CONFIDENTIAL

TEST REPORT ON DETERMINATION OF RANDOM INCIDENCE SOUND ABSORPTION COEFFICIENT OF PERFONA-G (INCISE) GYPSUM PERFORATED BOARDS AND TILES

NVH/3100007296/2020-21/1201 **24th June 2020**

1.0 CUSTOMER NAME : GYPTECH SYSTEMS PVT. LTD.
C-17, Miraj Apartment,
NR Natubhai Circle Race Course,
Vadodara, Gujarat – 390 007

2.0 LETTER REF. : E-mail dated 16th March 2020

3.0 TEST COMPONENT DETAILS : Perfona-G (Incise) sample details given by customer as follows:

- Sample Name : Perfona-G (Incise)
- Sample Details : Gypsum Perforated Boards and Tiles
- Size of one panel : 595 mm X 595 mm
- Thickness : 12 mm
- Insulation : Rockwool of 48 kg/m^3 density and 50 mm thick
- Area of test sample : 2.4 m x 2.4 m

4.0 TEST REQUIREMENTS :

Measurement of random incidence sound absorption coefficient on Perfona-G (Incise) gypsum perforated boards and tiles of 12 mm thick along with type E-300 mounting (with 300 mm air gap) filled with 48 kg/m^3 density and 50 mm thick rockwool as per ASTM C-423 / ISO 354 in reverberation chamber.

5.0 TEST PROCEDURE :

The random incidence sound absorption coefficient measurement was carried out Perfona-G (Incise) gypsum perforated boards and tiles as per ASTM C-423 / ISO 354 in reverberation chamber. The test sample of size 2.4 m × 2.4 m was directly mounted on the floor with type E-300 mounting using 300 mm height wooden frame. Total 16 test samples were used. Please refer figure 1 for test set up and test component details. The measurement was carried out at temperature 26 ± 1^{0}C and humidity 62%.

6.0 DATE OF EVALUATION :

The random incidence sound absorption coefficient measurement was carried out on above mentioned Perfona-G (Incise) gypsum perforated boards and tiles on 24th June 2020.

An ISO 9001, ISO 14001, OHSAS 18001 Certified and ISO/IEC17025 Accredited Organization

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7.0 INSTRUMENTATION :

Sr. No	Instrument Name	Type / Model No	Make
1	Multi-channel Data Acquisition System	3560 D	Bruel & Kjaer, Denmark
2	½" Random Incidence Microphone	378B20	PCB, USA
3	Power Amplifier	2716	Bruel & Kjaer, Denmark
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 Perfona-G (Incise) gypsum perforated boards and tiles of 12 mm thick along with 300 mm air gap filled with 48 kg/m^3 density and 50 mm thick rockwool in the frequency range of 100 to 8000 Hz.

9.0 CONCLUSIONS :

9.1 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.

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

Perfona-G (Incise) gypsum perforated boards and tiles of 12 mm thick along with 300 mm air gap filled with 48 kg/m^3 density and 50 mm thick rockwool	
Noise Reduction Coefficient (NRC)	0.65
Weighted Sound Absorption Coefficient (α_w)	0.50(L)
Sound Absorption Class	Class D

Report Prepared By:	Reviewed By:	Approved By:
P. P. Kamble	M. P. Joshi	S. K. Jain
Engineer	Manager	General Manager

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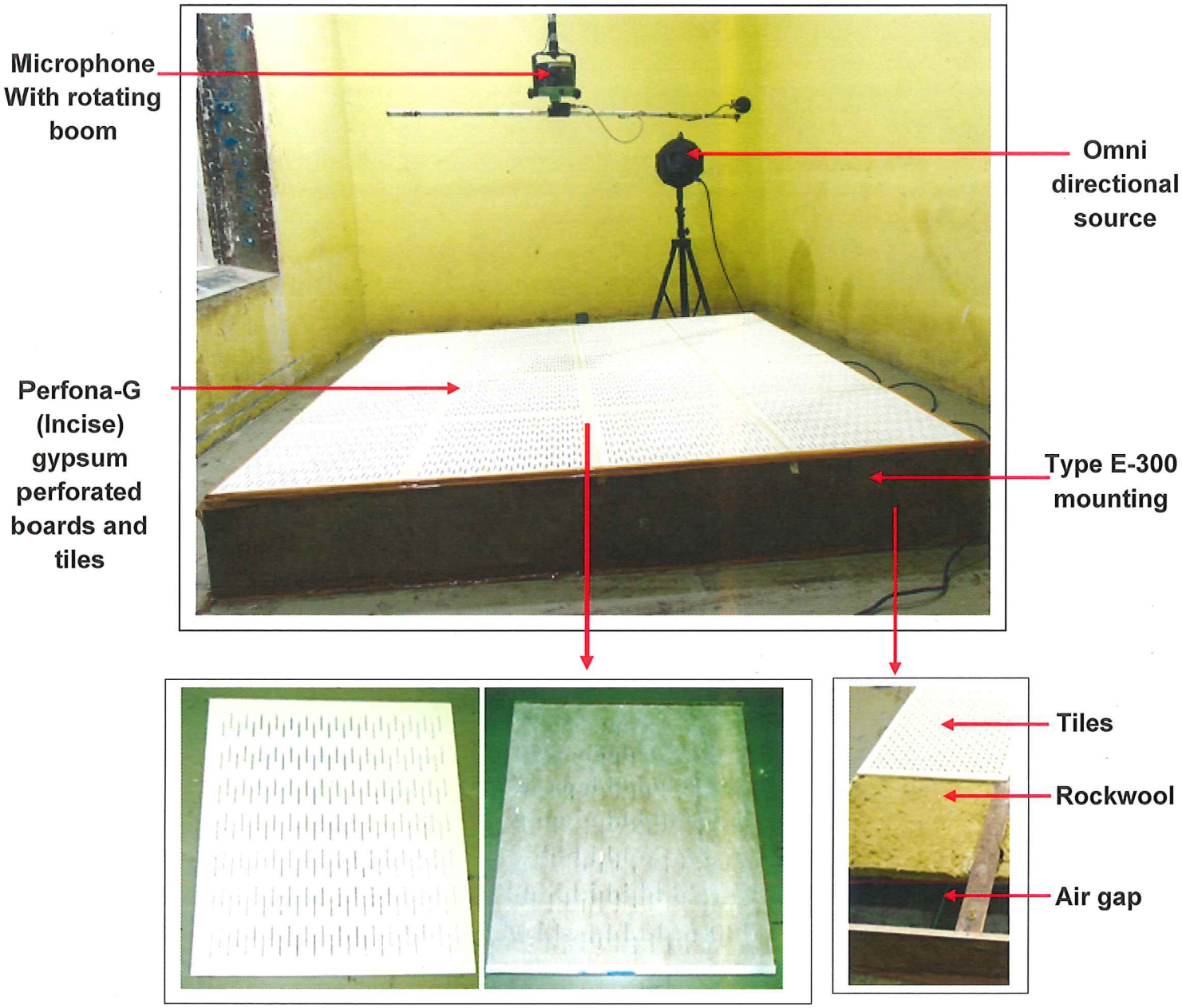
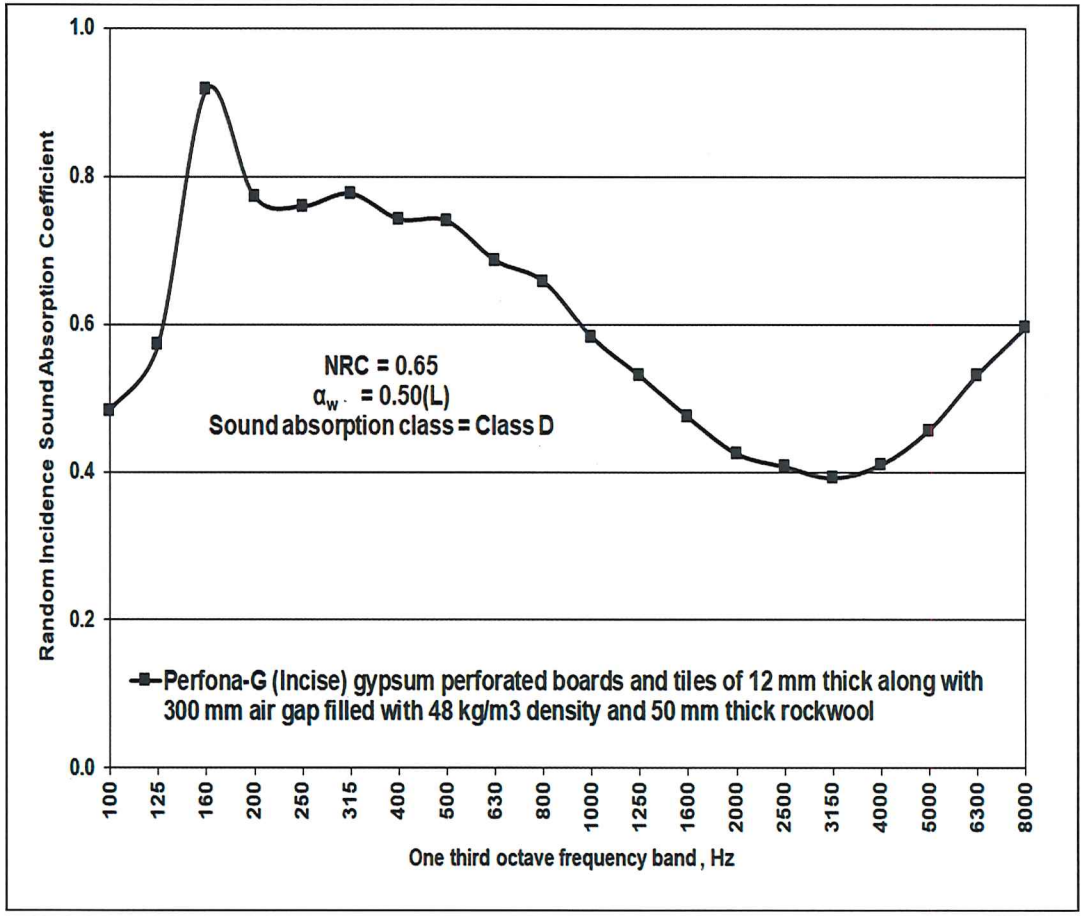


Figure 1: Test set up for mounting and testing of Perfona-G (Incise) gypsum perforated boards and tiles of 12 mm thick along with 300 mm air gap filled with 48 kg/m^3 density and 50 mm thick rockwool in reverberation chamber

Table 1 and Figure 2: Values and Plot for Random incidence sound absorption coefficient Perfona-G (Incise) gypsum perforated boards and tiles of 12 mm thick along with 300 mm air gap filled with 48 kg/m^3 density and 50 mm thick rockwool at one third octave frequencies.

One third octave frequency, Hz	Random Incidence Sound Absorption Coefficient	Standard Deviation
100	0.48	0.04
125	0.57	0.03
160	0.92	0.03
200	0.77	0.04
250	0.76	0.01
315	0.78	0.03
400	0.74	0.02
500	0.74	0.03
630	0.69	0.02
800	0.66	0.02
1000	0.58	0.01
1250	0.53	0.01
1600	0.47	0.01
2000	0.42	0.01
2500	0.41	0.00
3150	0.39	0.01
4000	0.41	0.01
5000	0.46	0.01
6300	0.53	0.03
8000	0.59	0.02



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