



CONFIDENTIAL

**TEST REPORT ON DETERMINATION OF
RANDOM INCIDENCE SOUND ABSORPTION COEFFICIENT OF
PLUSH SHAPES SAMPLE OF 35 MM THICKNESS**

ULR-TC508524050000202F
NVH/3100021196/2024-25/0202

19th July 2024

- 1.0 CUSTOMER NAME** : SENSES AKUSTIK PRIVATE LIMITED
Plot No.102, New GIDC,
Gundlav, Valsad, Gujarat - 396035
- 2.0 LETTER REF.** : E-mail dated 17th June 2024
- 3.0 TEST COMPONENT DETAILS** : Test sample details given by customer is as follows:
3.1 Sample Name : Plush Shapes sample
3.2 Sample Composition : Base – Plywood- 8 mm thick & Acoustic foam-
27 mm thick + Finish - Fabrics
3.3 Total GSM : 5500 (Measured at ARAI)
3.4 Total Thickness : 35 mm
3.5 Total sample received and tested : 16 Nos.
3.7 Date of receipt of sample : 12th July 2024
- 4.0 TEST REQUIREMENTS** :
Measurement of random incidence sound absorption coefficient on above mentioned test sample as per ASTM C-423 / ISO 354 in reverberation chamber.
- 5.0 TEST PROCEDURE** :
The random incidence sound absorption coefficient measurement was carried out on above mentioned test sample as per ASTM C-423 / ISO 354 in reverberation chamber. The test sample of different size was directly placed on the floor with type A mounting. Please refer figure 1 for test set up and test component details. The random incidence sound absorption coefficient test was carried out three times on same sample in reverberation chamber and average value reported. The measurement was carried out at temperature 25⁰C ± 1⁰C, humidity 48% and barometric pressure 937 mbar.
- 6.0 DATE OF EVALUATION** :
The random incidence sound absorption coefficient measurement was carried out on above mentioned test samples on 18th July 2024.

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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	04-Aug-23	04-Aug-24
2	½" Random Incidence Microphone	378C20	PCB, USA	04-Aug-23	04-Aug-24
3	Power Amplifier	2716	Bruel & Kjaer, Denmark	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 room	80 m ³ and 110 m ³	-	-	-

8.0 TEST RESULTS :


Table 1 and figure 2 shows the average values and plot for random incidence sound absorption coefficient Plush Shapes sample consist of Base - Plywood & Acoustic foam + Finish – Fabrics, total 5500 GSM and 35 mm thickness in the frequency range of 100 Hz to 5000 Hz.

9.0 CONCLUSIONS :

The Noise Reduction Coefficient (NRC) is given by the average value of sound absorption coefficient at 250 Hz, 500 Hz, 1000 Hz and 2000 Hz is calculated as per ASTM C- 423.

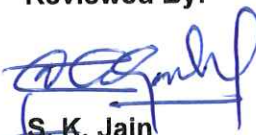
The weighted sound absorption coefficient (α_w) and sound absorption class are calculated as per ISO 11654 are given below:

Plush Shapes sample consist of Base - Plywood & Acoustic foam + Finish – Fabrics, total 5500 GSM and 35 mm thickness	
Noise Reduction Coefficient (NRC)	0.85
Weighted Sound Absorption Coefficient (α_w)	0.70
Sound Absorption Class	Class C

Tested and Report Prepared By:

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Dy. Manager

Reviewed By:

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Dy. General Manager

Reviewed By:

S. K. Jain
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Approved By:

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Sr. Dy. Director & HOD

This test report pertains only to the samples 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.



TC-5085

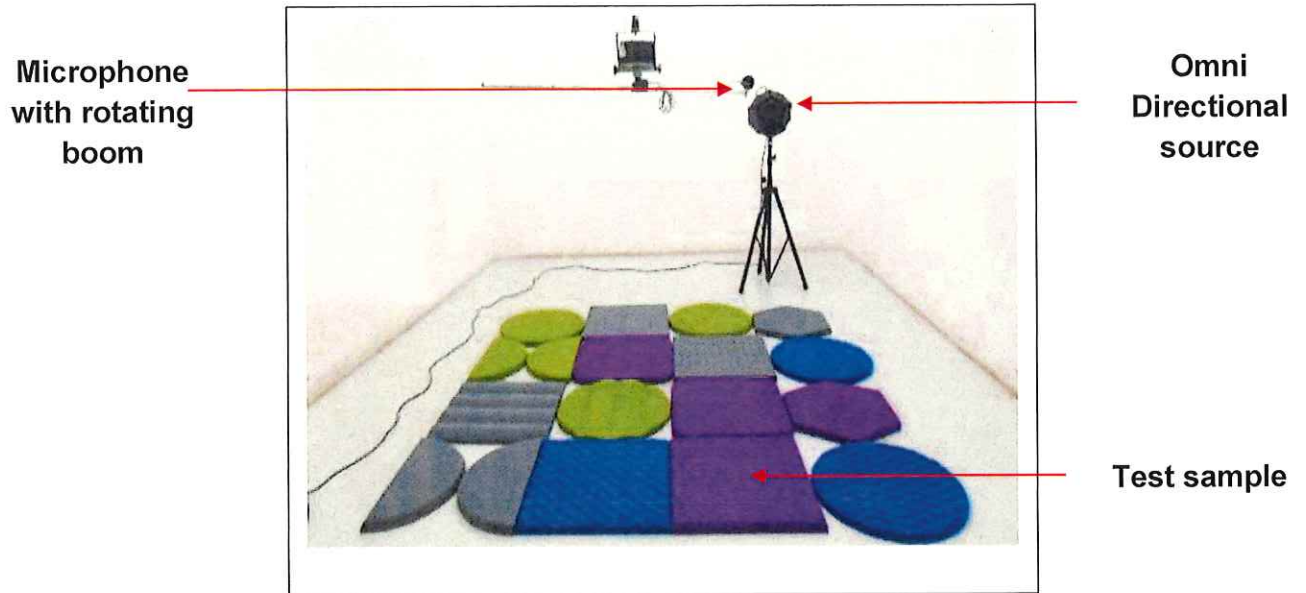


Figure 1: Test set up for mounting and testing Plush Shapes sample of 35 mm thickness in reverberation chamber

Table 1 and Figure 2: Values and plot for random incidence sound absorption coefficient of Plush Shapes sample consist of Base - Plywood & Acoustic foam + Finish - Fabrics, total 5500 GSM and 35 mm thickness tested at one third octave frequencies

One third octave frequency, Hz	Random Incidence Sound Absorption Coefficient (-)	Standard Deviation
100	0.05	0.02
125	0.07	0.03
160	0.18	0.01
200	0.27	0.02
250	0.39	0.03
315	0.56	0.02
400	0.68	0.01
500	0.95	0.05
630	1.00	0.01
800	1.11	0.00
1000	1.10	0.00
1250	1.14	0.01
1600	1.09	0.02
2000	1.05	0.01
2500	1.03	0.02
3150	1.01	0.01
4000	1.01	0.01
5000	0.99	0.01

