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Sheet 1 of all 10

**CONSTRUCTION TEST CENTER
ICS at "NISI"**

Certificate № 88 LI / 01.10.2014,
issued by EA "BAS" with validity till 01.10.2018.
according to the requirements of BDS EN ISO/IEC 17025:2006
LABORATORY: „BUILDING PHYSICS”

**TEST REPORT
№ 375-5-18 / 10.07.2017**

Product name: Building Structures (Partition, enclosure and distribution structures of buildings and structures) – **Soundproofing system for wall "DECIBEL MUTE 23"**

Manufacturer: DECIBEL Ltd,
Sofia, Vasil Kirkov Str. 8

Assignor: DECIBEL Ltd,
Sofia, Vasil Kirkov Str. 8
The sample was taken and delivered by the contracting authority.

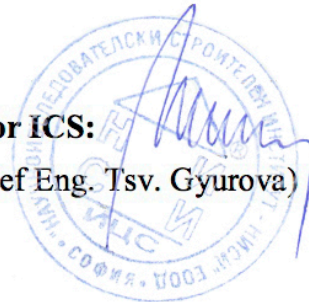
Test method: BDS EN ISO 10140-2:2010 “Acoustics. Laboratory measurement of the sound insulation of building elements. Part 2: Measurement of airborne noise insulation ”

Date of sample entry at ICS: int. № 375 / 19.05.2017

Amount of tested samples: Soundproofing system DECIBEL MUTE 23 - 11 m2

Date (period) of tests: from 05.06.2017 to 12.07.2017

Director ICS:
(Assistant Chief Eng. Tsv. Gyurova)

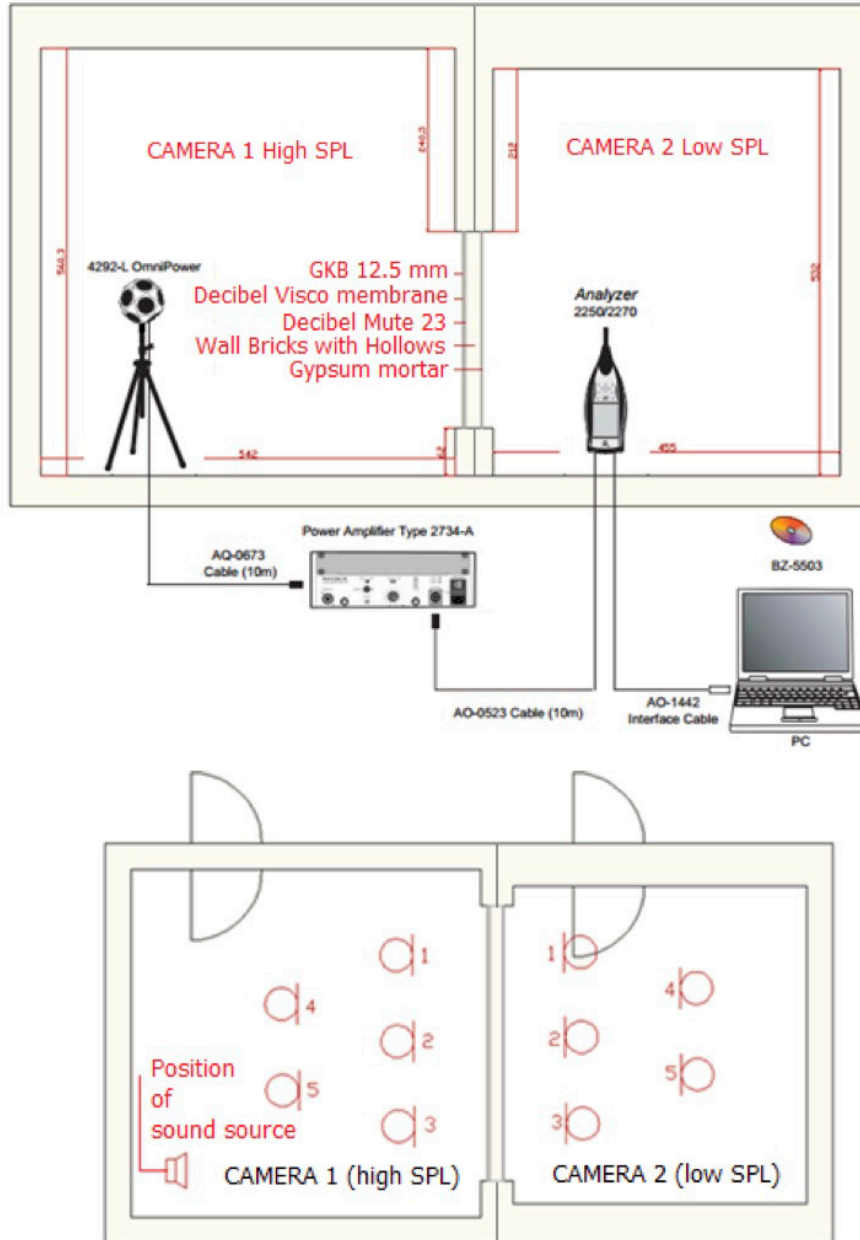


The results refer only to the tested samples. Extracts from the protocol can not be multiplied without the written consent of Construction Test Center - ICS-NISI

Airborne sound reduction

measured in test rooms for the determination of sound insulation of enclosing structures according to BDS EN ISO 10140-2:2010

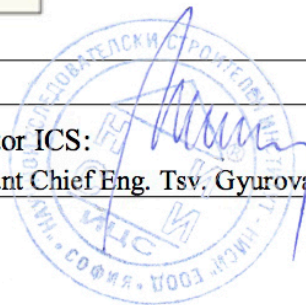
Laboratory set for measurement of sound transmission loss



Test performed by: *K. Glushkova*
 Assistant Chief Eng. K. Glushkova

Head laboratory: *K. Glushkova*
 Assistant Chief Eng. K. Glushkova

Director ICS: *Tsv. Gyurova*
 Assistant Chief Eng. Tsv. Gyurova



Airborne sound reduction

measured in test rooms for the determination of sound insulation of enclosing structures according to BDS EN ISO 10140-2:2010

Tested samples in laboratory set

Tested wall with gypsum mortar



Connection between Mute 23 panels and DCIox



DCIant and Decibel Visco membrane



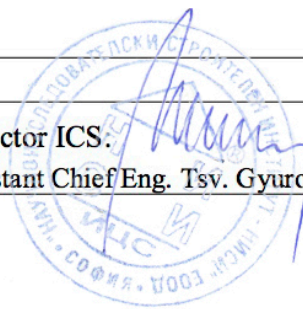
Finished wall with 12.5 mm GKB gypsum board



Test performed by: *K. Glushkova*
Assistant Chief Eng. K. Glushkova

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Assistant Chief Eng. K. Glushkova

Director ICS: *Tsv. Gyurova*
Assistant Chief Eng. Tsv. Gyurova



Airborne sound reduction

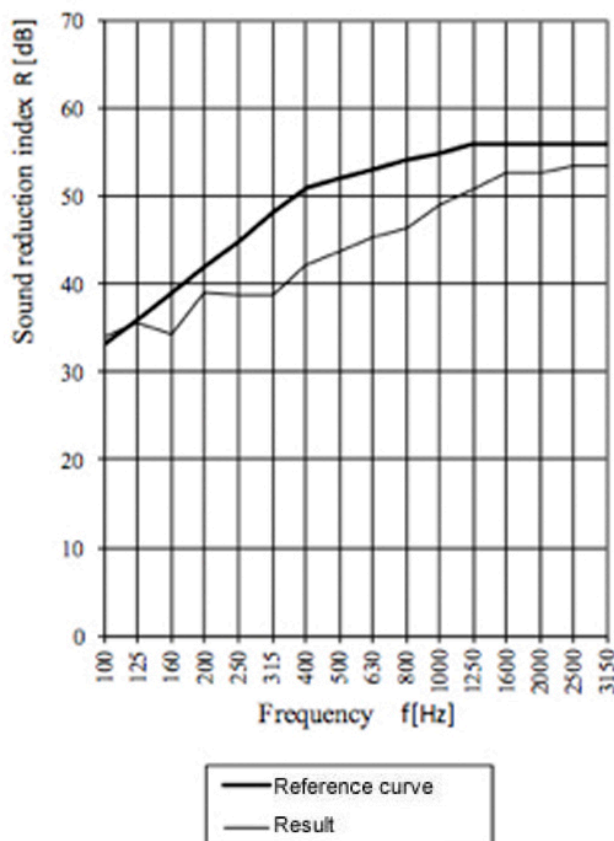
measured in test rooms for the determination of sound insulation of enclosing structures according to BDS EN ISO 10140-2:2010

Description of the tested sample: Partition ceramic brick wall with cavities Wienerberger Porotherm N + F with dimensions 375/250/238 mm, double-sided with 15 mm gypsum mortar;

The test sample is installed by: the contractor's specialists under the supervision of a test laboratory specialist.

Area of test sample: 10,92 m²
 Mass per unit area: 223.5 kg/m²
 Air temperature in test rooms: 19 °C
 Air humidity in the test rooms: 80 %
 Volume of the source room: 170 m³
 Volume of receiver room: 119 m³

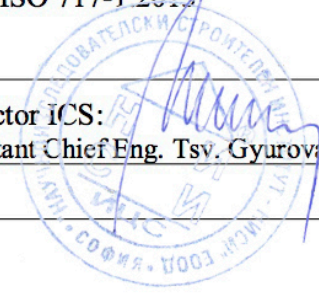
f, Hz	R, dB
50	-
63	-
80	-
100	34,0
125	35,5
160	34,3
200	38,9
250	38,6
315	38,8
400	42,1
500	43,8
630	45,4
800	46,4
1000	49,1
1250	50,8
1600	52,6
2000	52,8
2500	53,5
3150	53,4
4000	-
5000	-



Weighted airborne sound reduction index according to BDS EN ISO 717-1:2012

$R_w(C;C_{tr}) = 47 (-1;-3) \text{ dB}$

Test performed by: *K. Glushkova* Head laboratory: *K. Glushkova* Director ICS: *Tsv. Gyurova*
 Assistant Chief Eng. K. Glushkova Assistant Chief Eng. K. Glushkova Assistant Chief Eng. Tsv. Gyurova



Airborne sound reduction

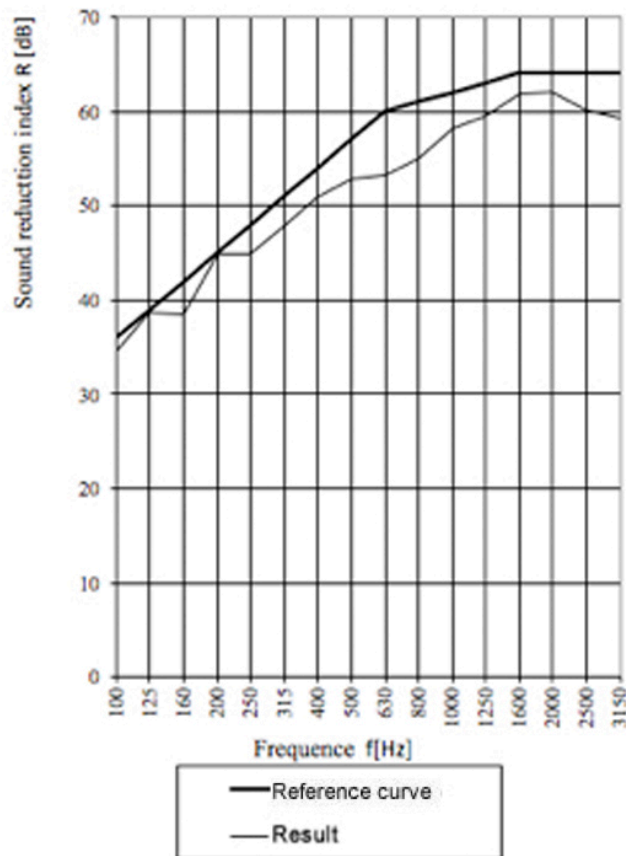
measured in test rooms for the determination of sound insulation of enclosing structures according to BDS EN ISO 10140-2:2010

Description of the tested sample: Partition ceramic brick wall with cavities Wienerberger Porotherm N + F with dimensions 375/250/238 mm, double-sided with 15 mm gypsum mortar; one-sided cladding with soundproofing system for wall "DECIBEL MUTE 23" and one layer of GKB 12.5 mm plasterboard.

The test sample is installed by: the contractor's specialists under the supervision of a test laboratory specialist.

Area of test sample: 10,92 m²
 Mass per unit area: 238.6 kg/m²
 Air temperature in test rooms: 18 °C
 Air humidity in the test rooms: 85 %
 Volume of the source room: 170 m³
 Volume of receiver room: 119 m³

f, Hz	R, dB
50	-
63	-
80	-
100	34,5
125	38,7
160	38,5
200	44,8
250	45,0
315	47,9
400	49,0
500	51,0
630	52,9
800	53,1
1000	54,9
1250	58,1
1600	59,5
2000	61,8
2500	62,1
3150	60,2
4000	-
5000	-



Weighted airborne sound reduction index according to BDS EN ISO 717-1:2013

$R_w(C;C_{tr}) = 55 (-1;-5) \text{ dB}$

Test performed by: *K. Glushkova*
 Assistant Chief Eng. K. Glushkova

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Director ICS: *Tsv. Gyurova*
 Assistant Chief Eng. Tsv. Gyurova



Airborne sound reduction

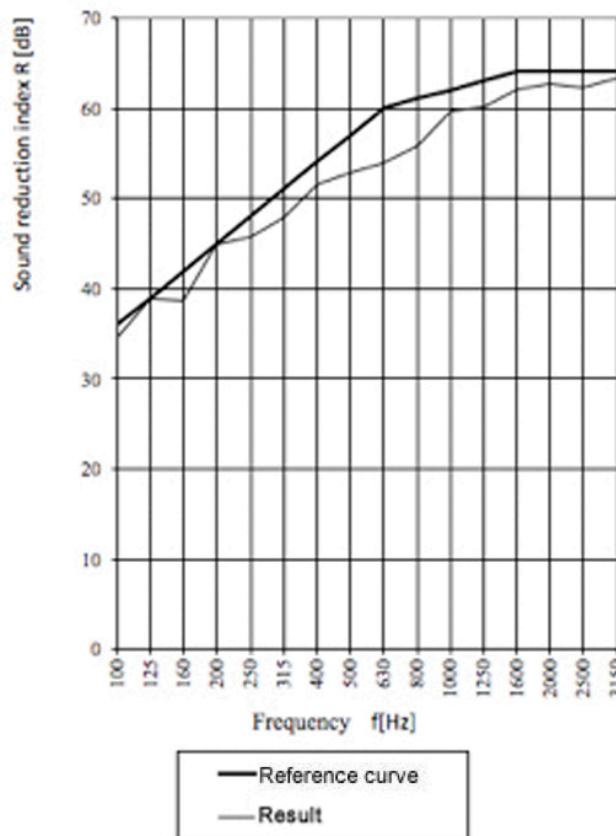
measured in test rooms for the determination of sound insulation of enclosing structures according to BDS EN ISO 10140-2:2010

Description of the tested sample: Partition ceramic brick wall with cavities Wienerberger Porotherm N + F with dimensions 375/250/238 mm, double-sided with 15 mm gypsum mortar; one-sided cladding with soundproofing system for wall "DECIBEL MUTE 23" and one layer of GKB 12.5 mm plasterboard and filled gaps and joints with acoustic mastic DCIant.

The test sample is installed by: the contractor's specialists under the supervision of a test laboratory specialist.

Area of test sample: 10,92 m²
 Mass per unit area: 239.3 kg/m²
 Air temperature in test rooms: 18 °C
 Air humidity in the test rooms: 85 %
 Volume of the source room: 170 m³
 Volume of receiver room: 119 m³

f, Hz	R, dB
50	-
63	-
80	-
100	34,5
125	38,8
160	38,7
200	44,9
250	45,7
315	47,9
400	51,6
500	52,9
630	53,9
800	55,9
1000	59,7
1250	60,1
1600	62,0
2000	62,8
2500	62,2
3150	63,4
4000	-
5000	-



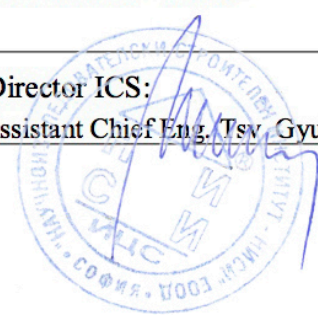
Weighted airborne sound reduction index according to BDS EN ISO 717-1:2013

$R_w(C;C_{tr}) = 56 (-1;-6) \text{ dB}$

Test performed by: *K. Glushkova*
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Head laboratory: *K. Glushkova*
 Assistant Chief Eng. K. Glushkova

Director ICS: *Tsv. Gyurova*
 Assistant Chief Eng. Tsv. Gyurova



Airborne sound reduction

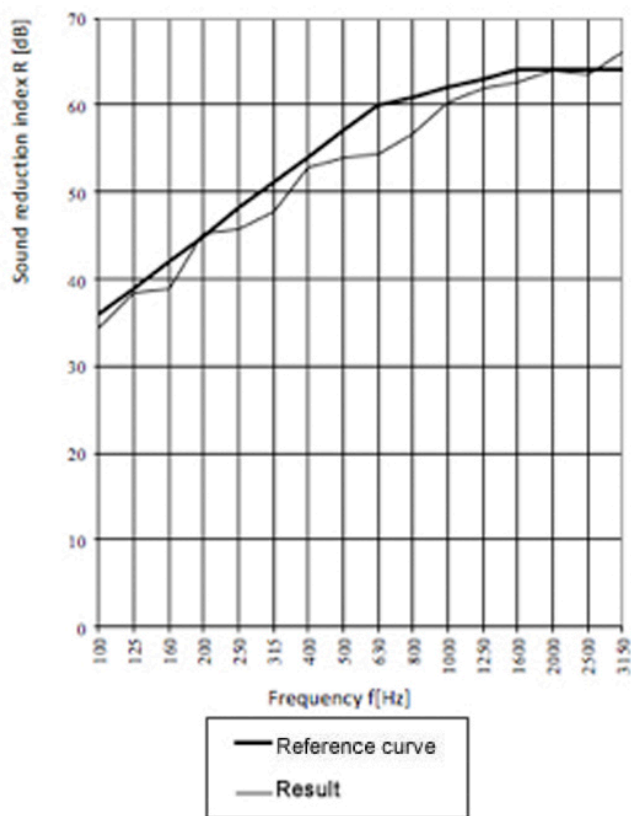
measured in test rooms for the determination of sound insulation of enclosing structures according to BDS EN ISO 10140-2:2010

Description of the tested sample: Partition ceramic brick wall with cavities Wienerberger Porotherm N + F with dimensions 375/250/238 mm, double-sided with 15 mm gypsum mortar; one-sided cladding with soundproofing system for wall "DECIBEL MUTE 23" and one layer of GKB 12.5 mm plasterboard, filled gaps and joints with acoustic mastic DClant and embossing the perimeter of the wall with DCstript.

The test sample is installed by: the contractor's specialists under the supervision of a test laboratory specialist.

Area of test sample: 10,92 m²
 Mass per unit area: 239.3 kg/m²
 Air temperature in test rooms: 18 °C
 Air humidity in the test rooms: 85 %
 Volume of the source room: 170 m³
 Volume of receiver room: 119 m³

f, Hz	R, dB
50	-
63	-
80	-
100	34,2
125	38,4
160	38,8
200	45,3
250	45,8
315	47,7
400	52,8
500	54,0
630	54,3
800	56,6
1000	60,3
1250	62,0
1600	62,6
2000	63,9
2500	63,5
3150	66,0
4000	-
5000	-



Weighted airborne sound reduction index according to BDS EN ISO 717-1:2013

R_w(C;C_{tr}) = 57 (-2;-6) dB

Test performed by: *[Signature]*
 Assistant Chief Eng. K.Glushkova

Head laboratory: *[Signature]*
 Assistant Chief Eng. K.Glushkova

Director ICS:
 Assistant Chief Eng. Tsv. Gyurova



Airborne sound reduction

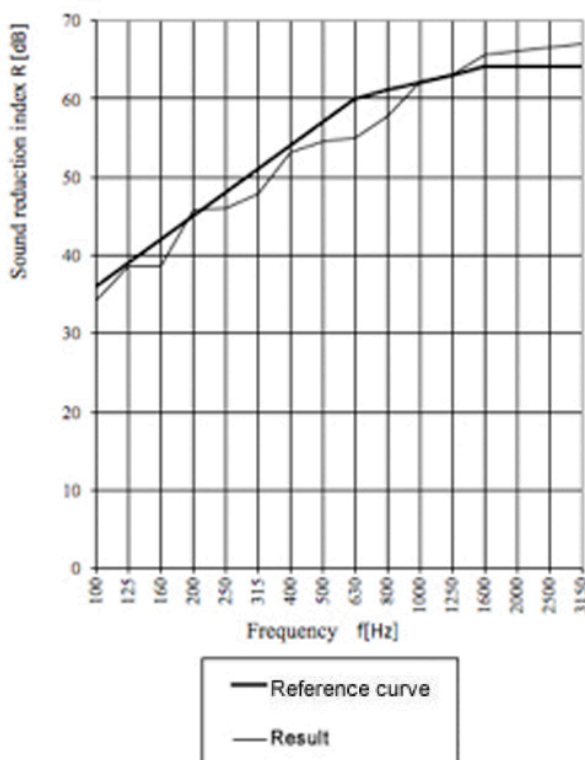
measured in test rooms for the determination of sound insulation of enclosing structures according to BDS EN ISO 10140-2:2010

Description of the tested sample: Partition ceramic brick wall with cavities Wienerberger Porotherm N + F with dimensions 375/250/238 mm, double-sided with 15 mm gypsum mortar; one-sided cladding with soundproofing system for wall "DECIBEL MUTE 23", Visco-elastic membrane Decibel Visco, one layer of GKB 12.5 mm plasterboard, filled gaps and joints with acoustic mastic DCIant and embossing the perimeter of the wall with DCstript.

The test sample is installed by: the contractor's specialists under the supervision of a test laboratory specialist.

Area of test sample: 10,92 m²
 Mass per unit area: 242.8 kg/m²
 Air temperature in test rooms: 18 C
 Air humidity in the test rooms: 85 %
 Volume of the source room: 170 m³
 Volume of receiver room: 119 m³

f, Hz	R, dB
50	-
63	-
80	-
100	34,2
125	38,6
160	38,5
200	45,7
250	46,0
315	47,9
400	53,2
500	54,5
630	55,0
800	57,7
1000	62,1
1250	63,1
1600	65,5
2000	66,0
2500	66,5
3150	67,0
4000	-
5000	-



Weighted airborne sound reduction index according to BDS EN ISO 717-1:2013

$R_w(C;C_{tr}) = 59 (-2;-7) \text{ dB}$

Test performed by: *K. Glushkova*
 Assistant Chief Eng. K. Glushkova


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 Assistant Chief Eng. Tsv. Gyurova



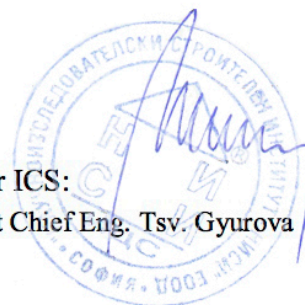
Test results:

Row №	Airborne noise insulation and weighted noise index, R_w (C ; C_{tr}) of the tested products	Measuring unit	Testing method	№ and identification of the sample	Result of testing, uncertainty	Values and tolerance of the characteristics	Conditions of examination
1	2	3	4	5	6	7	8
1	Partition ceramic brick wall with cavities Wienerberger Porotherm N + F with dimensions 375/250/238 mm, double-sided with 15 mm gypsum mortar	dB	BDS EN ISO 10140-2:2010	184	47 (-1; -3)	Not declared by the manufacturer	Standart
2	Partition ceramic brick wall with cavities Wienerberger Porotherm N + F with dimensions 375/250/238 mm, double-sided with 15 mm gypsum mortar; one-sided cladding with soundproofing system for wall "DECIBEL MUTE 23" and one layer of GKB 12.5 mm plasterboard.	dB	BDS EN ISO 10140-2:2010	185	55 (-1; -5)	Not declared by the manufacturer	Standart
3	Partition ceramic brick wall with cavities Wienerberger Porotherm N + F with dimensions 375/250/238 mm, double-sided with 15 mm gypsum mortar; one-sided cladding with soundproofing system for wall "DECIBEL MUTE 23" and one layer of GKB 12.5 mm plasterboard and filled gaps and joints with acoustic mastic DClant.	dB	BDS EN ISO 10140-2:2010	186	56 (-1; -6)	Not declared by the manufacturer	Standart
4	Partition ceramic brick wall with cavities Wienerberger Porotherm N + F with dimensions 375/250/238 mm, double-sided with 15 mm gypsum mortar; one-sided cladding with soundproofing system for wall "DECIBEL MUTE 23" and one layer of GKB 12.5 mm plasterboard, filled gaps and joints with acoustic mastic DClant and embossing the perimeter of the wall with DCstript.	dB	BDS EN ISO 10140-2:2010	187	57 (-2; -6)	Not declared by the manufacturer	Standart
5	Partition ceramic brick wall with cavities Wienerberger Porotherm N + F with dimensions 375/250/238 mm, double-sided with 15 mm gypsum mortar; one-sided cladding with soundproofing system for wall "DECIBEL MUTE 23", Visco-elastic membrane Decibel Visco, one layer of GKB 12.5 mm plasterboard, filled gaps and joints with acoustic mastic DClant and embossing the perimeter of the wall with DCstript.	dB	BDS EN ISO 10140-2:2010	188	59 (-2; -7)	Not declared by the manufacturer	Standart

Test performed by: 
Assistant Chief Eng. K. Glushkova

Head laboratory: 
Assistant Chief Eng. K. Glushkova

Director ICS: 
Assistant Chief Eng. Tsv. Gyurova



Note:

1. An integral part of the test report is attachment 1 with detailed test data.
2. The measurement was carried out with acoustic equipment of the Bruel and Kaer company - Denmark:
 - sound calibrator type 4230 - calibration certificate № 267-EIA / 18.12.2012
 - Microphone type 4943 - calibration certificate № 269-EIA / 18.12.2012;
 - Building acoustics analyzer type 2250;
 - Microphone preamplifier type 2734;
 - noise source type 4229;

Head laboratory "Cph":
(Assistant Chief Eng. K.Glushkova)

Director ICS:
(Assistant Chief Eng. Tsv. Gyurova)



Test performed by:
Assistant Chief Eng. K.Glushkova