

CONFIDENTIAL

**TEST REPORT ON DETERMINATION OF
RANDOM INCIDENCE SOUND ABSORPTION COEFFICIENT OF
MDF GLASS FIBRE COMPOSITE PANEL**

NO. NVH/4831/2014-15/590(V-2)-4**DATE: 06.10.2014**

- 1.0 CUSTOMER NAME :** Gyptech Systems
C-17, Miraj Apartments, Near Natubhai Centre
Race Course (W), Vadodara-390007
- 2.0 LETTER REF. :** E-mail dated 11th September 2014
- 3.0 TEST COMPONENT DETAILS :** MDF glass fibre composite panel of MDF thickness 4 mm with following details given by customer:
- Hole Size : 5 mm
 - Perforation Rate : 5.33 %
 - Perforation Style & pattern : Square style and Matrix pattern
 - Size of one panel : Acoustical perforated MDF of 595 mm X 595 mm
 - Absorbing material : Glass fiber of 15 mm and 96 kg/m³ with backing material 40 GSM Non-woven fabric
 - Type of mounting : Type E mounting with 300 mm air gap

4.0 TEST REQUIREMENTS :

Measurement of Random incidence sound absorption coefficient on above mentioned MDF glass fibre composite panel with 300 mm air gap as per ASTM C-423 in reverberation chamber.

5.0 TEST PROCEDURE :

The Random incidence sound absorption coefficient measurement was carried out on MDF glass fibre composite panel with 300 mm air gap as per ASTM C-423 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 MDF glass fibre composite panel on 27th September 2014.

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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	Brue & Kjaer, Denmark	30-Jul-14	30-Jul-15
2	½" Random Incidence Microphone	378B20 (Sr. No. 109015)	PCB, USA	10-Jun-14	10-Jun-15
3	Power Amplifier	2716	Brue & Kjaer, Denmark	-	-
4	Omni directionnel sound source	Omni power 4296	Brue & 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 MDF glass fibre composite panel along with 300 mm air gap in the frequency range of 125 Hz to 5000 Hz.
- 8.2 Figure 2 shows the plot for random incidence sound absorption coefficient of MDF glass fibre composite panel along with 300 mm air gap in the frequency range of 125 Hz to 5000 Hz.

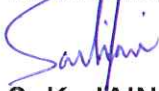
9.0 CONCLUSIONS :

The Noise Reduction Coefficient (NRC) and Sound Absorption Average(SAA) is calculated as per ASTM C- 423	
Noise Reduction Coefficient (NRC)	0.75
Sound Absorption Average(SAA)	0.72

REPORT PREPARED BY:


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N. V. KARANTH
SR. DEPUTY DIRECTOR & HOD

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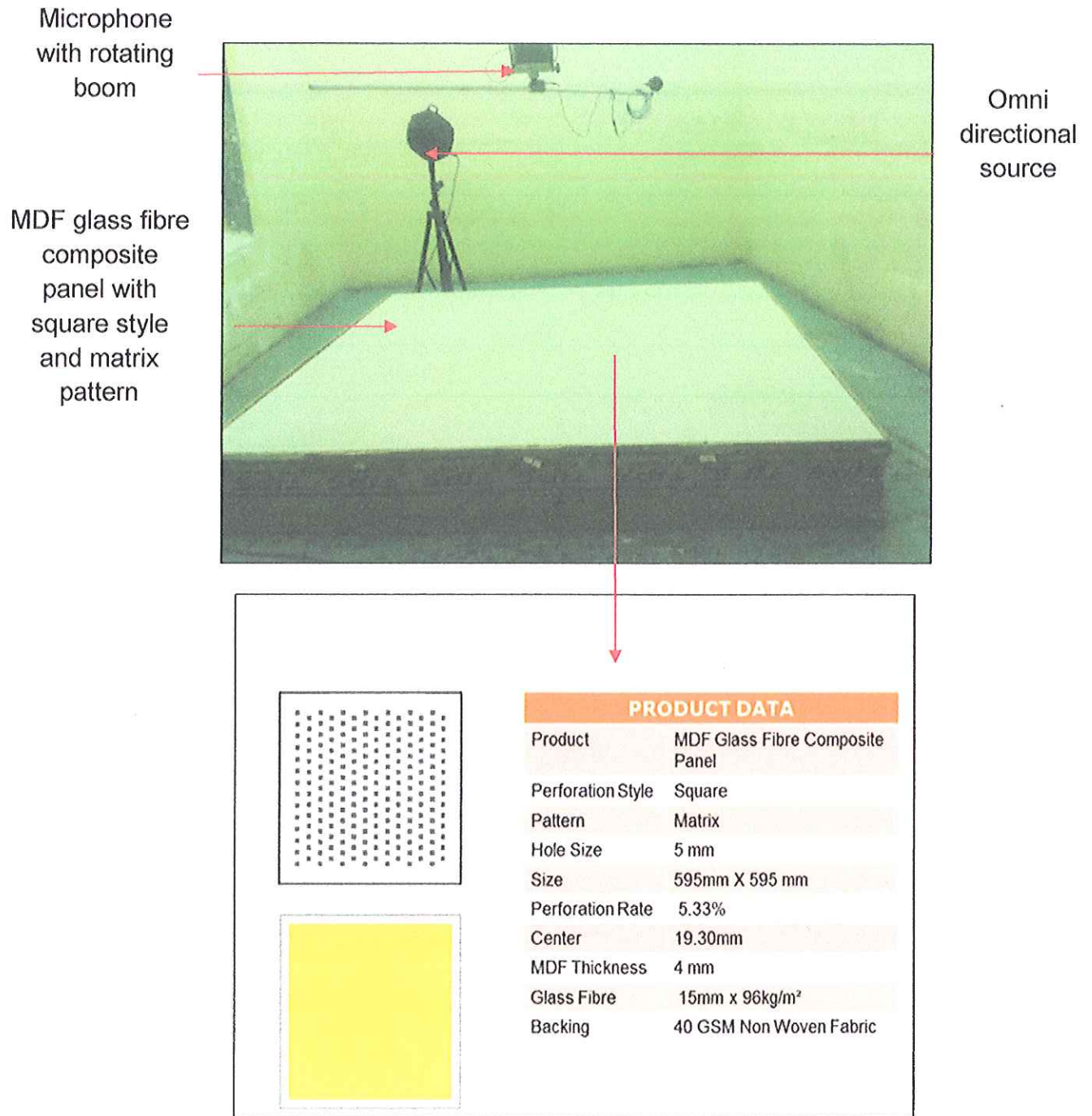
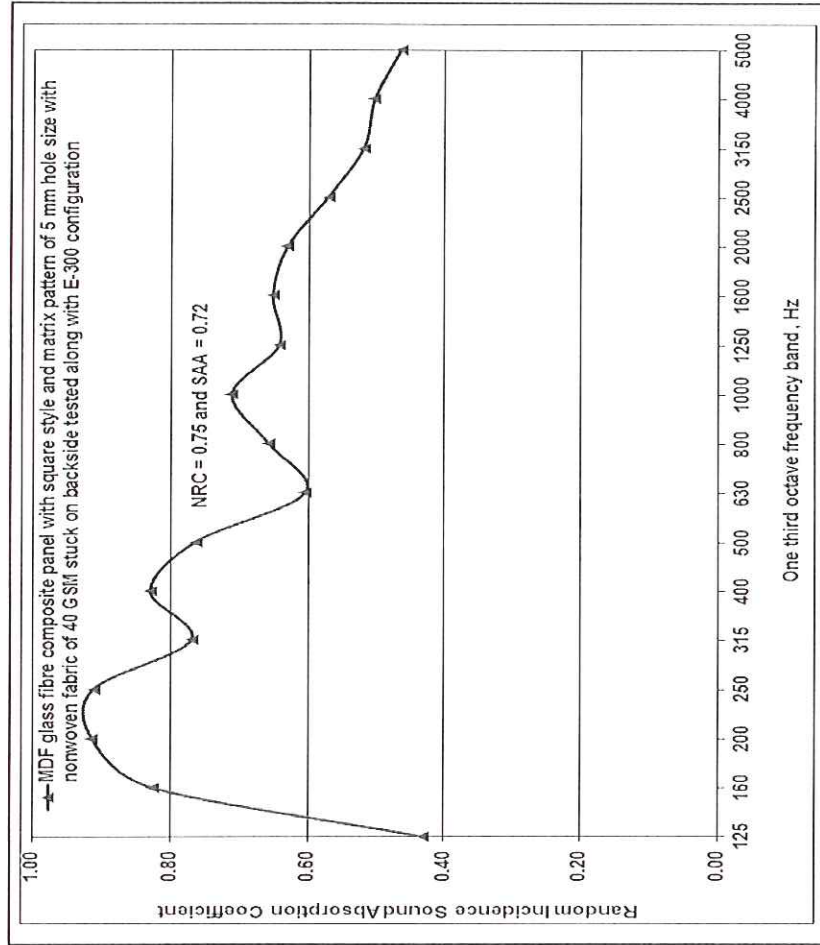


Figure 1: Test set up for mounting and testing of MDF glass fibre composite panel in reverberation chamber

Table 1 and Figure 2: Values and Plot for Random incidence sound absorption coefficient of MDF glass fibre composite panel tested along with E-300 configuration

One third octave frequency, Hz	Random Incidence Sound Absorption Coefficient
125	0.43
160	0.83
200	0.91
250	0.91
315	0.77
400	0.83
500	0.76
630	0.60
800	0.66
1000	0.71
1250	0.64
1600	0.65
2000	0.63
2500	0.57
3150	0.52
4000	0.50
5000	0.47



Note: (*Measurement uncertainty for Random incidence sound absorption coefficient evaluation is $\pm 7\%$ at 95.45% confidence level and $k = 2$ in the frequency range 125 Hz to 5000 Hz)