# Test Report No. 7191338137-MEC24/04-KDA
**dated 17 Feb 2025**

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## SUBJECT:

Laboratory measurement of airborne sound insulation loss of mini sinlge glazed partition system submitted by SAAS Solutions Pte Ltd on 13 Nov 2024.

## TESTED FOR:

SAAS Solutions Pte Ltd
151 Chin Swee Road
#13-02 Manhattan House
Singapore 169876

Attn: Mr. Zack Chua

## DATE OF TEST:

19 Nov 2024

## DESCRIPTION OF SAMPLES:

One set of single glazed partition system with 12mm thick tempered glass was installed onto a filler wall of the sample carrier.

| | | |
|---|---|---|
| Brand Name | : | SAAS Solutions |
| Model | : | S-28 Mini |
| Overall nominal size (include frame) | : | 1200mm (width) x 2400mm (height) x 28mm (thick) |
| Material composition | : | a) 12mm thick tempered glass;<br>b) Aluminium frame |

The boundary perimeters and gaps of the entire mini single glazed partition system with tempered glass were filled up with sealant.

The technical drawings of the mini single glazed partition system with tempered glass were shown in Appendix.

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| | |
|---|---|
| LA-2007-0380-A | LA-2007-0386-C |
| LA-2007-0381-F | LA-2010-0464-D |
| LA-2007-0382-B | LA-2018-0702-B |
| LA-2007-0383-G | LA-2018-0703-G |
| LA-2007-0384-G | LA-2020-0747-L |
| LA-2007-0385-E | |

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## METHOD OF TEST:

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

a) ISO 10140 - 2 : 2021 “Laboratory measurement of sound insulation of building elements” Part 2 : Measurement of airborne sound insulation.

b) ISO 717 - 1 : 2020 “Acoustics - Rating of sound insulation in buildings and of building elements” Part 1 : Airborne sound insulation

Measured area of single glazed partition: 2.81$m^2$

Air temperature in both source room and receiving room: 24ºC

Relative air humidity in both source and receiving room: 66%

Receiving room volume: 160$m^3$

Source room volume: 131$m^3$

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 loudspeaker (JBL MPro MP415)
3) Two sets of ½” condenser microphone (B&K Type 4190)
4) Two sets of microphone preamplifer (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 boom (B&K Type 3923)

**TEST PROCEDURES:**

1) Instrumentation was set up according to ISO 10140 - 2.

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 reduction index (R) were determined for each 1/3 octave frequency band from 100Hz to 5kHz based on the mean values of step 12.

14) Weighted sound reduction index ($\mathbf{R_w}$) and its adaptation terms ($\mathbf{C}$; $\mathbf{C_{tr}}$) according to ISO 717-1 was determined at 500Hz frequency of the shifted reference curve.

**RESULTS:**

Values of sound reduction index (R) of the tested mini single glazed partition system with tempered glass were tabulated in Table 1. Sound Insulation Rating is computed according to ISO 717-1.

**Table 1 : Measured Sound Reduction Index, R, and values of the shifted reference curve for $R_w$ = 32**

| 1/3 Octave Band Frequency (Hz) | Sound Reduction Index, R (dBL) | Shifted Reference Curve $R_w$ = 32 | Deficiency |
|---|---|---|---|
| 100 | 23.3 | 13 | 0.0 |
| 125 | 24.2 | 16 | 0.0 |
| 160 | 29.4 | 19 | 0.0 |
| 200 | 28.3 | 22 | 0.0 |
| 250 | 30.2 | 25 | 0.0 |
| 315 | 31.5 | 28 | 0.0 |
| 400 | 33.6 | 31 | 0.0 |
| 500 | 34.7 | **32** | 0.0 |
| 630 | 35.5 | 33 | 0.0 |
| 800 | 35.8 | 34 | 0.0 |
| 1000 | 34.5 | 35 | 0.5 |
| 1250 | 25.9 | 36 | 10.1 |
| 1600 | 26.6 | 36 | 9.4 |
| 2000 | 29.3 | 36 | 6.7 |
| 2500 | 32.4 | 36 | 3.6 |
| 3150 | 34.5 | 36 | 1.5 |
| 4000 | 38.7 | 36 | 0.0 |
| 5000 | 42.2 | 36 | 0.0 |
| **Total deficiency (100Hz – 3150Hz)** | | | **31.9** |

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

**Remark**:

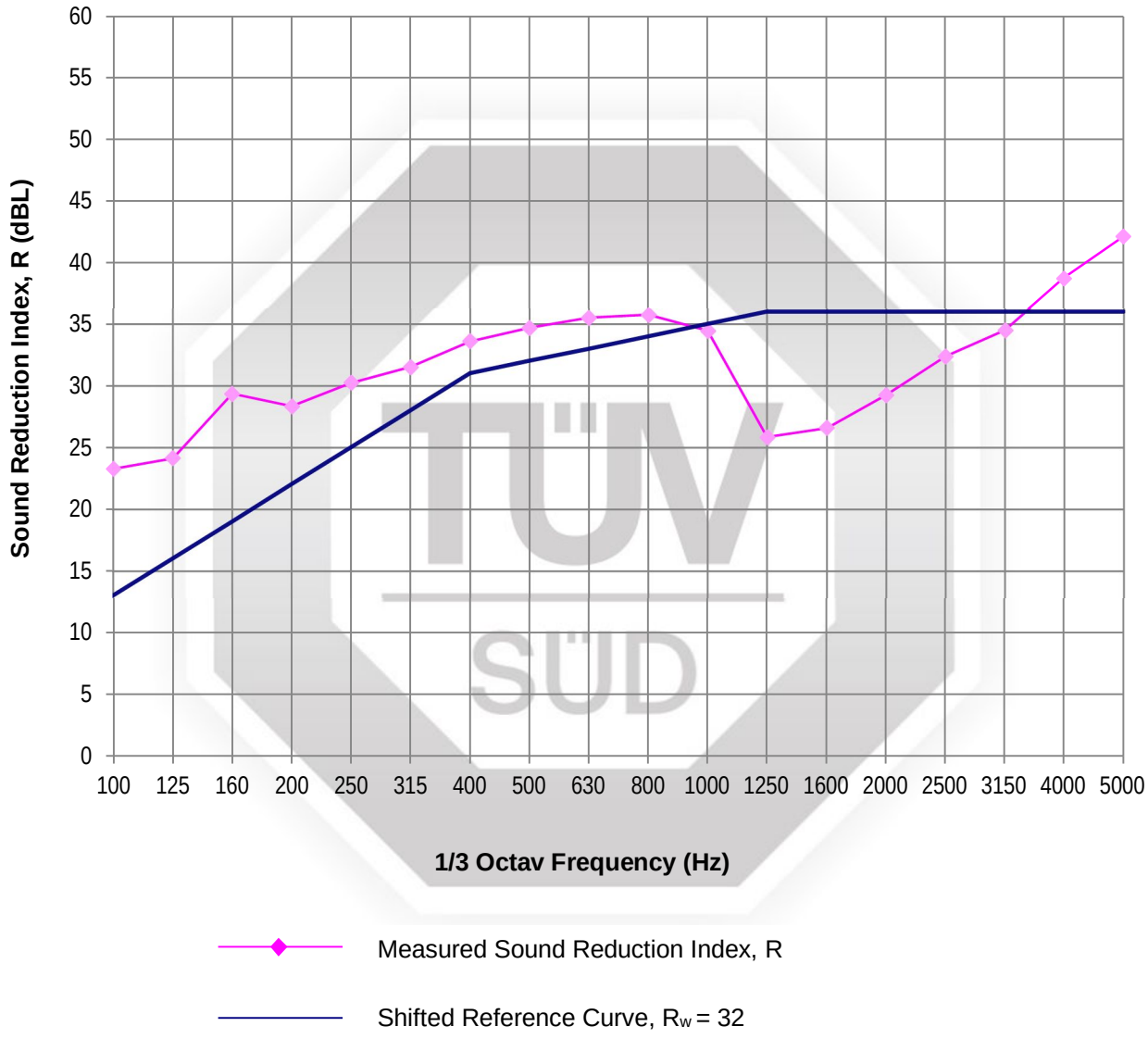
The tested “S-28 Mini” single glazed partition system with 12mm thick tempered glass achieved a weighted sound reduction index, $R_w$ (C; $C_{tr}$) = 32 (-2; -2).

Klenplir Drequito Antimano
Testing Officer

Francis Ee Min Kuen
Engineer
Acoustics
Real Estate & Infrastructure - Mechanical

**RESULTS (cont'd):**

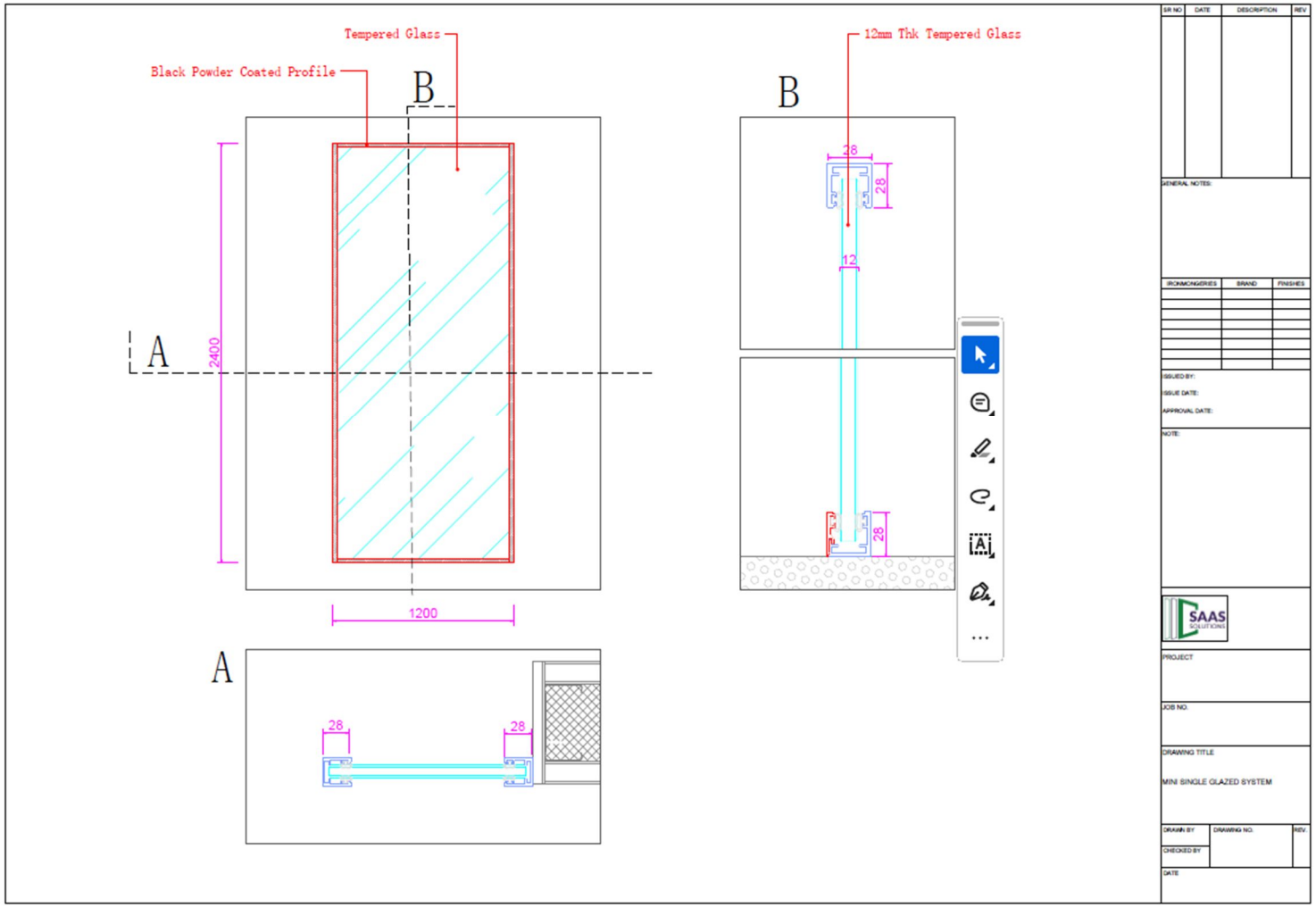
**Figure 1: Sound Insulation Performance of "S-28 Mini" Single Glazed Partition System with 12mm thick tempered glass ($R_w$ 32)**



**RESULTS (cont'd):**

**Figure 2 : "S-28 Mini" single glazed partition system with 12mm thick tempered glass facing the source room**

**Figure 3 : "S-28 Mini" single glazed partition system with 12mm thick tempered glass facing the the receiving room**




**Appendix : Technical drawing of the "S-28 Mini" single glazed partition system with 12mm thick tempered glass**

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Effective 27 March 2024