



**CONFIDENTIAL**

**TEST REPORT ON  
 DETERMINATION OF AIRBORNE SOUND TRANSMISSION LOSS OF  
 PVC-U DOOR AND WINDOW SYSTEM MADE WITH VEKA PROFILES**

**NVH/3100008685/2020-21/1459**

**7<sup>th</sup> January 2021**

- 1.0 CUSTOMER NAME :** Alfa Acoustics  
 Plot no.5, Swami Vivekanand Soc.  
 Chinchwad, Pune -411033  
 Maharashtra.
- 2.0 LETTER REF. :** E-mail dated 30 December 2020
- 3.0 TEST COMPONENT :** Details for PVC-U door and window system made with VEKA profiles given by customer:

PVC-U door and window system made with VEKA profiles comprising of 6 mm float glass door with its frame of size 1985 mm × 800 mm and 6 mm float glass sliding window with frame of size 1200 mm × 1000 mm also 6 mm float glass fixed partition of size 2000 mm x 357 mm.

Test Window Manufacturer / Supplier - NCL VEKA LIMITED, 1st Floor, Fairfield by Marriot, Hyderabad, Telangana - 500 032

Please refer Annexure 1 for drawing and details of the above mentioned system.

- 4.0 TEST REQUIREMENTS :**  
 Measurement of sound transmission loss of above mentioned test system as per ISO 10140-2 / ASTM E-90 and determination of sound transmission class (STC) as per ASTM E-413 and weighted sound reduction index  $R_w$  ( $C$ ;  $C_{tr}$ ) with spectrum adaptation terms as per ISO 717-1.

- 5.0 TEST PROCEDURE :**  
 The above mentioned test system was installed in the wall between two reverberation chambers and sealed all around at edges. Please refer figure 1 for test set up and mounting of system. The airborne sound transmission loss test was carried out three times on same system in a reverberation chambers as per ISO 10140-2 /ASTM E-90 standard at temperature  $25^{\circ}\text{C} \pm 1^{\circ}\text{C}$  and humidity 65%.

- 6.0 DATE OF EVALUATION :**  
 Test was carried out on above mentioned test system on 6<sup>th</sup> January 2021 at NVH laboratory, ARAI-Pune.



NVH/3100008685/2020-21/1459

7<sup>th</sup> January 2021

**7.0 INSTRUMENTATION**

Sr. No	Instrument Name	Type / Model No	Make	Calibrated on	Calibration due on
1	Multi-channel Data Acquisition System	3560 D	Bruel & Kjaer, Denmark	5-Aug-20	5-Aug-21
2	½" Random Incidence Microphone	378B20	PCB, USA	5-Aug-20	5-Aug-21
3	Power Amplifier	2716	Bruel & Kjaer, Denmark	It does not require separate calibration as it is driven by data acquisition system	
4	Omni directionnel sound source	Omni power 4296	Bruel & Kjaer, Denmark		
5	Reverberation Chambers	80 m <sup>3</sup> and 110 m <sup>3</sup>	-	-	-

**8.0 TEST RESULTS**

Table 1 and figure 2 shows the average values and plot of airborne sound transmission loss of PVC-U door and window system made with VEKA profiles comprising of 6 mm float glass door with its frame of size 1985 mm × 800 mm and 6 mm float glass sliding window with frame of size 1200 mm × 1000 mm also 6 mm float glass fixed partition of size 2000 mm x 357 mm in the one-third octave frequency bands of 100 Hz to 8000 Hz, STC (sound transmission class), and R<sub>w</sub> (C<sub>100-5000</sub>; C<sub>tr100-5000</sub>) (weighted sound reduction index and spectrum adaptation terms).

**9.0 CONCLUSIONS**

The sound transmission class (STC) is calculated as per ASTM E- 413 and weighted sound reduction index with spectrum adaptation terms R <sub>w</sub> (C <sub>100-5000</sub> ; C <sub>tr100-5000</sub> ) is calculated as per ISO 717-1 for PVC-U door and window system made with VEKA profiles comprising of 6 mm float glass door with its frame of size 1985 mm × 800 mm and 6 mm float glass sliding window with frame of size 1200 mm × 1000 mm also 6 mm float glass fixed partition of size 2000 mm x 357 mm	
Sound transmission class (STC)	26 dB
Weighted sound reduction index with spectrum adaptation terms R <sub>w</sub> (C <sub>100-5000</sub> ; C <sub>tr100-5000</sub> )	26(0;-1) dB

Report Prepared By:

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Approved By:

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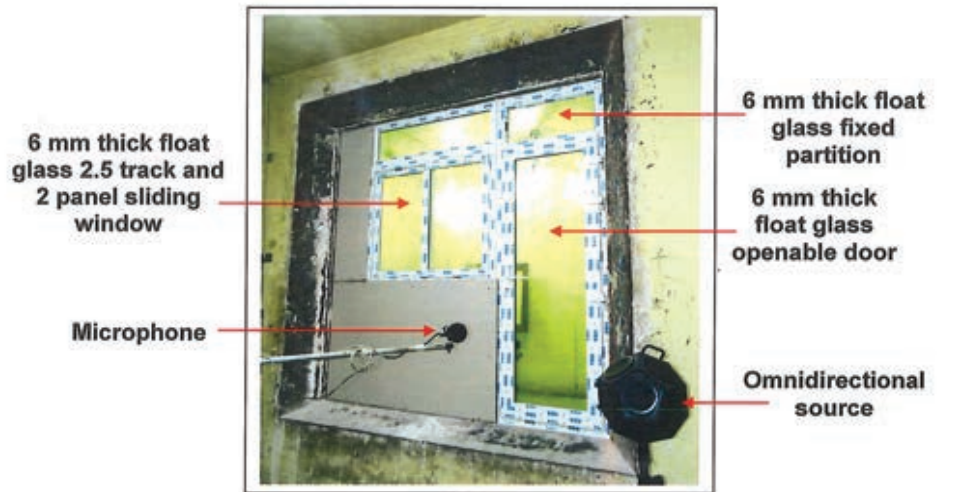
This test report pertains only to the systems actually tested at ARAI in the presented condition. The issuing of this test report does not indicate any measure of approval, certification, supervision, control of quality surveillance by ARAI of any product. No extract, abridgement or abstraction from this test report be published or used to advertise the product without the written consent of the Director, ARAI, who reserves the absolute right to agree or reject all or any of the details of any items of publicity for which consent may be sought.



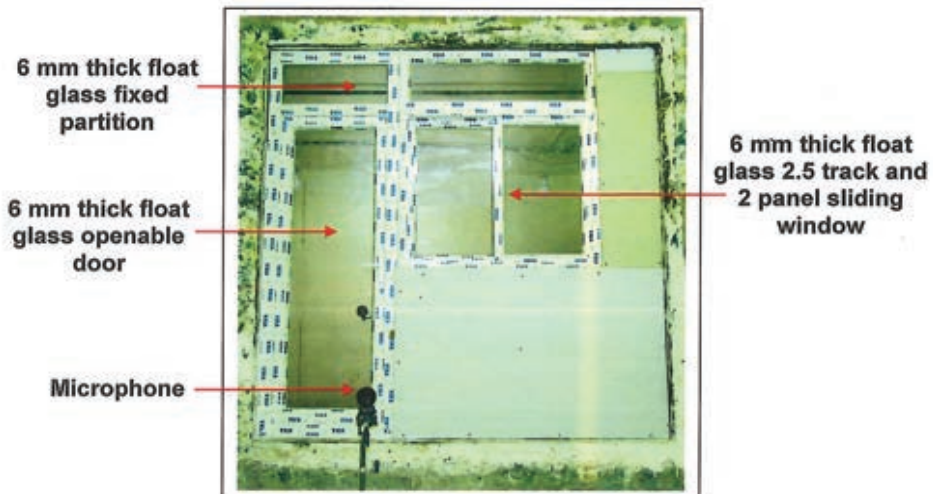


NVH/3100008685/2020-21/1459

7<sup>th</sup> January 2021



**Source Room**



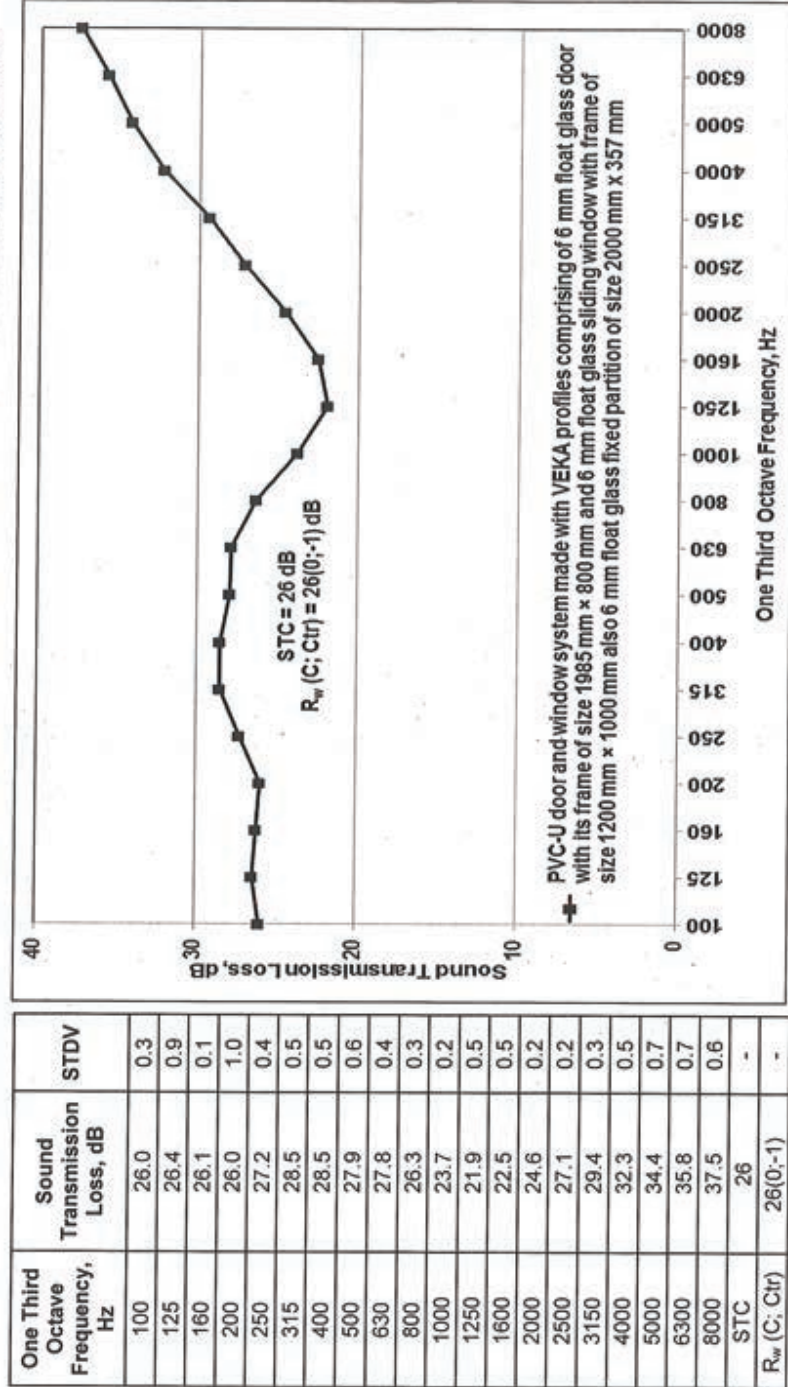
**Receiver Room**

**Figure 1: The test set up for mounting of PVC-U door and window system made with VEKA profiles between two reverberation chambers**

7<sup>th</sup> January 2021

NVH/3100008685/2020-21/1459

Table 1 and Figure 2: Values and plot for Sound Transmission Loss of PVC-U door and window system made with VEKA profiles comprising of 6 mm float glass door with its frame of size 1985 mm x 800 mm and 6 mm float glass sliding window with frame of size 1200 mm x 1000 mm also 6 mm float glass fixed partition of size 2000 mm x 357 mm at one third octave frequencies

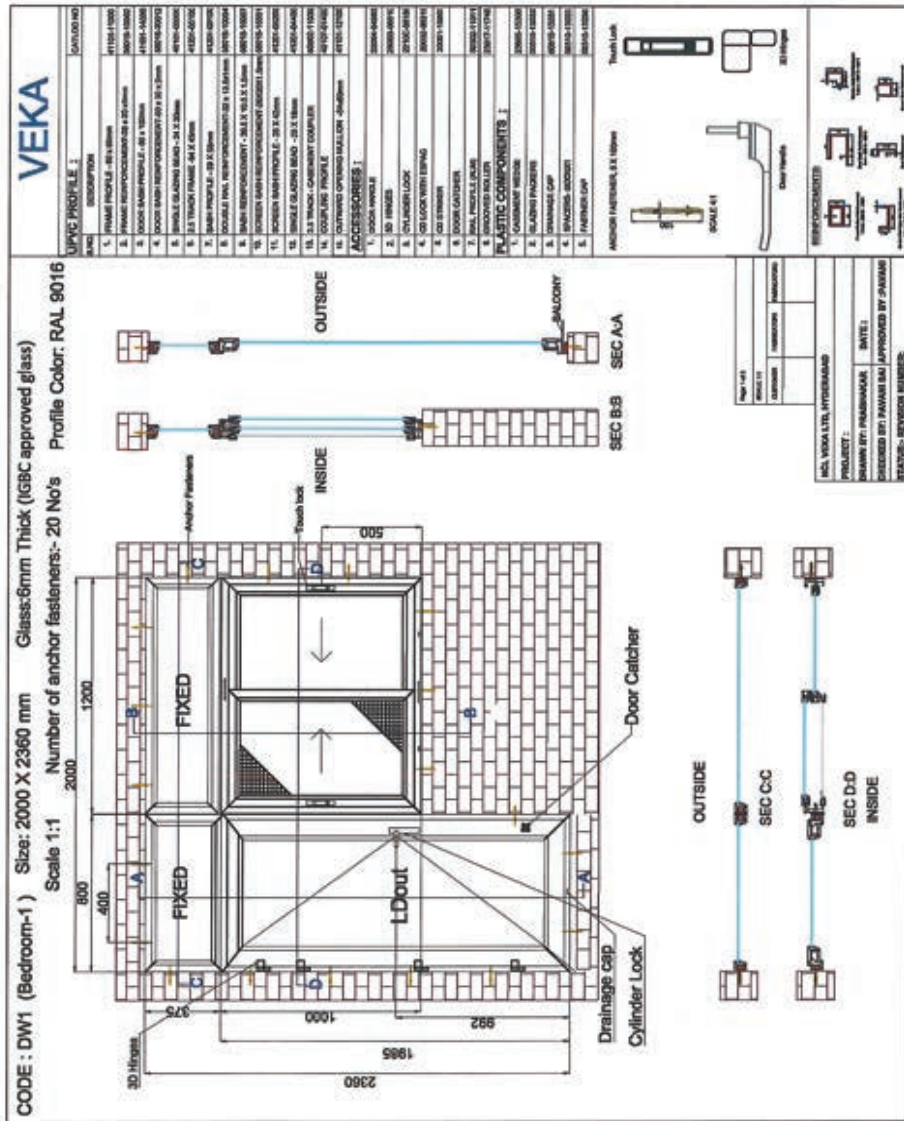


Page 4 of 6

NVH/3100008685/2020-21/1459

Annexure 1

7th January 2021





NVH/310000/2020-21/1459

7<sup>th</sup> January 2021

