CONFIDENTIAL

TEST REPORT ON DETERMINATION OF AIRBORNE SOUND TRANSMISSION LOSS OF SOUND TIGHT - STI 306 ELASTOMER MEMBRANE

ULR-TC508521050000015F
NVH/3100010965/2021-22/0015

1st 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 15th 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 306 Elastomer Membrane
3.3	Density	:	2000 kg/m^3
3.4	Thickness	:	3 mm

Sound & Acoustic Designs.

Sound Tight -STI 306 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^{0}C ± 1^{0}C, humidity 65% and barometric pressure 935 mbar.

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6.0 DATE OF EVALUATION :

Test was carried out on above mentioned test sample on 30th 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^3 and 110 m^3	-	-	-

8.0 TEST RESULTS :

Table 1 and Figure 2 shows the values and plot of airborne sound transmission loss of Sound Tight - STI 306 Elastomer Membrane of 2000 kg/m^3 density and 3 mm thickness in the one-third octave frequency bands of 100 Hz to 8000 Hz, STC (sound transmission class) and R_w ($C_{100\text{-}5000}$; $C_{tr100\text{-}5000}$) (weighted sound reduction index and spectrum adaptation terms).

9.0 CONCLUSIONS :

The sound transmission class (STC) is calculated as per ASTM E- 413 and weighted sound reduction index with spectrum adaptation terms R_w ($C_{100\text{-}5000}$; $C_{tr100\text{-}5000}$) is calculated as per ISO 717-1 for Sound Tight - STI 306 Elastomer Membrane of 2000 kg/m^3 density and 3 mm thickness	
Sound transmission class (STC)	29 dB
Weighted sound reduction index with spectrum adaptation terms R_w ($C_{100\text{-}5000}$;$C_{tr100\text{-}5000}$)	29(0;-5) dB

Report Prepared By:	Reviewed By:	Approved By:
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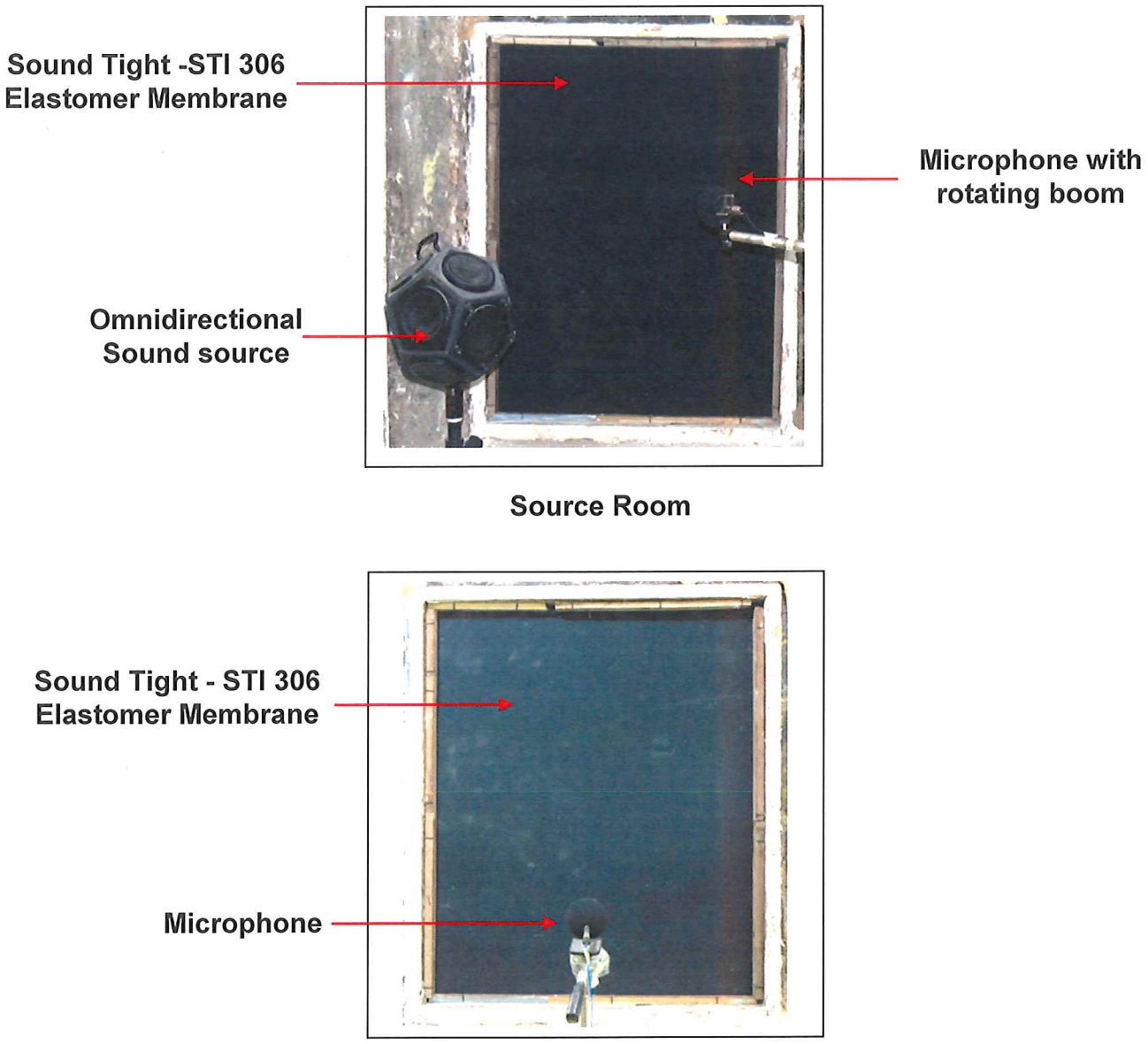
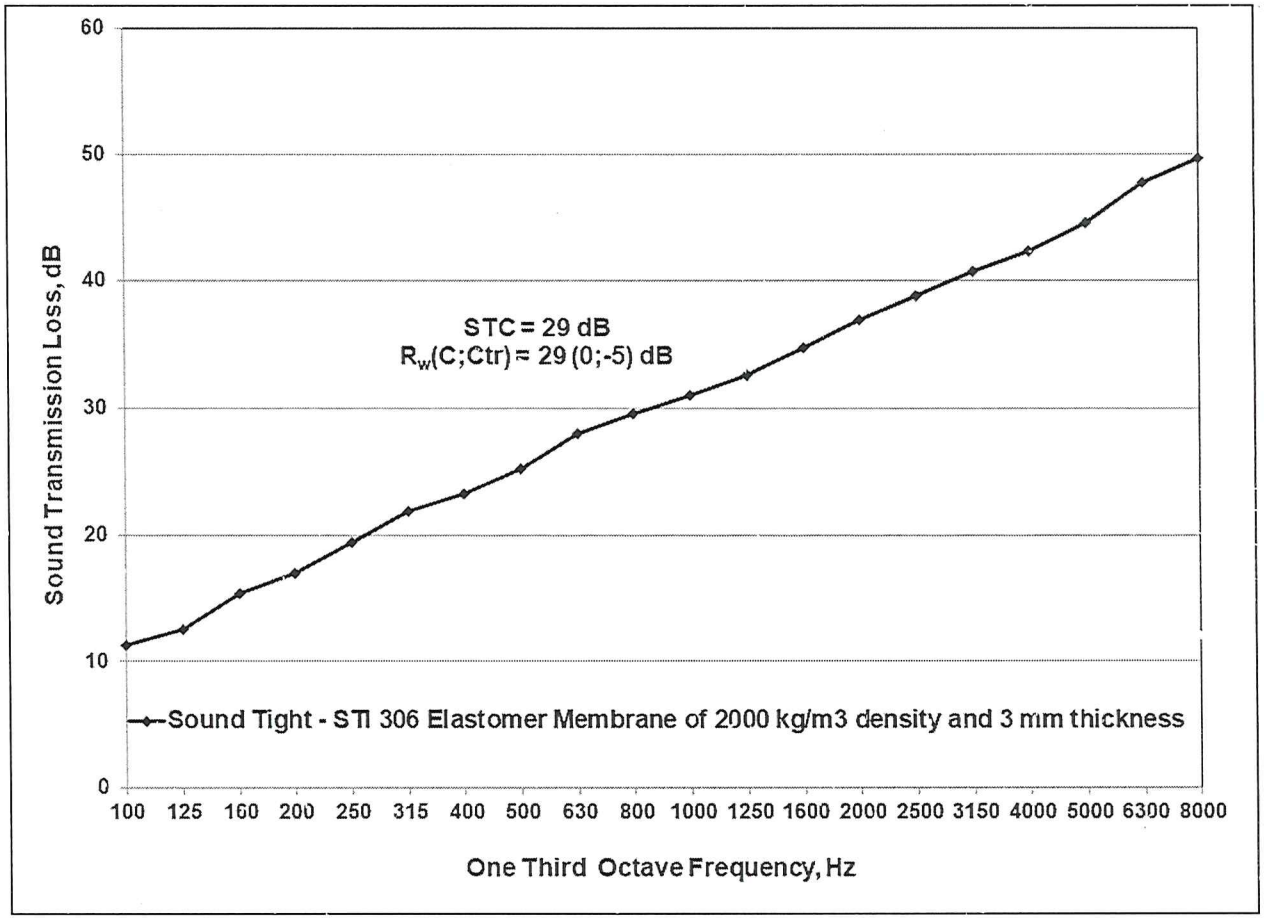


Figure 1: The test set up for mounting of Sound Tight - STI 306 Elastomer Membrane between two reverberation chambers

Table 1 and Figure 2: Values and plot for sound transmission loss of Sound Tight - STI 306 Elastomer Membrane of 2000 kg/m^3 density and 3 mm thickness at one third octave frequencies

One Third Octave Frequency, Hz	Sound Transmission Loss, dB	STDEV
100	11.3	0.5
125	12.6	0.6
160	15.5	0.9
200	17.0	0.4
250	19.5	0.1
315	21.9	0.2
400	23.3	0.2
500	25.3	0.5
630	28.0	0.6
800	29.6	0.5
1000	31.1	0.4
1250	32.6	0.3
1600	34.8	0.3
2000	36.9	0.5
2500	38.9	0.3
3150	40.7	0.3
4000	42.4	0.4
5000	44.6	0.7
6300	47.7	0.5
8000	49.6	0.8



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