CONFIDENTIAL

TEST REPORT ON DETERMINATION OF RANDOM INCIDENCE SOUND ABSORPTION COEFFICIENT OF BREEZE SAMPLE OF 40 MM THICKNESS

ULR-TC508524050000201F
NVH/3100021196/2024-25/0201

17th 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	:	Breeze sample
3.2	Sample Composition	:	Base – Plywood- 8 mm thick & Acoustic foam- 32 mm thick + Finish - Fabrics
3.3	Total GSM	:	8660 (Measured at ARAI)
3.4	Total Thickness	:	40 mm
3.5	Size of one sample	:	1070 mm X 1070 mm X 330 mm
3.6	Total sample received and tested	:	6 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 computed by hanging 6 nos. of above-mentioned test sample at a height of 1 m from ceiling as per ASTM C-423 / ISO 354 in reverberation chamber. 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 $25^0C \pm 1^0C$, 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 16th 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 of Breeze sample consist of Base - Plywood & Acoustic foam + Finish - Fabrics, total 8660 GSM and 40 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 (αw) and sound absorption class are calculated as per ISO 11654 are given below:

Breeze sample consist of Base - Plywood & Acoustic foam + Finish - Fabrics, total 8660 GSM and 40 mm thickness	
Noise Reduction Coefficient (NRC)	0.35
Weighted Sound Absorption Coefficient (αw)	0.30
Sound Absorption Class	Class D

Tested and Report Prepared By:	Reviewed By:	Reviewed By:	Approved By:
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Dy. Manager	Dy. General Manager	General Manager	Sr. Dy. Director & HOD

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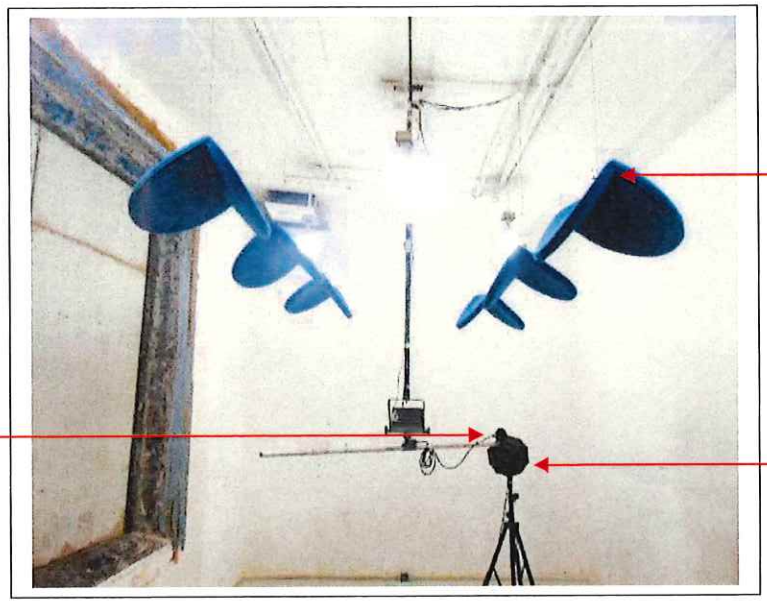
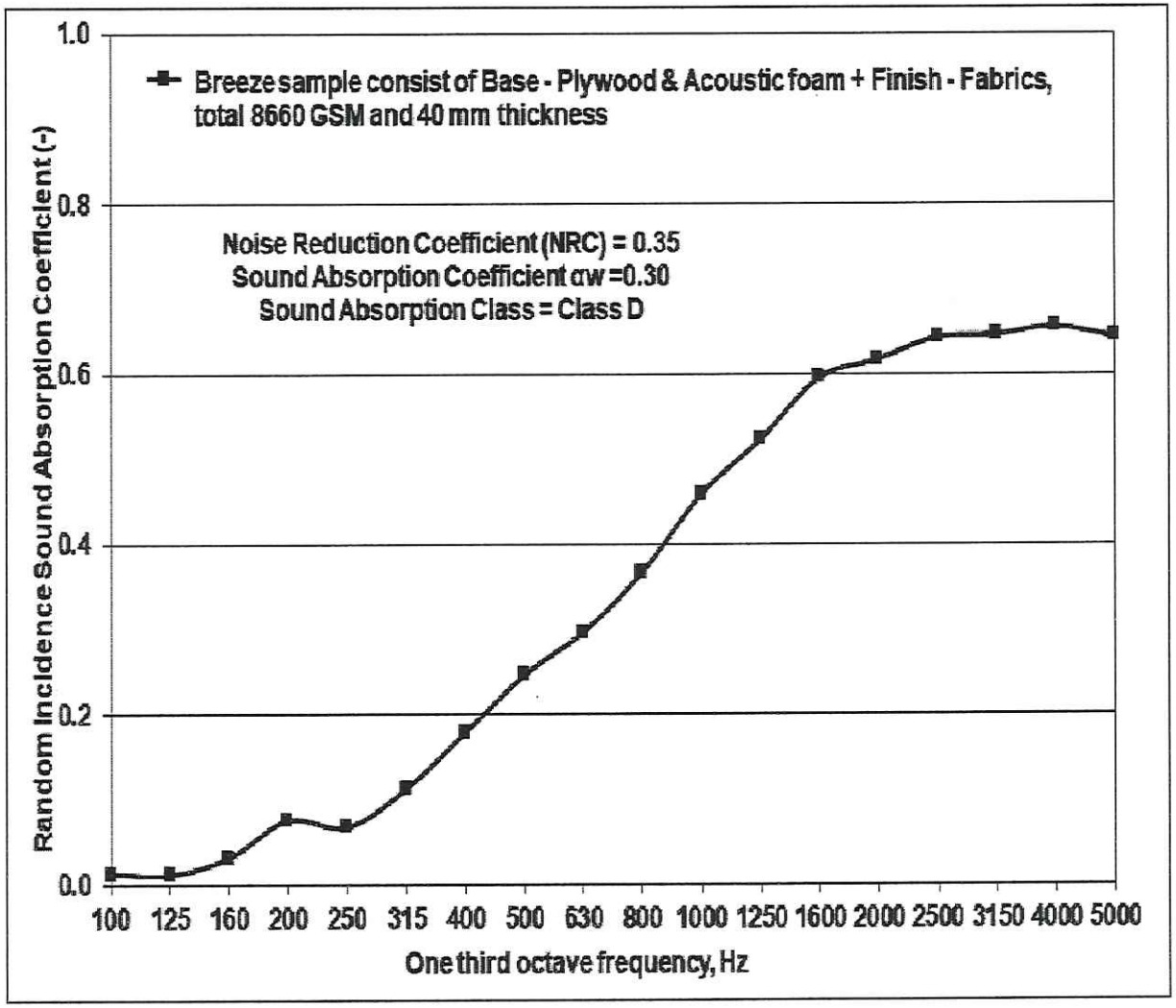


Figure 1: Test set up for mounting and testing of Breeze sample of 40 mm thickness in reverberation chamber

17th July 2024

Table 1 and Figure 2: Values and plot for random incidence sound absorption coefficient of Breeze sample consist of Base - Plywood & Acoustic foam + Finish - Fabrics, total 8660 GSM and 40 mm thickness, tested at one third octave frequencies

One third octave frequency, Hz	Random Incidence Sound Absorption Coefficient (-)	Standard Deviation
100	0.01	0.01
125	0.01	0.01
160	0.03	0.01
200	0.07	0.01
250	0.06	0.03
315	0.11	0.01
400	0.17	0.01
500	0.23	0.00
630	0.28	0.01
800	0.34	0.01
1000	0.43	0.01
1250	0.49	0.01
1600	0.56	0.01
2000	0.58	0.01
2500	0.60	0.01
3150	0.60	0.01
4000	0.61	0.01
5000	0.60	0.00



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