

**TEST REPORT ON  
DETERMINATION OF AIRBORNE SOUND TRANSMISSION LOSS OF  
SOUND TIGHT - STI 612 ELASTOMER MEMBRANE**

**ULR-TC508521050000014F**

**NVH/3100010965/2021-22/0014**

**1<sup>st</sup> October 2021**

- 1.0 CUSTOMER NAME** : Sound & Acoustic Designs  
Ground Floor, Shop No 1-4,  
Shikhar Apartment, Behind Sahakari Hat.,  
Near Daxinamurti School,  
Bhavnagar – 364 002, Gujarat.
- 2.0 LETTER REF.** : E-mail dated 15<sup>th</sup> September 2021
- 3.0 TEST COMPONENT** : Test sample details given by customer is as follows,
- 3.1 Brand Name : Sound Tight
- 3.2 Product name : STI 612 Elastomer Membrane
- 3.3 Density : 2000 kg/m<sup>3</sup>
- 3.4 Thickness : 6 mm



**Sound & Acoustic Designs.**

**Sound Tight -STI 612 Elastomer  
Membrane**

- 4.0 TEST REQUIREMENTS** :  
Measurement of sound transmission loss of above mentioned test sample as per ISO 10140-2 / ASTM E-90 and determination of sound transmission class (STC) as per ASTM E-413 and weighted sound reduction index  $R_w$  (C;  $C_{tr}$ ) with spectrum adaptation terms as per ISO 717-1.
- 5.0 TEST PROCEDURE** :  
The above mentioned test sample of size 1.2 m x 1 m was installed 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 airborne sound transmission loss test was carried out three times on same system in a reverberation chambers as per ISO 10140-2 / ASTM E-90 standard and average value is reported at one-third octave frequency bands. These measurements were carried out at room temperature  $25^{\circ}\text{C} \pm 1^{\circ}\text{C}$ , humidity 65% and barometric pressure 935 mbar.

**6.0 DATE OF EVALUATION :**

Test was carried out on above mentioned test sample on 30<sup>th</sup> September 2021 at NVH laboratory, ARAI-Pune.

**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	3-Aug-21	3-Aug-22
2	½" Random Incidence Microphone	378C20	PCB, USA	3-Aug-21	3-Aug-22
3	Power Amplifier	2716	Bruel & Kjaer, Denmark	Does not require separate calibration as it is driven by data acquisition system	
4	Omni directional 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 :**

Table 1 and Figure 2 shows the values and plot of airborne sound transmission loss of Sound Tight - STI 612 Elastomer Membrane of 2000 kg/m<sup>3</sup> density and 6 mm thickness in the one-third octave frequency bands of 100 Hz to 8000 Hz, STC (sound transmission class) and R<sub>w</sub> (C<sub>100-5000</sub>; C<sub>tr100-5000</sub>) (weighted sound reduction index and spectrum adaptation terms).

**9.0 CONCLUSIONS :**

<b>The sound transmission class (STC) is calculated as per ASTM E- 413 and weighted sound reduction index with spectrum adaptation terms R<sub>w</sub> (C<sub>100-5000</sub>; C<sub>tr100-5000</sub>) is calculated as per ISO 717-1 for Sound Tight - STI 612 Elastomer Membrane of 2000 kg/m<sup>3</sup> density and 6 mm thickness</b>	
Sound transmission class (STC)	35 dB
Weighted sound reduction index with spectrum adaptation terms R <sub>w</sub> (C <sub>100-5000</sub> ; C <sub>tr100-5000</sub> )	35(0;-5) dB

Report Prepared By:

  
**P. P. Kamble**  
Engineer

Reviewed By:

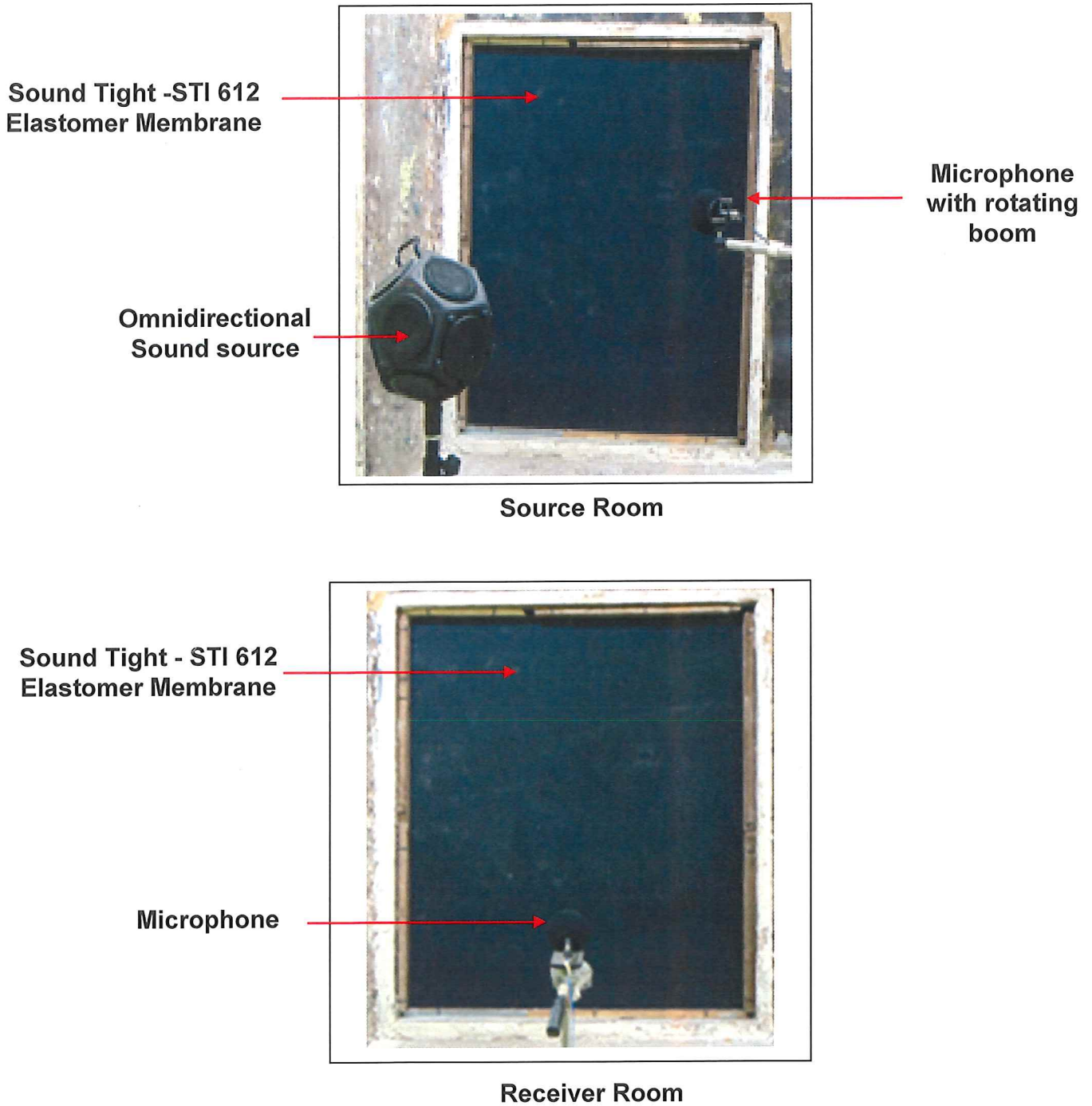
  
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Approved By:

  
**S. K. Jain**  
General Manager

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**Figure 1: The test set up for mounting of Sound Tight - STI 612 Elastomer Membrane between two reverberation chambers.**

Table 1 and Figure 2: Values and plot for sound transmission loss of Sound Tight - STI 612 Elastomer Membrane of 2000 kg/m<sup>3</sup> density and 6 mm thickness at one third octave frequencies

One Third Octave Frequency, Hz	Sound Transmission Loss, dB	STDEV
100	17.6	0.9
125	19.1	0.1
160	19.9	0.3
200	22.3	0.2
250	23.9	0.5
315	26.7	0.7
400	28.4	0.3
500	31.1	0.2
630	33.9	0.1
800	35.9	0.9
1000	37.2	0.8
1250	38.4	0.3
1600	40.9	0.9
2000	42.9	0.7
2500	44.9	0.7
3150	46.8	0.7
4000	49.0	0.3
5000	51.5	0.1
6300	54.8	0.1
8000	56.9	0.4

