

**TEST REPORT ON DETERMINATION OF
RANDOM INCIDENCE SOUND ABSORPTION COEFFICIENT OF
GROOVED ACOUSTICAL PANEL ALONG WITH GLASSWOOL**

NO. NVH/3824/2015-16/590(V-2)-2**19th August 2015**

- 1.0 CUSTOMER NAME :** Gyptech Systems
C-17, Miraj Apartments, Near Natubhai Centre
Race Course (W), Vadodara-390 007
- 2.0 LETTER REF. :** E-mail dated 5th August 2015
- 3.0 TEST COMPONENT DETAILS :** Grooved acoustical panel along with glass wool with type E-30 mounting with following details given by customer:
- Material : MDF Boards
 - Density and thickness : 700-800 kg/m³ and 15 mm
 - Size of one panel : 128 mm x 2440 mm
 - Pattern : 30 – 2.5 mm
 - Perforation hole : 10 mm
 - Absorbing Material : Glass wool 50 mm and 24 kg/m³ compressed and filled within 30 mm air gap
 - Type of mounting : Type E-30 mounting

4.0 TEST REQUIREMENTS :

Measurement of Random incidence sound absorption coefficient on above mentioned Grooved acoustical panel along with glass wool with type E-30 mounting 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 Grooved acoustical panel along with glass wool with type E-30 mounting as per ASTM C-423 / ISO 354 in reverberation chamber. The test sample was mounted on the floor with Type E mounting. Please refer figure 1 for test set up and test component details. The measurement was carried out at temperature 25°C +/- 1°C and humidity 70%.

6.0 DATE OF EVALUATION :

The Random incidence sound absorption coefficient measurement was carried out on above mentioned Grooved acoustical panel along with glass wool with type E-30 mounting on 18th August 2015.

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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	30-Jul-14	30-Jul-15
2	½" Random Incidence Microphone	378B20 (Sr. No. 109015)	PCB, USA	17-Jun-15	17-Jun-16
3	Power Amplifier	2716	Bruel & Kjaer, Denmark	-	-
4	Omni directionnel sound source	Omni power 4296	Bruel & Kjaer, Denmark	-	-
5	Reverberation room	110 m ³	-	-	-

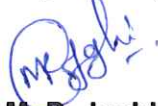
8.0 TEST RESULTS :

- 8.1 Table 1 shows the average values for random incidence sound absorption coefficient of Grooved acoustical panel along with glass wool with type E-30 mounting in the frequency range of 125 Hz to 8000 Hz.
- 8.2 Figure 2 shows the plot for random incidence sound absorption coefficient of Grooved acoustical panel along with glass wool with type E-30 mounting in the frequency range of 125 Hz to 8000 Hz.

9.0 CONCLUSIONS :

The Noise Reduction Coefficient (NRC) and Sound Absorption Average(SAA) is calculated as per ASTM C- 423	
Noise Reduction Coefficient (NRC)	0.70
Sound Absorption Average (SAA)	0.70

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Reviewed By:


S. K. Jain
Dy. General Manager

Approved By:


N. V. Karanth
Sr. Deputy Director & HoD

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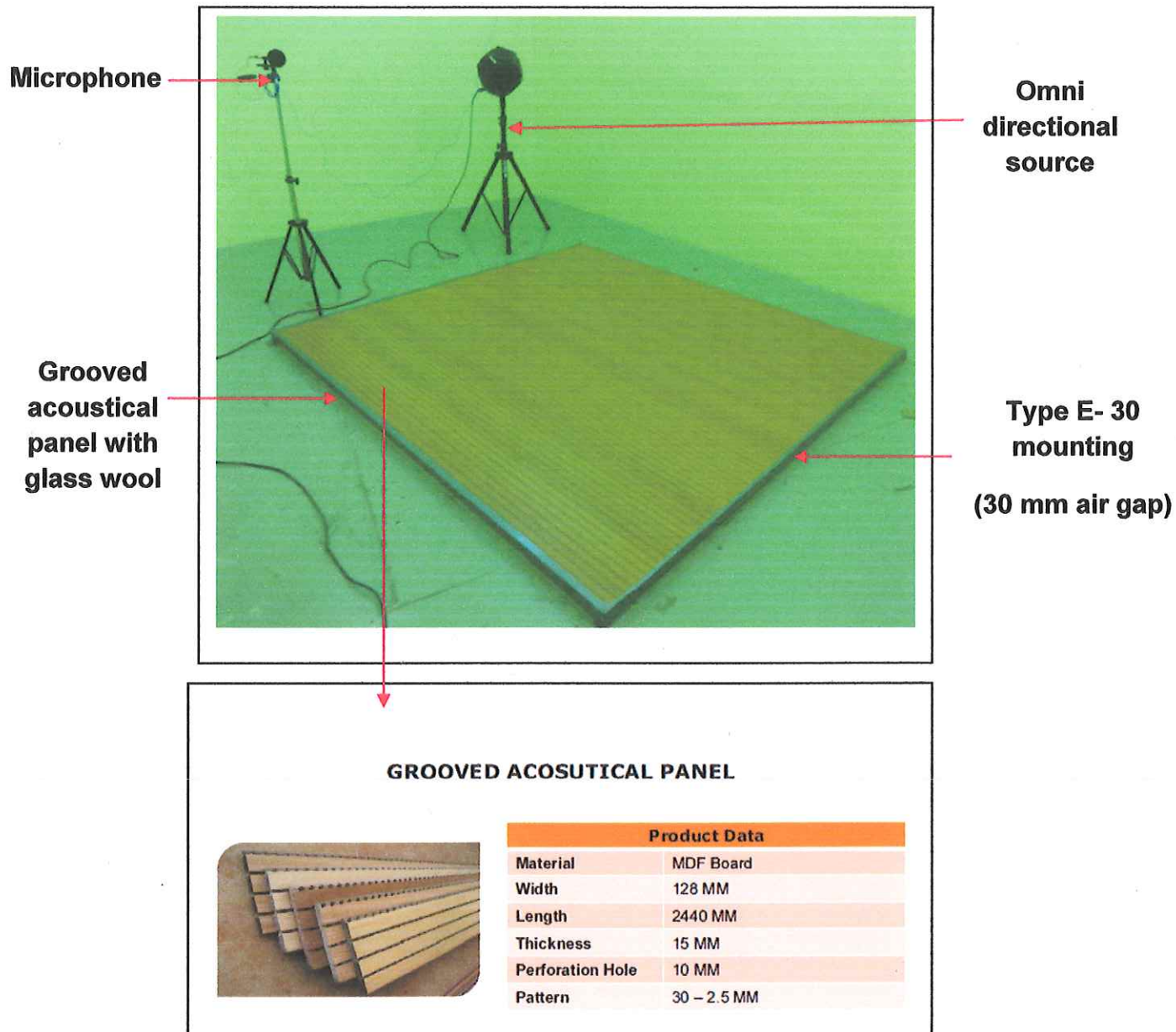
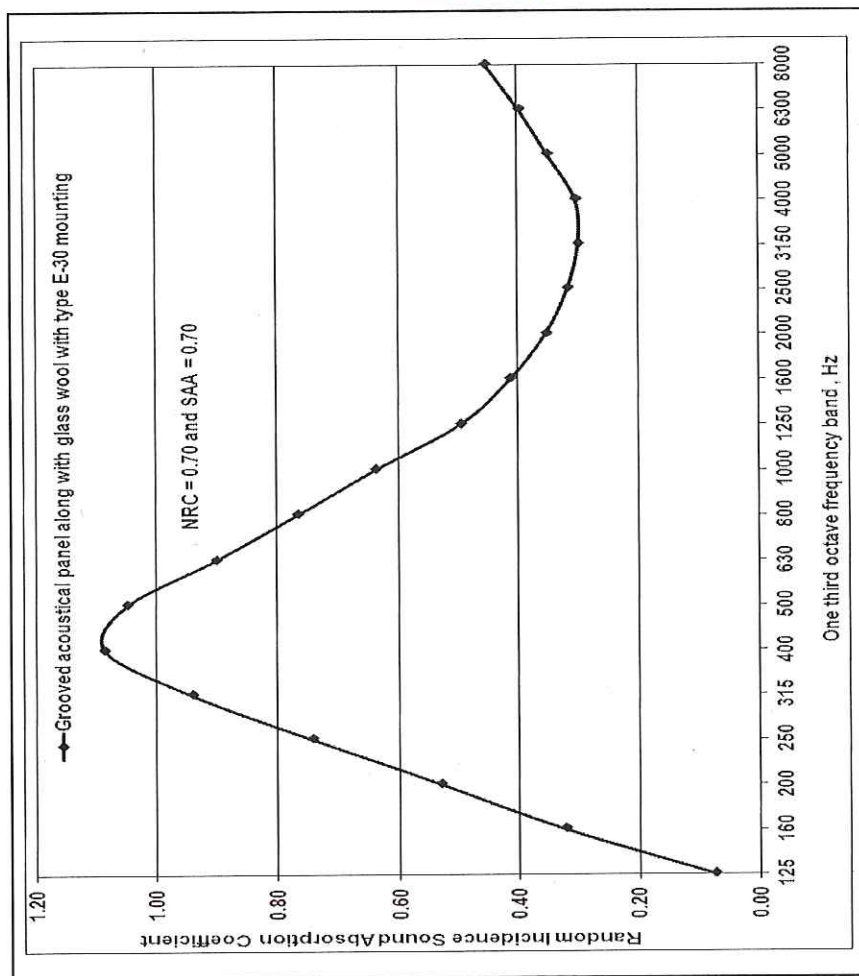


Figure 1: Test set up for mounting and testing of Grooved acoustical panel along with glass wool with type E-30 mounting in reverberation chamber

Table 1 and Figure 2: Values and Plot for Random incidence sound absorption coefficient of Grooved acoustical panel along with glass wool with type E-30 mounting at one third octave frequencies

One third octave frequency, Hz	Random Incidence Sound Absorption Coefficient	Standard Deviation
125	0.08	0.02
160	0.33	0.01
200	0.53	0.01
250	0.74	0.01
315	0.94	0.02
400	1.09	0.03
500	1.05	0.02
630	0.90	0.06
800	0.77	0.02
1000	0.64	0.03
1250	0.50	0.01
1600	0.41	0.01
2000	0.35	0.01
2500	0.32	0.01
3150	0.30	0.00
4000	0.30	0.01
5000	0.35	0.01
6300	0.40	0.01
8000	0.45	0.01



Note: (*Measurement uncertainty for Random incidence sound absorption coefficient evaluation is $\pm 4.23\%$ at 95.45% confidence level and $k = 2$ in the frequency range 125 Hz to 5000 Hz)