9012-7558-2310-1331

TEST REPORT

1. NO : CT22-070400E
2. Client
   - ○ Name : GreenSystemDoor.CORP
   - ○ Address : 157, Songsuk-ro, Maesong-myeon, Hwaseong-si, Gyeonggi-do, Republic of Korea
3. Date of Test : 2022.07.19 ~ 2022.08.22
4. Use of Report : Quality Control
5. Test Sample : Greendoor-3
6. Test Method
   (1) KS F 2862:2017
7. Test Results

1) Greendoor-3

Test Item(s)	Unit	Test Method	Test Results	Remark	Loc.
$R_w(C;C_{tr})$	dB	(1)	36(-1;-4)	(29 ± 1) ℃, (69 ± 3) % R.H.	A

※ R_w is weighted sound reduction index, $C;C_{tr}$ is spectrum adaptation terms
※ The drawings of the test specimen was presented by client. And it may be different from information of specimen.
※ Location
A : 73, Yangcheong 3-gil, Ochang-eup, Cheongwon-gu, Cheongju-si, Chungbuk, Korea

Affirmation	Tested By Name : Soyoung Kim	Technical Manager Name : Yong Jin Yoon

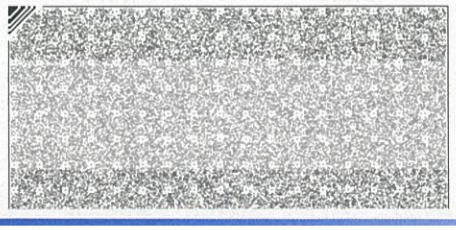
This report is related with KOLAS and KS Q ISO/IEC 17025.
Our report apply only to the standards or procedures identified and to the sample(s) tested unless otherwise specified. The test results are not indicative of representative of the qualities of the lot from which the sample was taken or of apparently identical or similar products. The results of using only a portion of this report cannot be guaranteed. The authenticity of this test report can be checked on KCL website(www.kcl.re.kr).

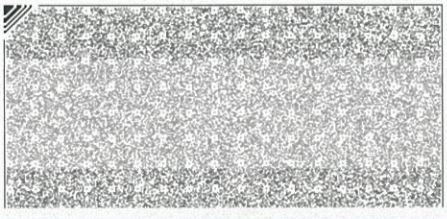
The above test report provides test result(s) under the scope accredited by Korea Laboratory Accreditation Scheme (KOLAS), which signed the ILAC-MRA.

2022.08.22

Korea Conformity Laboratories President Jo, Yung Tae

Accredited by KOLAS, Republic of KOREA





TEST REPORT

No :CT22-070400E

Description	Contents	
Date of test	2022-08-02	
Introduction	The sound reduction index of Greendoor-3 from GreenSystemDoor.CORP were measured in one-third octave band from 100 Hz to 5 000 Hz for rating weighted sound reduction index according to KS F 2862:2017 (Rating of airborne sound insulation in buildings and of building elements). The test was conducted in accordance with KS F ISO 10140-2:2010 (Acoustics - Laboratory measurement of sound insulation of building elements - Part2: Measurement of airborne sound insulation).	
Test specimen	o area : width 908 ㎜ × height 2 078 ㎜ (area 1.89 ㎡) o unit size : width 900 ㎜ × length 2 100 ㎜ × thickness 60 ㎜ o specification : refer to drawings from client o The specimen was fixed inside the opening and finished with sealant after installing the high performance sound insulation wall. ▷ filler wall : GB 9.5 ㎜ 3P + Air 60 ㎜ (GW 24 ㎏/㎥ 50 ㎜) + GB 9.5 ㎜ 2P + Air 60 ㎜ (GW 24 ㎏/㎥ 50 ㎜) + GB 9.5 ㎜ 2P + GW 24 ㎏/㎥ 50 ㎜ + Air 60 ㎜ + GB 9.5 ㎜ 3P (GB : Gypsumboard, GW : Glasswool)	
Test equipment	Sound insulation test rooms	Structure : RC (wall thickness : 250 ㎜) Standard : ISO 10140-5 Type Source Room Volume : 51.54 ㎥ Receiving Room Volume : 57.02 ㎥
	Real time analyzer	PAK MK II, MÜLLER-BBM, Germany
	1/2" Condencer microphone set	46AE, G.R.A.S., Denmark
	Sound level calibrator	Cal-02, 01dB, France
	Power amplifier	CONA V2-5000, Inter-M, Korea
	Loudspeaker	D012, FALM, Germany SRX 725, JBL, U.S.A.
	Control PC	Workstation Xeon 4, HP, U.S.A.

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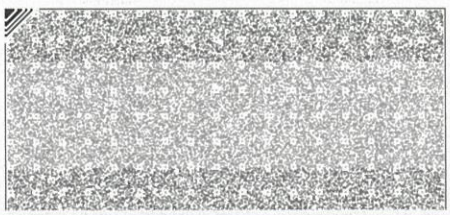

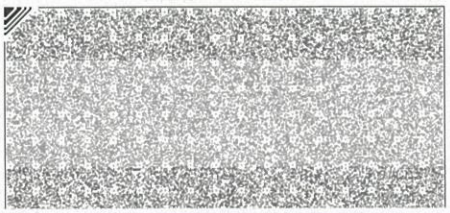

TEST REPORT

No :CT22-070400E

Description	Contents
Test method	**Sound Reduction Index** The sound reduction indexes were calculated with the level difference between two rooms and equivalent sound absorption area of receiving room in accordance with formula in KS F ISO 10140-2:2010(Acoustics - Laboratory measurement of sound insulation of building elements - Part2: Measurement of airborne sound insulation). **A. Measurement of the average sound pressure level in the test rooms** The measurements of the average sound pressure level (L) shall be made with five different microphone positions which are at least 0.7 m apart, 1.0 m from any sound source and 0.7 m from any room boundary and diffuser. $$L = 10\log\left(\frac{1}{n}\sum_{i=1}^{n} 10^{L_i/10}\right)$$ where L_i is the sound pressure level at ith fixed measurement point, in dB n is the number of the fixed measurement points **B. Measurement of the equivalent sound absorption area** The equivalent sound absorption area shall be measured by sound interruption method with more than three receiving points and one sound source in the receiving room. $$A = \frac{0.16V}{T}$$ where A is the equivalent sound absorption area in the receiving room(㎡) V is the volume of the receiving room (㎥) T is the reverberation time in the receiving room (s) **C. Calculation of the sound reduction index** The sound reduction index (R) is calculated using the level difference of two rooms and the absorption area of receiving room. $$R = L_1 - L_2 + 10\log\left(\frac{S}{A}\right)$$ where L_1 is the energy average sound pressure level in the source room(dB) L_2 is the energy average sound pressure level in the receiving room(dB) S is the area of the free test opening in which the test element is installed(㎡) A is the equivalent sound absorption area in the receiving room(㎡)

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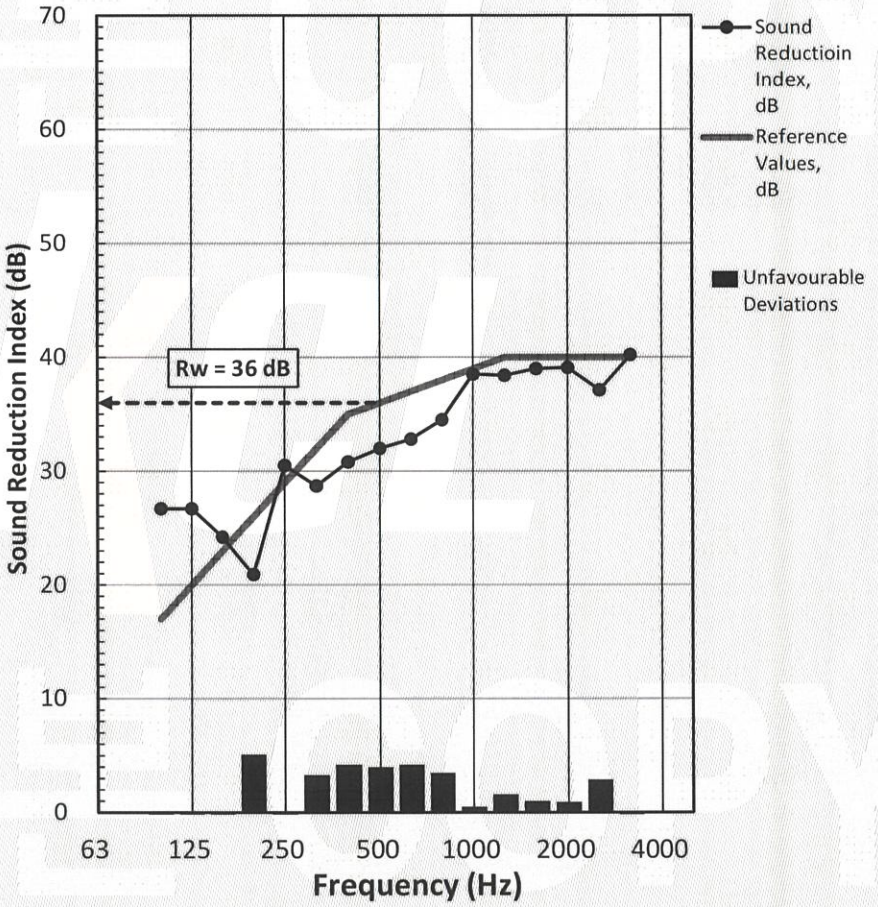
TEST REPORT

No :CT22-070400E

Test result			
Test	Sound reduction index measurement	Air Temperature	(29 ± 1) ℃
Test method	KS F ISO 10140-2:2010	Relative humidity	(69 ± 3) % R.H.
Date	2022-08-02	Static pressure	(99.9 ± 0.1) kPa
Client	GreenSystemDoor.CORP	Specimen	Greendoor-3

Frequency (Hz)	Sound reduction index (dB)
100	26.7
125	26.7
160	24.2
200	20.9
250	30.5
315	28.7
400	30.8
500	32.0
630	32.8
800	34.5
1 000	38.5
1 250	38.4
1 600	39.0
2 000	39.1
2 500	37.1
3 150	40.2
4 000	41.3
5 000	41.1
$R_w(C;C_{tr})$	36(-1;-4)



※ R_w is weighted sound reduction index, $C;C_{tr}$ is spectrum adaptation terms (KS F 2862)

o area : width 908 mm × height 2 078 mm (area 1.89 ㎡)
o unit size : width 900 mm × length 2 100 mm × thickness 60 mm
o specification : refer to drawings from client
o The specimen was fixed inside the opening and finished with sealant after installing the high performance sound insulation wall.

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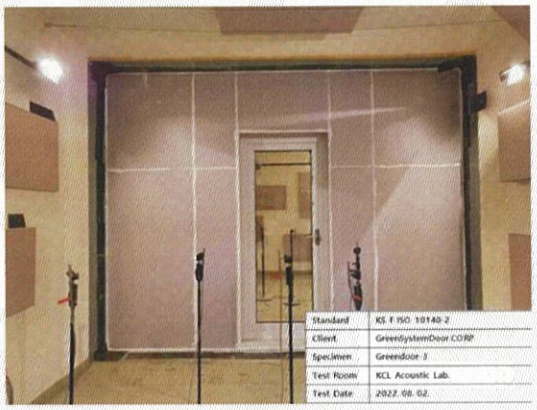
No :CT22-070400E

Test set-up images and drawing



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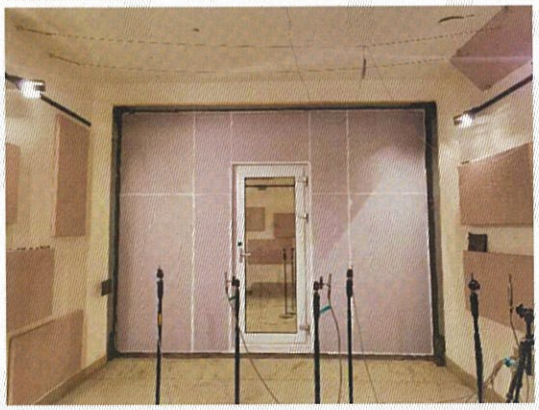

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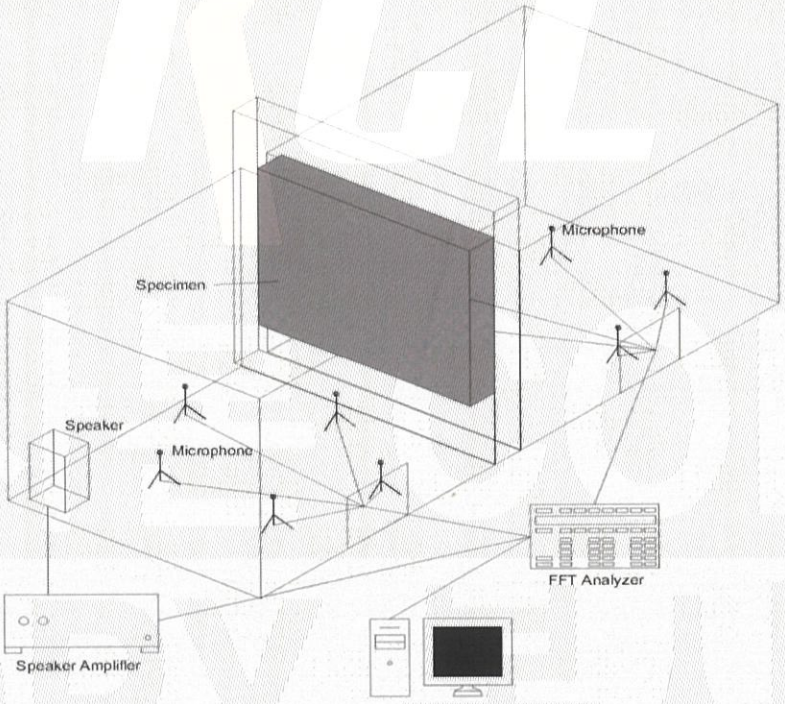
< Sound reduction test >



< Diagram of test set-up >

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TEST REPORT

No :CT22-070400E

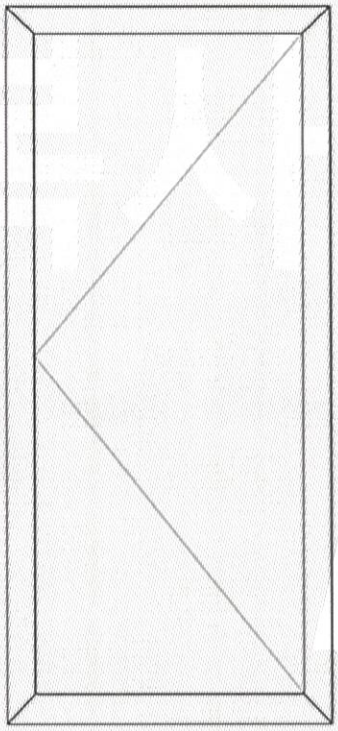
Drawings of specimen from client

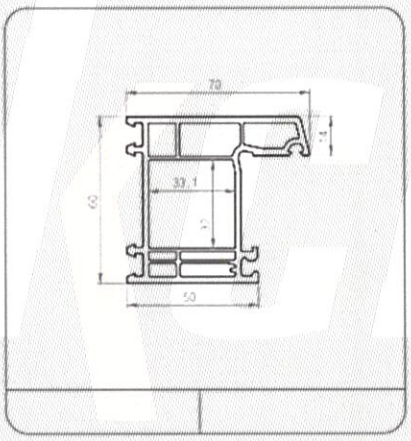
Company Name : GreensystemDoor CORP
Address 157 Songsuk-ro,Hwaseong-si,
Gyeonggi-do
TEL: 031-227-9798
FAX: 031-295-9798

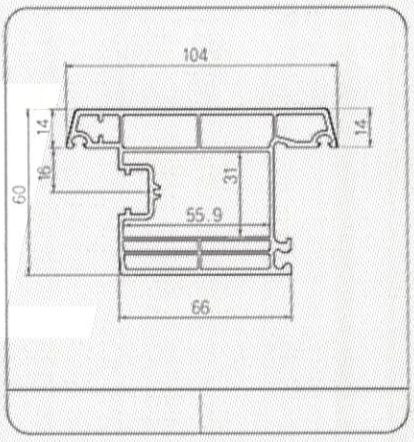
Pofile : uPVC, black

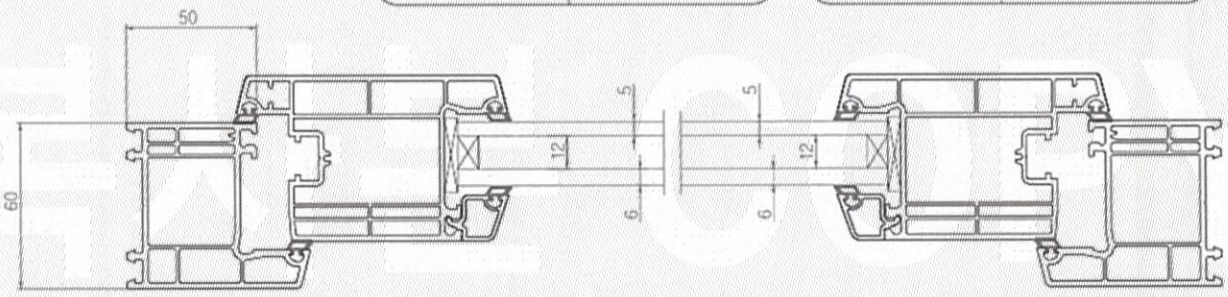
Size : 900mm * 2100mm

Glass : 23[6CL+12A(Aluminum spacer bar)+5CL]









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