Test Report No. 7191210875-MEC19/01-EMK
dated 28 May 2019
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SUBJECT:

Laboratory measurement of airborne sound transmission loss of wall panels system submitted by GE Tech Industry Sdn Bhd on 14 May 2019.

TESTED FOR:

GE Tech Industry Sdn Bhd
Wisma HCK, No. 6 Jalan 19/1B
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Malaysia

Attn : Mr. Tey CK

DATE OF TEST:

23 May 2019

DESCRIPTION OF SAMPLES:

The following wall panels system was installed onto the sample carrier for sound insulation test.

Product name	:	GEG ECO lightweight wall panels
Nominal size of wall system	:	3180mm (length) x 3140mm (height) x 105mm (thick)
Composition of material	:	Cement, water, foaming agent, fibreglass and 20% volume air
Measured density of panel	:	1036kg/m^3

The boundary perimeters of the entire wall panels system were sealed with silicon sealant.

The technical drawing of wall panels system submitted by the company was shown in Appendix.

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METHOD OF TEST:

The test was conducted in accordance with the following test standards.

a) ASTM E90 - 04 “Standard test method for laboratory measurement of airborne sound transmission loss of building partitions and elements”

b) ASTM E413 - 04 “Classification for Rating Sound Insulation”

Measured area of wall panel system : 9.80m^2
Air temperature in both source room and receiving room : 26ºC
Relative air humidity in both source room and receiving room : 54%
Source room volume : 74m^3
Receiving room volume : 85m^3
Location of the test : Acoustics Lab of TÜV SÜD PSB Pte Ltd

TEST EQUIPMENT:

The following instruments were used for the test.

1) A dual-channel real-time frequency analyser (B&K Type 2133)

2) One units of loudspeaker (JBL MPro MP415)

3) Two sets of ½” diffuse field microphones (G.R.A.S Type 4OAR)

4) Two sets of microphone preamplifers (B&K Type 2669)

5) A sound pressure level calibrator (Norsonic Type 1251)

6) A sound source amplifier (Crown model CE 1000)

7) Two sets of rotating microphone booms (B&K Type 3923)

TEST PROCEDURES:

1) Instrumentation was set up according to ASTM E90.

2) Measurement system was calibrated using a sound level calibrator.

3) Background noise level of both source and receiving room were measured.

4) One loudspeaker was placed at one corner in the source room.

5) Sound source system was switched on to generate “White” noise and maintained at constant level. The measured sound pressure level in the receiving room was ensured to be 15dB higher than the background noise level.

6) Recording time for both rotating microphone booms was set to 64s which equals to the time taken by the booms to complete two revolutions.

7) Sound pressure level in the source room and the receiving room were measured simultaneously and the measurement was repeated for another 2 more times.

8) Step 6 and 7 were then repeated after the loudspeaker was moved to another corner in the source room.

9) One loudspeaker was placed at one corner of the receiving room to generate the “Pink” noise for reverberation time measurement.

10) The average of 2 measurements of reverberation time in the receiving room was conducted and the measurement was repeated for another 1 more time.

11) Step 9 and 10 were then repeated after the loudspeaker was moved to another corner in the receiving room.

12) The mean values of 6 readings of sound pressure level difference and 4 readings of RT values were calculated.

13) Values of Sound Transmission Loss (TL) were determined for each 1/3 octave frequency band from 100Hz to 5kHz based on the mean values of Step 12.

14) Sound Transmission Class (**STC**) was determined at 500Hz frequency of the shifted reference curve according to ASTM E413.

RESULTS: (cont'd)

Values of sound transmission loss (TL) of the tested wall panels system were tabulated in Table 1. Sound insulation rating was computed according to ASTM E413.

Table 1 : Measured Sound Transmission Loss, TL and values of the shifted reference curve for STC = 44

1/3 Octave Band Frequency (Hz)	Measured Sound Transmission Loss, TL (dB)	Shifted Reference Curve STC = 44 dB	Deficiency
100	32.2	25	0.0
125	29.4	28	0.0
160	30.8	31	0.2
200	32.5	34	1.5
250	34.0	37	3.0
315	33.9	40	6.1
400	36.2	43	6.8
500	39.4	**44**	4.6
630	42.6	45	2.4
800	45.4	46	0.6
1000	46.8	47	0.2
1250	48.4	48	0.0
1600	50.7	48	0.0
2000	52.0	48	0.0
2500	53.5	48	0.0
3150	54.7	48	0.0
4000	55.7	48	0.0
5000	56.5	48	0.0
		Total deficiency (125Hz – 4000Hz)	**26**

The values in Table 1 were plotted as shown in Figure 1.

Remark:

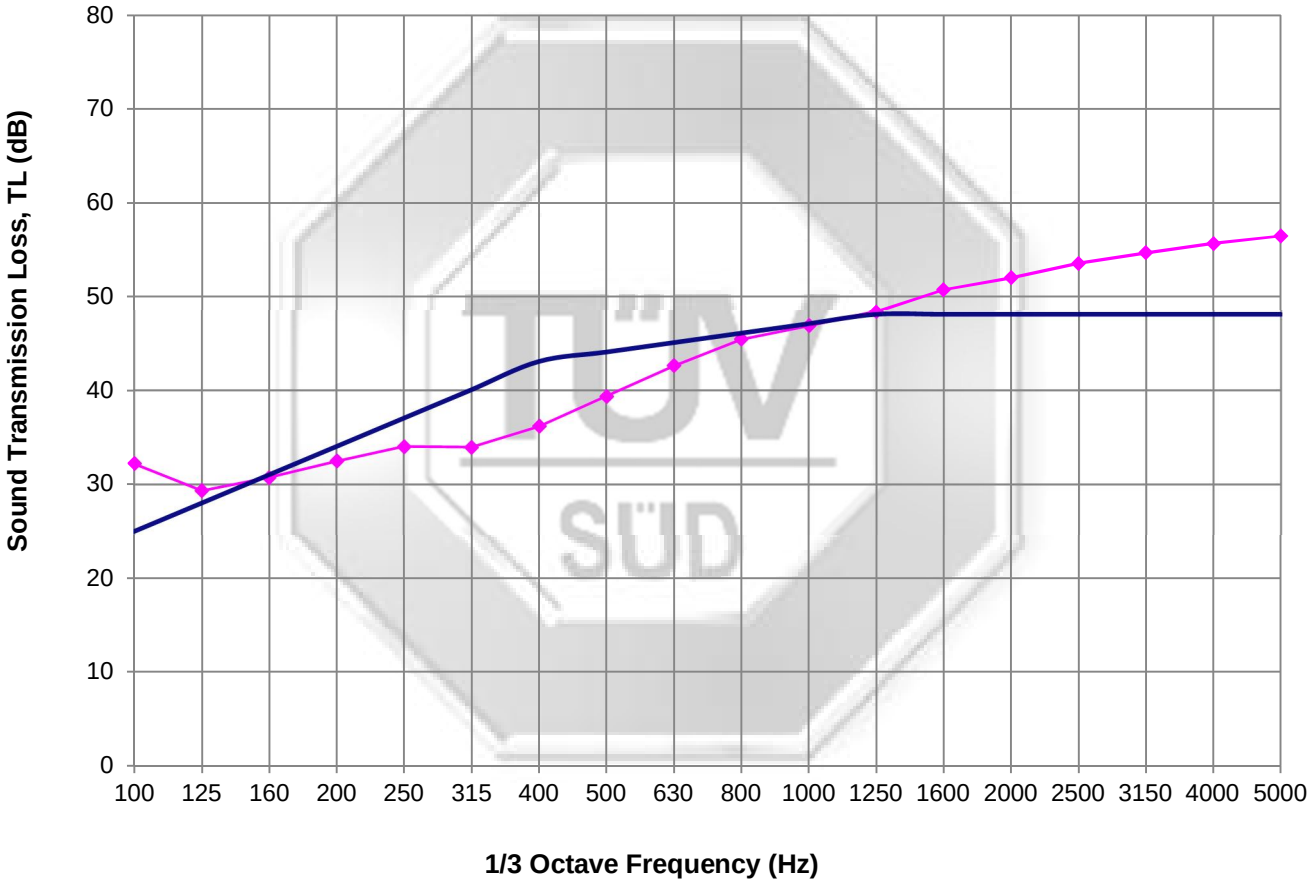
The tested 105mm thick "GEG ECO" lightweight wall panels system achieved a sound transmission class, STC = 44.

Francis Ee Min Kuen
Testing Officer

Lem Chee Meng
Product Manager
Acoustics
Real Estate & Infrastructure - Mechanical

RESULTS: (cont'd)

Figure 1 : Sound transmission loss performance of 105mm thick "GEG ECO" lightweight wall panels system (STC 44)



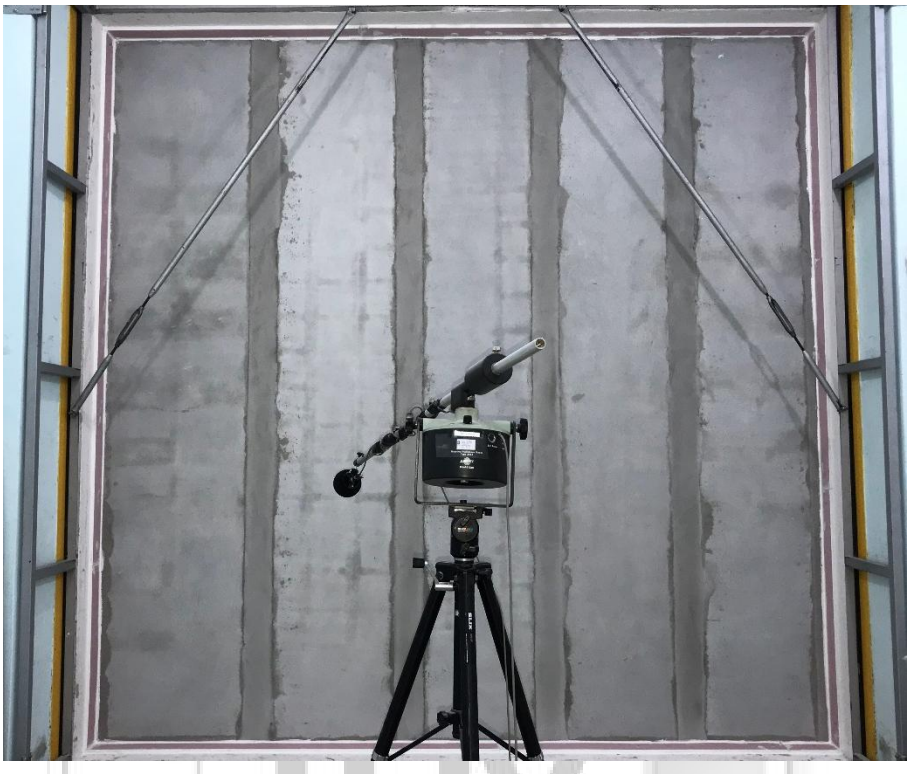
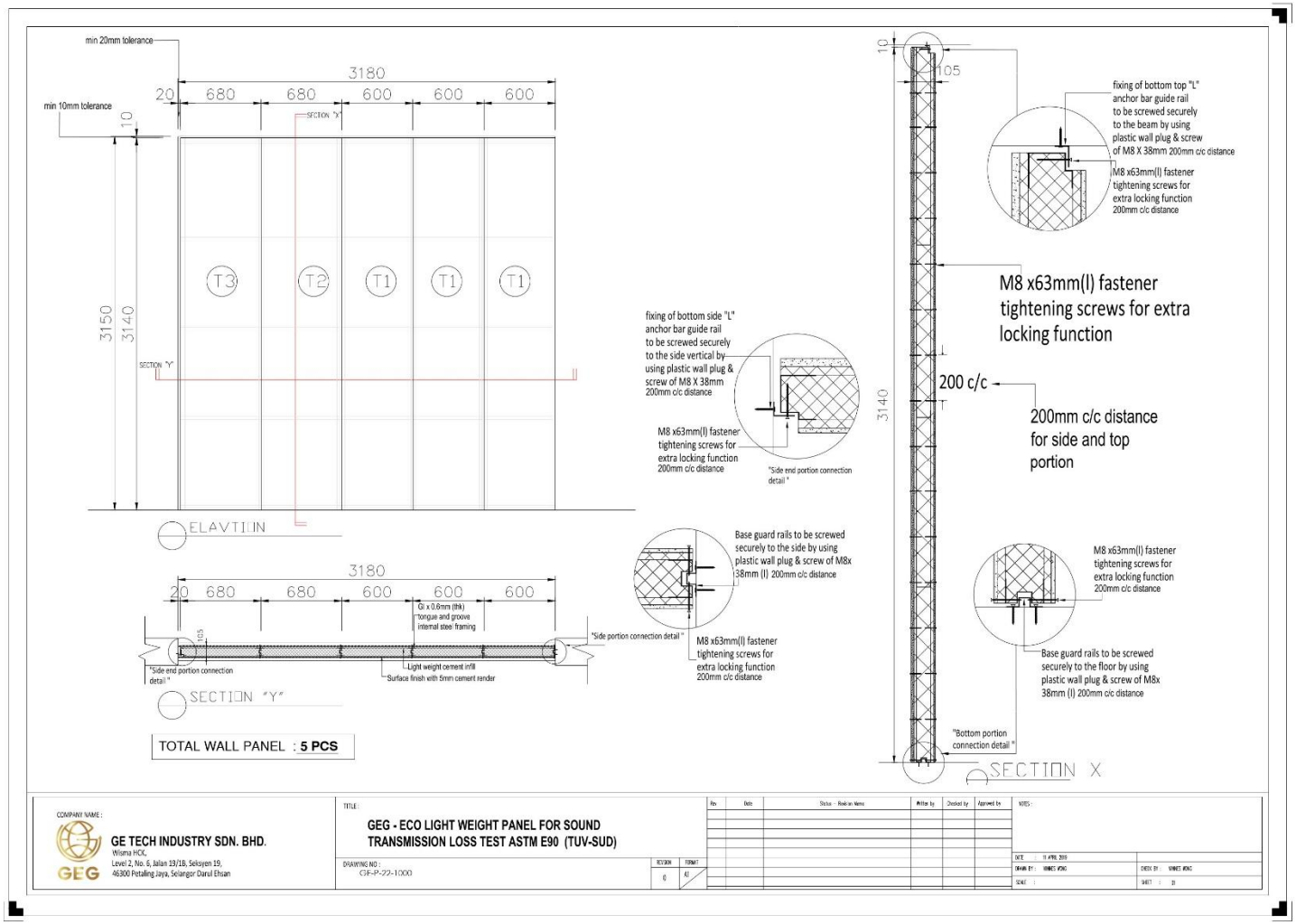


Figure 2 : "GEG ECO" lightweight wall panels system facing source room

Figure 3 : "GEG ECO" lightweight wall panels system facing the receiving room



Appendix : Technical drawing of the installed “GEG ECO” lightweight wall panels system

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July 2011