

**CONFIDENTIAL**

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

No. NVH/4481/2015-16/590 (V-2)-1

14<sup>th</sup> 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 18<sup>th</sup> August 2015

**3.0 TEST COMPONENT** : Test component details are as follows:

96 mm thick drywall partition system with following details given by customer:  
Partition system of 96 mm thickness comprising of one layer of 12 mm V-boards having a density of 1200 Kg/m<sup>3</sup> on either side of 72 mm Steel GI system. The air cavity is filled with 25 mm glass wool of density 32 kg/m<sup>3</sup>. 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 96 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 96 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 96 mm thick drywall partition system on 9<sup>th</sup> September 2015 at NVH laboratory, ARAI-Pune in presence of Visaka Industries representative Mr. Haswant and consultant Dr. Paresh Shravage.

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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 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 <sup>3</sup> and 110 m <sup>3</sup>	-	-	-

**8.0 TEST RESULTS :**

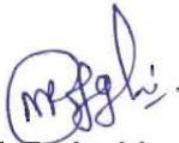
8.1 Table 1 shows the values of air-borne sound transmission loss of 96 mm thick drywall partition system in the one-third octave frequency bands of 125 Hz to 5000 Hz and STC (sound transmission class).

8.2 Figure 2 shows the plot of values of sound transmission loss of 96 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 96 mm thick drywall partition system is 52 dB.

**Report Prepared By:**



**M. P. Joshi  
Manager**

**Reviewed By:**



**S. K. Jain  
Dy. General Manager**

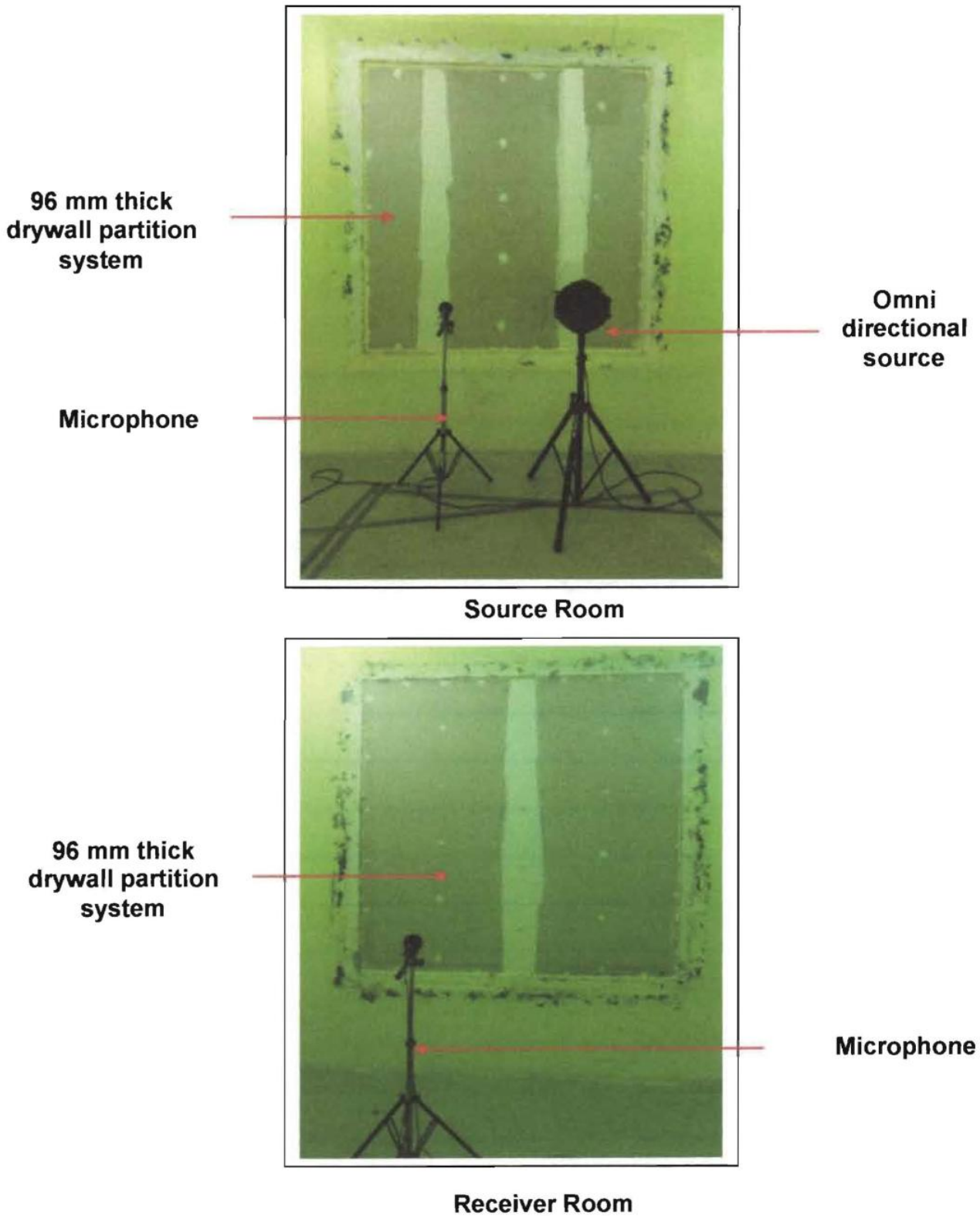
**Approved By:**



**N. V. Karanth  
Sr. Deputy Director & HoD**

This test report pertains only to the systems actually tested at ARAI in the presented condition. The issuing of this test report does not indicate any measure of approval, certification, supervision, control of quality surveillance by ARAI of any product. No extract, abridgement or abstraction from this test report be published or used to advertise the product without the written consent of the Director, ARAI, who reserves the absolute right to agree or reject any of the details of any items of publicity for which consent may be sought.

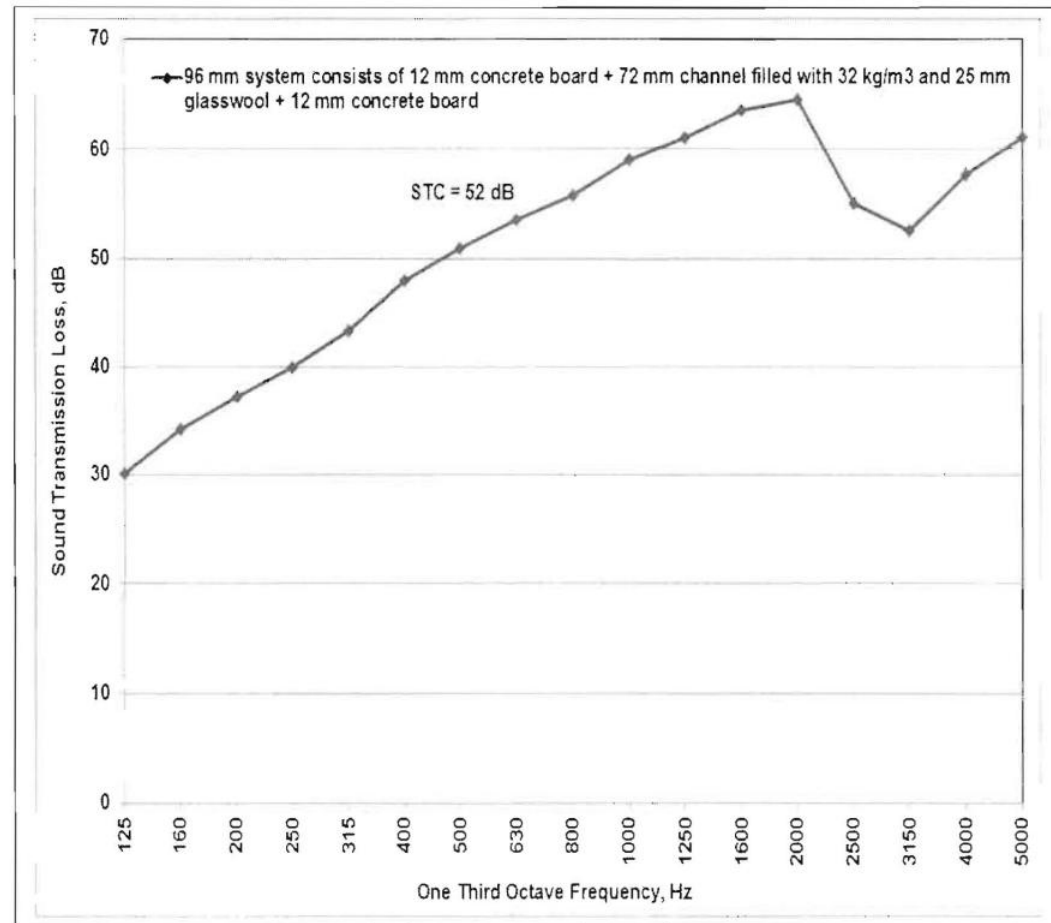




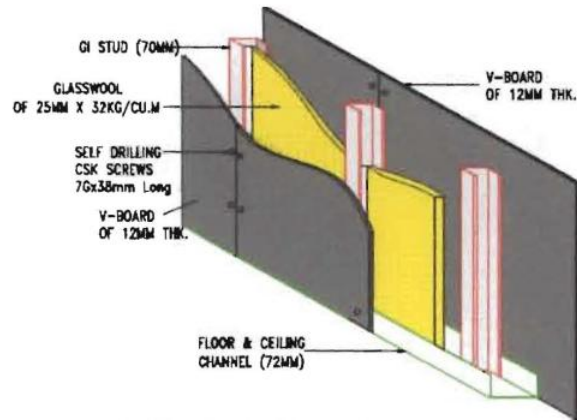
**Figure 1: The test set up for mounting of 96 mm thick drywall partition system between two reverberation chambers**

Table 1 and Figure 2: Values and plot for Sound Transmission Loss of 96 mm thick drywall partition system at one third octave frequencies

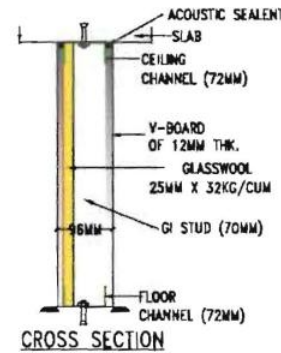
One Third Octave Frequency, Hz	Sound Transmission Loss, dB	STDV
125	30.1	0.4
160	34.3	0.5
200	37.2	0.2
250	40.0	0.3
315	43.4	0.3
400	47.9	0.2
500	50.9	0.1
630	53.5	0.4
800	55.8	0.3
1000	59.0	0.2
1250	61.0	0.1
1600	63.6	0.1
2000	64.5	0.3
2500	55.0	0.3
3150	52.6	0.2
4000	57.6	0.4
5000	61.1	0.3
<b>STC</b>	<b>52</b>	-



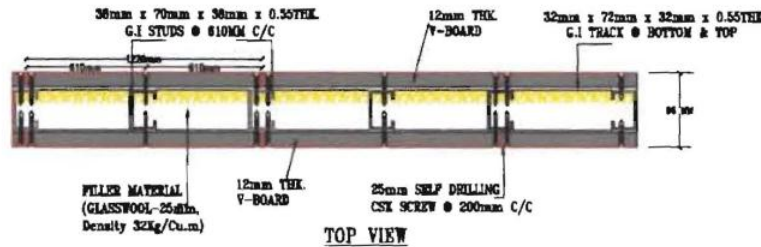
The Measurement Uncertainty in sound transmission loss evaluation is  $\pm 3$  dB from 125 Hz to 630 Hz and  $\pm 1.5$  dB above 630 Hz with 95.45 % confidence level and K= 2. The measurement uncertainty has been computed at one third octave frequency band from 125 Hz to 8000 Hz.



PARTITION DETAILS FOR STC 50



CROSS SECTION



TOP VIEW

V- BOARD FIXING DEATILS

NOTE:-

1. ALL DIMENSIONS ARE IN MILLIMETERS 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
2. Stud
  - 2440,3000,3660mm
  - Web: 70mm
  - Flange: 38mm
  - Thickness: 0.55mm
3. Self drilling screw
  - 7G/10G of 25mm & 38mm long
4. Glasswool
  - 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 50

DWG.NO.- SCALE: REV.