

CONFIDENTIAL

**TEST REPORT ON
DETERMINATION OF SOUND TRANSMISSION LOSS OF
104 MM THICK DRYWALL PARTITION SYSTEM**

No. NVH/4481/2015-16/590 (V-2)-3

14th September 2015

- 1.0 CUSTOMER NAME** : Visaka Industries Ltd
Visaka Towers,
1-8-303 / 69 / 3,
S.P. Road,
Secunderabad – 500 003, Telangana
- 2.0 LETTER REF.** : E-mail dated 18th August 2015
- 3.0 TEST COMPONENT** : Test component details are as follows:

104 mm thick drywall partition system with following details given by customer:
Partition system of 104 mm thickness comprising of inner layer of 12 mm V-boards having a density of 1200 Kg/m³ + outer layer of 8 mm V-boards having a density of 1200 Kg/m³ on one side of 72 mm Steel GI system and layer of 12 mm V-boards having a density of 1200 Kg/m³ on another side. The air cavity is filled with 50 mm glass wool of density 32 kg/m³. All the joints, gaps and screw heads are sealed with acoustical silicon sealant.

Please refer Annexure 1 for drawing and details of the above mentioned system

4.0 TEST REQUIREMENTS :

Measurement of sound transmission loss of above mentioned 104 mm thick drywall partition system as per ASTM E-90 and determination of sound transmission class (STC) as per ASTM E- 413.

5.0 TEST PROCEDURE :

The above mentioned 104 mm thick drywall partition system of size 2.4 m x 2.4 m was mounted in the wall between two reverberation chambers and sealed all around at edges. Please refer figure 1 for test set up and mounting of system. The test was carried out three times on same system in a reverberation chambers as per ASTM E-90 standard at temperature 25°C and humidity 67%.

6.0 DATE OF EVALUATION :

Test was carried out on 104 mm thick drywall partition system on 10th September 2015 at NVH laboratory, ARAI-Pune in presence of Visaka Industries representative Mr. Haswant and consultant Dr. Paresh Shravage.

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 and Sr. No. 109016)	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 Chambers	80 m ³ and 110 m ³	-	-	-

8.0 TEST RESULTS :

- 8.1 Table 1 shows the values of air-borne sound transmission loss of 104 mm thick drywall partition system in the one-third octave frequency bands of 125 Hz to 5000 Hz and STC (sound transmission class).
- 8.2 Figure 2 shows the plot of values of sound transmission loss of 104 mm thick drywall partition system in the one-third octave frequency bands of 125 Hz to 5000 Hz and STC (sound transmission class).

9.0 CONCLUSIONS :

The sound transmission class (STC) of above mentioned 104 mm thick drywall partition system is 57 dB.

Report Prepared By:



M. P. Joshi
Manager

Reviewed By:



S. K. Jain
Dy. General Manager

Approved By:



N. V. Karanth
Sr. Deputy Director & HoD

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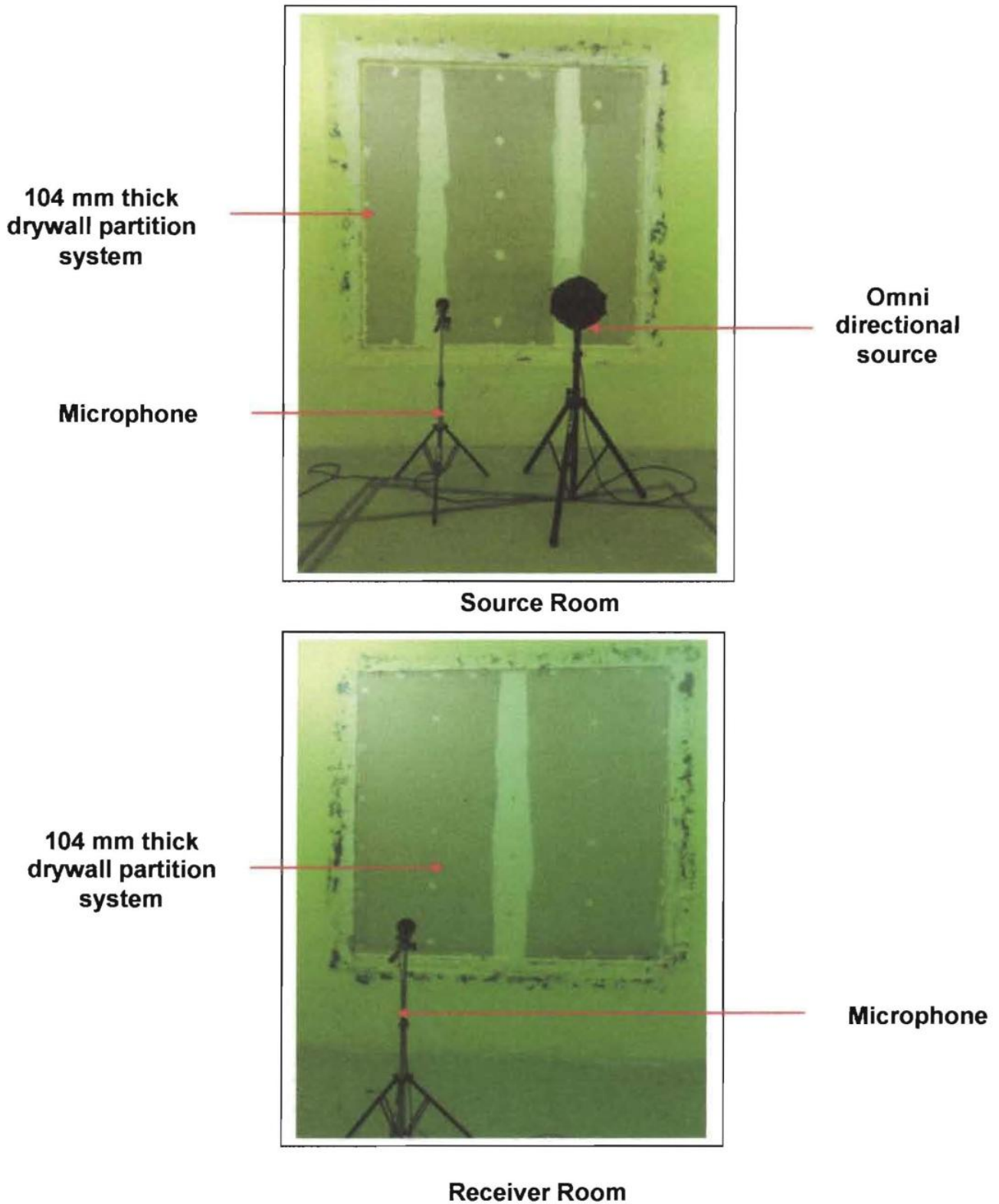
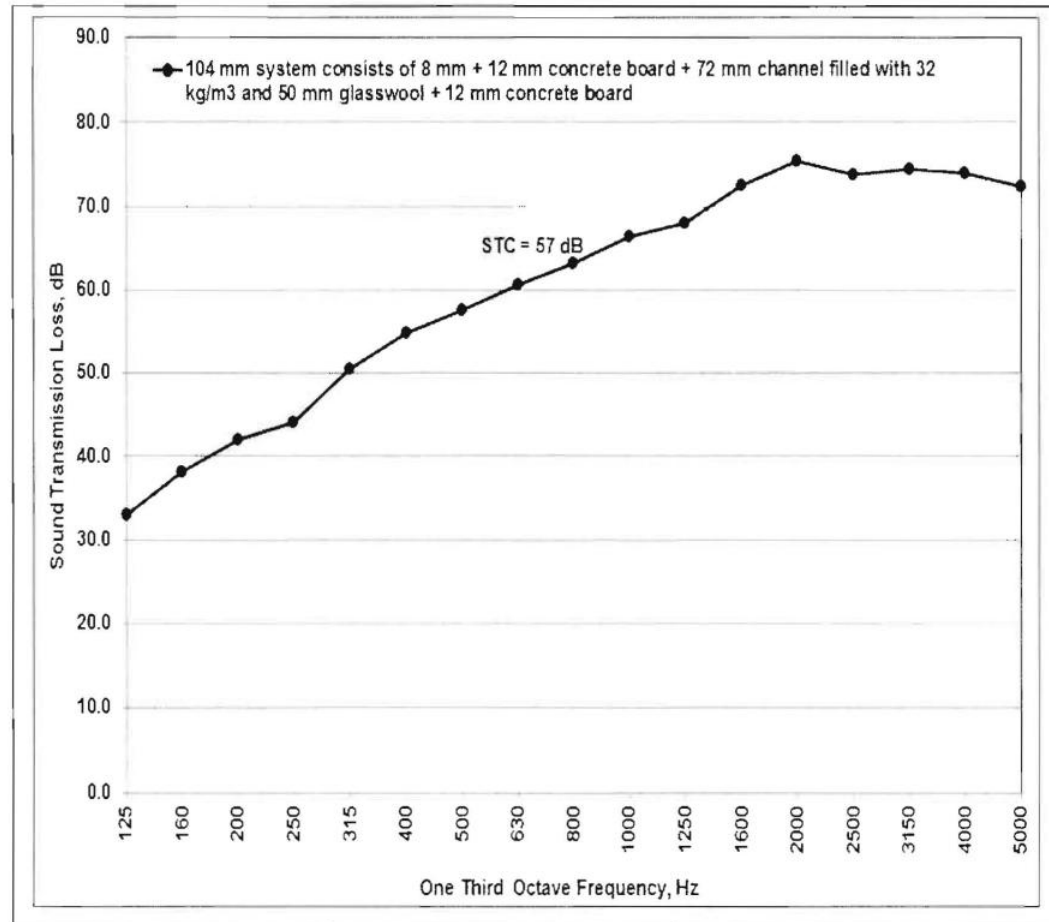


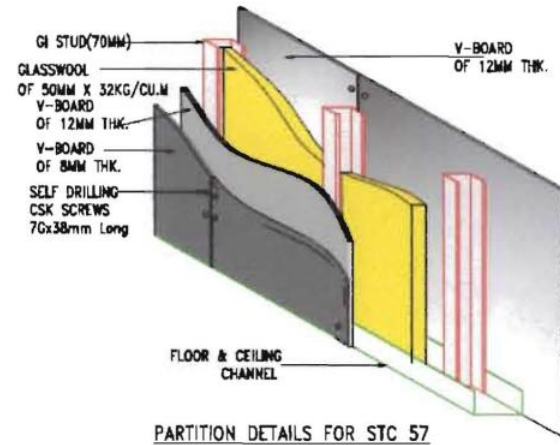
Figure 1: The test set up for mounting of 104 mm thick drywall partition system between two reverberation chamber

Table 1 and Figure 2: Values and plot for Sound Transmission Loss of 104 mm thick drywall partition system at one third octave frequencies

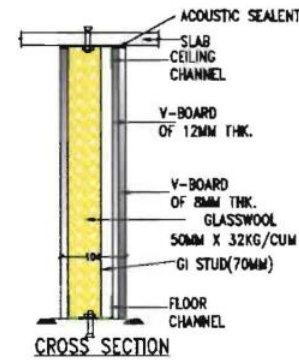
One Third Octave Frequency, Hz	Sound Transmission Loss, dB	STDV
125	32.9	0.4
160	38.2	0.5
200	42.1	0.2
250	44.1	0.2
315	50.5	0.3
400	54.8	0.2
500	57.6	0.1
630	60.7	0.4
800	63.2	0.3
1000	66.5	0.2
1250	68.1	0.1
1600	72.6	0.1
2000	75.4	0.3
2500	73.8	0.3
3150	74.5	0.2
4000	74.0	0.2
5000	72.3	0.2
STC	57	-



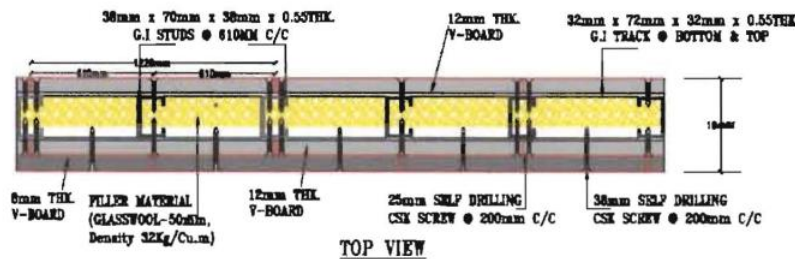
The Measurement Uncertainty in sound transmission loss evaluation is ± 3 dB from 125 Hz to 630 Hz and ± 1.5 dB above 630 Hz with 95.45 % confidence level and K= 2. The measurement uncertainty has been computed at one third octave frequency band from 125 Hz to 8000 Hz.



PARTITION DETAILS FOR STC 57



CROSS SECTION



TOP VIEW

V- BOARD FIXING DEATILS

NOTE:-

1. ALL DIMENSIONS ARE IN MILLIMETERS ONLY UNLESS OTHERWISE SPECIFIED.
2. DIMENSIONS TO BE VERIFIED AT THE SITE, ANY DISCREPANCIES IN DIMENSIONS SHALL BE BROUGHT TO NOTICE FOR CLARIFICATION.
3. IN CASE OF ANY DISCREPANCY BEING NOTED IT SHALL BE IMMEDIATELY BROUGHT TO THE NOTICE OF THE CONSULTANT BEFORE COMMENCING THE WORK.
4. DO NOT SCALE THE DRAWING. FOLLOW FIGURED DIMENSIONS ONLY.
5. FULL SCALE LAYOUT TO BE MADE AND OBTAIN APPROVAL FROM ENGINEER BEFORE COMMENCEMENT OF FABRICATION.

MATERIAL SPECIFICATIONS:

1. Floor/top channel
 - 3660mm
 - Web: 72mm
 - Flange: 32mm
 - Thickness: 0.55mm
 - 2440,3000,3660mm
2. Stud
 - Web: 70mm
 - Flange: 38mm
 - Thickness: 0.55mm
3. Self drilling screw
 - 70/100 of 25mm & 38mm long
4. Glass wool
 - Density 32Kgs/cu.m

THIS DRAWING IS FOR REFERENCE PURPOSE ONLY



VISAKA INDUSTRIES LIMITED®
VISAKA TOWERS, S.P ROAD,
SECUNDERABAD -500003.

CLIENT:

TITLE: ARAI TESTING DETAILS FOR STC 57

DWG.NO.- SCALE: REV.