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# **FLOOR IMPACT NOISE ASSESSMENT**

**DecoLine Floors**

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## DOCUMENT CONTROL

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0	18/02/2026	Noise Assessment	RF	MF
1	21/04/2026	Update floor names	RF	MF

## CLIENT

Report Issued	Attention	Phone	Email
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Recommendations made in this report are intended to resolve acoustical problems only. We make no claim of expertise in other areas and draw your attention to the possibility that our recommendations may not meet the structural, fire, thermal, or other aspects of building construction

We encourage clients to check with us before using materials or equipment that are alternative to those specified in our Acoustical Report.

The integrity of acoustic structures is very dependent on installation techniques. For example, a small crack between the top of a wall and a ceiling can reduce the effective sound transmission loss of a wall from  $R_w$  50 to  $R_w$  40. Therefore, the use of contractors that are experienced in acoustic construction is encouraged. Furthermore, two insulation products may have the same thermal R rating but the sound absorption of one may be entirely deficient, therefore the use of materials and equipment that are supported by acoustic laboratory test data is encouraged.

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## 1 INTRODUCTION AND SITE DESCRIPTION

Alpha Acoustics Pty Ltd has been engaged by DecoLine Floors to carry out floor impact sound insulation performance tests of Vinyl Plank Flooring. Field floor impact sound insulation testing was conducted by Alpha Acoustics on Thursday 5<sup>th</sup> February 2026 and Thursday 12<sup>th</sup> February 2026 and Friday 23<sup>rd</sup> May 2025. The floor impact tests were conducted between:

- Apt 19 Living Room and Apt 17 Living Room of 11 Peak Avenue, Main Beach QLD 4217 and
- Apt 1003 Living Room and Apt 903 Living Room of 29 Hill Avenue Burleigh Heads QLD 4220
- Apt 2322 Living Room and Apt 2224 Living Room of 178 Grey Street, South Brisbane QLD 4101

**Figure 1.2 – Test setups**

### **Decoline Horizon vinyl plank (5mm)**



### **Decoline 5mm vinyl plank with PVC new form backing**



### **Decoline calm & skyline vinyl plank (5mm) with IXPE backing**



## 2 NOISE SURVEY AND INSTRUMENTATION

All instrument systems had been laboratory calibrated using instrumentation traceable to Australian National Standards and certified within the last two years thus conforming to Australian Standards. The measurement system was also calibrated prior to and after the noise survey. Calibration drift was found to be less than 0.1 dB during attended measurements. No adjustments for instrument drift during the measurement period were warranted.

**Figure 2.1 Noise Instrumentation**

Description	Model No.	Serial No.
Modular Precision Sound Analyser	B&K 2260	236 1157
Condenser Microphone 0.5" diameter	B&K 4189	237 8026
Acoustical Calibrator	Larson Davis CAL 200	2617
Microphone Windscreen	Acoustically transparent foam	
Tapping Machine	EM 50	TM 14142

The Bruel & Kjaer 2260 Sound Analyser is a real-time precision integrating sound level meter with octave and third octave filters that samples noise at a rate of 10 samples per second.

### 3 FLOOR IMPACT SOUND INSULATION TEST PROCEDURE

The field measurement of the impact sound insulation of the subject floor was made in third octave bands in accordance with AS/NZS ISO 140.7:2006 Acoustics - Measurement of sound insulation in buildings and of building elements (Field measurements of impact sound insulation of floors) and rated in accordance with AS/NZS ISO 717.2:2004 Acoustics - Rating of sound insulation in buildings and of building elements (Impact sound insulation).

The tapping machine was placed in 4 different orientations over the test floor. The average sound pressure level was obtained in receiving rooms. Four measurements were conducted in the receiver room using a sweeping motion with each measurement covering a number of traverses, and an averaging time of 60 seconds per sweep. The sound pressure levels were measured using one-third octave band pass filters from 50 Hz to 10 KHz.

Reverberation time was measured in the receiving room generally according to AS/NZS ISO 354:2006 (R2016) Acoustics - Measurement of sound absorption in a reverberation room.

The sound level meter has been calibrated to Australian Standards by a certified NATA laboratory. Further to this, a calibration was conducted prior to and subsequent to the measurements using a Bruel & Kjaer Type 4230 Acoustic calibrator. The sound level meter conforms to a Type 1 instrument as defined in AS 1259:1990 Acoustics - Sound level meters.

The impact isolation of the specimen was then calculated using the following relationship;

$$L_{nT} = L_i + 10 \log \left( \frac{T}{T_o} \right)$$

Where;

$L_i$  = Impact Sound Pressure Level receiver room (dB)

$T$  = Measured reverberation time of the receiving room (sec)

$T_o$  = Reference reverberation time (0.5 sec)

The Weighted Standardised Impact Sound Pressure Level ( $L_{nT,w}$ ) and the adaptation term ( $C_i$ ) were determined in accordance with AS/NZS ISO 717.2:2004.

### 4 FLANKING TRANSMISSION

No adjustment for flanking noise was made when testing as per the applicable standards.

## 5 MEASUREMENT OF FLOOR IMPACT SOUND INSULATION

The overall test result from the floor impact sound insulation tests are shown in Table 5.1 below.

**Table 5.1 – Floor Impact Results**

### Apt 19 Living Room and Apt 17 Living Room of 11 Peak Avenue, Main Beach QLD 4217

Test Floor Composition	LnTw Unglued	LnTw Glued	Reduction in Glued LnTw
200mm bare concrete slab with 60mm channels with 10mm plasterboard screw fixed to the channel and no insulation	60	n/a	n/a
<b>Decoline Horizon vinyl plank (5mm)</b> Over 200mm concrete slab with 60mm channels with 10mm plasterboard screw fixed to the channel and no insulation	50	51	9
<b>Decoline 5mm vinyl plank with PVC new form backing</b> over 200mm concrete slab with 60mm channels with 10mm plasterboard screw fixed to the channel and no insulation	50	51	9
<b>Decoline Calm &amp; Skyline vinyl plank (5mm) with IXPE backing</b> over 200mm concrete slab with 60mm channels with 10mm plasterboard screw fixed to the channel and no insulation	49	50	10

### Apt 1003 Living Room and Apt 903 Living Room of 29 Hill Av, Burleigh Heads QLD 4220

Test Floor Composition	LnTw Unglued	LnTw Glued	Reduction in Glued LnTw
Existing hard floor glue fixed to a 200mm concrete slab	n/a	68	n/a
<b>Decoline Horizon vinyl plank (5mm)</b> Over 200mm concrete slab with 60mm channels with 10mm plasterboard screw fixed to the channel and no insulation	64	65	3
<b>Decoline 5mm vinyl plank with PVC new form backing</b> over 200mm concrete slab with 60mm channels with 10mm plasterboard screw fixed to the channel and no insulation	55	56	12
<b>Decoline Calm &amp; Skyline vinyl plank (5mm) with IXPE backing</b> over 200mm concrete slab with 60mm channels with 10mm plasterboard screw fixed to the channel and no insulation	51	52	16

### Apt 2322 Living Rm and Apt 2224 Living Rm of 178 Grey Street, South Brisbane QLD 4101

Test Floor Composition	LnTw Unglued	LnTw Glued	Reduction in Glued LnTw
180mm bare concrete slab	71	n/a	n/a
<b>Decoline 5mm vinyl plank with PVC new form backing</b> Over 180mm concrete slab	52	53	18

## 6 NOISE IMPACT STATEMENT

Alpha Acoustics Pty Ltd has been engaged by DecoLine Floors to carry out floor impact sound insulation performance tests of vinyl flooring.


This report shows the field floor impact sound insulation testing was conducted by Alpha Acoustics. The floor impact test results change from building to building and fixing the floor (glue versus unglued) can change the floor impact test results.

The field testing revealed the

- Decoline 5mm vinyl plank with PVC new form backing and the
- Decoline Calm & Skyline vinyl plank (5mm) with IXPE backing

regularly achieves a floor impact test result of Lntw 50 to Lntw 55 for different floor and ceiling configurations.

Please contact the undersigned for further information.



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## APPENDIX B – GLOSSARY OF ACOUSTIC TERMS

The following is a brief description of the technical terms used to describe traffic noise to assist in understanding the technical issues presented in this document.

*Event maximum sound pressure level ( $L_{A\%,adj,T}$ ),  $L_{01}$*

The  $L_{01}$  level is calculated as the noise level equalled and exceeded for 1% of the measurement time, for example 9 seconds in any 15 minute interval.  $L_{01}$  is an appropriate level to characterise single events, such as from impulsive or distinctive pass-by noise. In this Report, the measured  $L_{01}$  levels for day/evening/night are not averaged but are arranged from low to high in the relevant day/evening/night interval and the value that is found at the 90th percentile ( $L_{10}$  of  $L_{01}$  sample) in the interval is recorded as its “ $L_{01}$ ” level. The level can be adjusted for tonality or impulsiveness.

*Average maximum sound pressure level ( $L_{A\%,adj,T}$ ),  $L_{10}$*

The “ $L_{10}$ ” level is an indicator of “steady-state” noise or intrusive noise conditions from traffic, music and other relatively non-impulsive noise sources. The  $L_{10}$  level is calculated as the noise level equalled and exceeded for 10% the measurement time, for example 90 seconds in any 15 minute interval. The measured  $L_{10}$  time-intervals for day/evening/night are arithmetically averaged to present the “average maximum” levels of the environment for day/evening/night. The level can be adjusted for tonality or impulsiveness.

*Background sound pressure level ( $L_{A90,T}$ ),  $L_{90}$*

Commonly called the “ $L_{90}$ ” or “background” level and is an indicator of the quietest times of day, evening or night. The  $L_{90}$  level is calculated as the noise level equalled and exceeded for 90% the measurement time. The measured  $L_{90}$  time-intervals are arithmetically averaged to present the “average background” levels of the environment for day/evening/night. The level is recorded in the absence of any noise under investigation. The level is not adjusted for tonality or impulsiveness.

*Equivalent Continuous or time average sound pressure level ( $L_{Aeq,T}$ ),  $L_{eq}$*

Commonly called the “ $L_{eq}$ ” level it is the logarithmic average noise level from all sources far and near. The maximum 1-hour levels within the day/evening/night time intervals are referenced for building design. The level can be adjusted for tonality.

*Façade-adjusted level*

A sound level that is measured at a distance of 1.0 metre from a wall or facade. The level is nominally 2.5 dB higher than the free-field level.

*Free-field level*

A sound level that is measured at a distance of more than 3.5 metres from a wall or facade.

*Weighted Sound Reduction Index,  $R_w$*

A single number value used to compare the sound reduction index of building elements. Similar to the Sound Transmission Class (STC) rating that is still in common use.  $R_w$  and STC are not identical though may be considered, for most applications, as being interchangeable. A high  $R_w$  indicates high sound reduction.