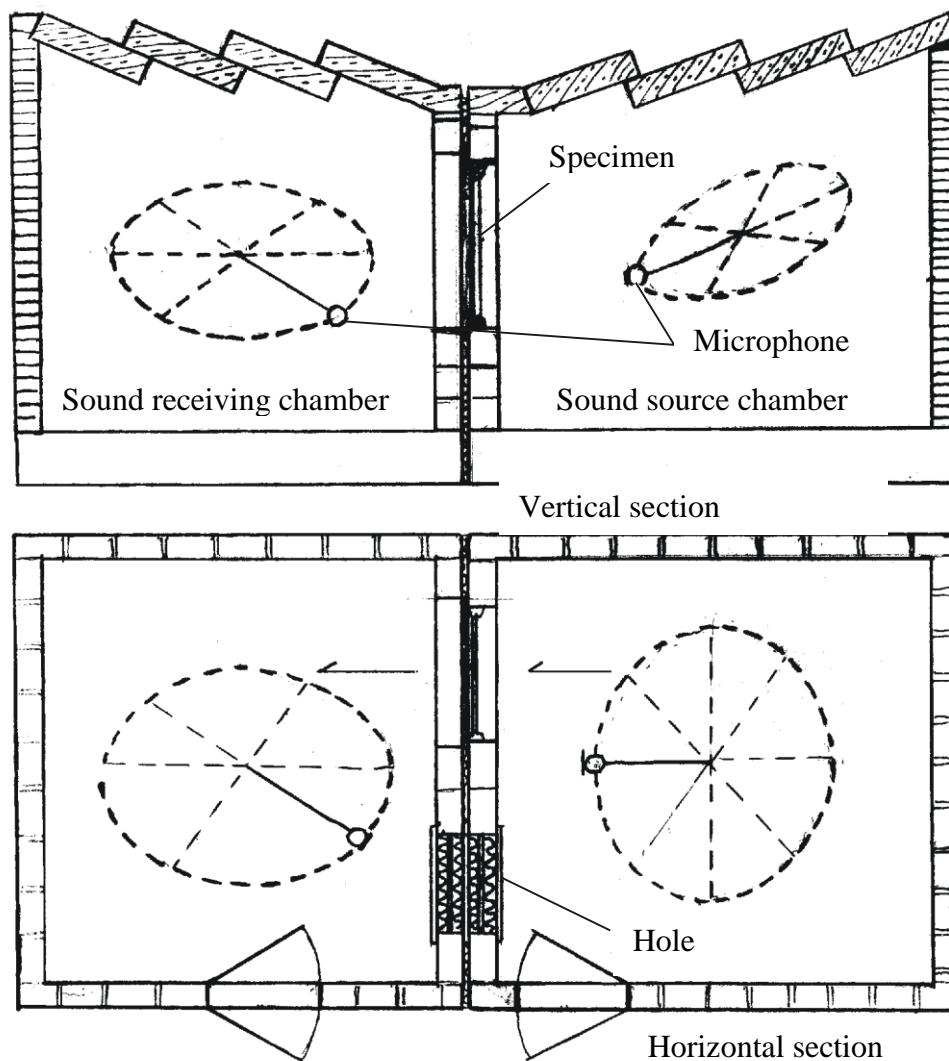
(n., surname)

(signature)

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2 Annex. Schematic view of the test

Reverberating chambers



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