

Client: Interface Aust Pty Ltd
34 Airds Road, Minto, NSW 2566

Measurement Type: Impact Sound Insulation (Floor)

Laboratory measurements in accordance with • AS ISO 140.6-2006 (Impact sound insulation).
Ratings ($L_{n,w}$ C_i ΔL_w ΔL_{in}) in accordance with • AS ISO 717-2-2004 (Rating of sound insulation in buildings and of building elements, Part 2: Impact sound insulation).

Test Specimen (3.6 x 3.0 m test floor area)

Description: Interface LVT Planks, 4.5 mm thick, 0.55 mm wear layer with acoustic layer, laid directly on a 200 mm thick concrete floor.

Materials:

- a) Interface LVT Planks, consisting of a 0.55 mm textured protective PUR wear layer, over a printed film carrying the timber appearance, over a vinyl substrate, with a resilient backing (plank size 1000 x 250 mm x 4.5 mm thick, 6.7 kg/m²). The test specimen material included planks with two different aesthetic designs from the range, of identical construction except for the printed film behind the wear layer.
- b) 200 mm thick concrete test floor of laboratory (approx. 480 kg/m²); no ceiling below.

Installation details:

- The concrete test floor of the laboratory was swept to remove dust.
- LVT planks [item a] were loose laid on the concrete and butted tightly against each other.
- Joins were staggered between adjacent rows, cutting planks in half as required.
- Installation was carried out by the laboratory.



Close up view of specimen planks showing sectional profile.

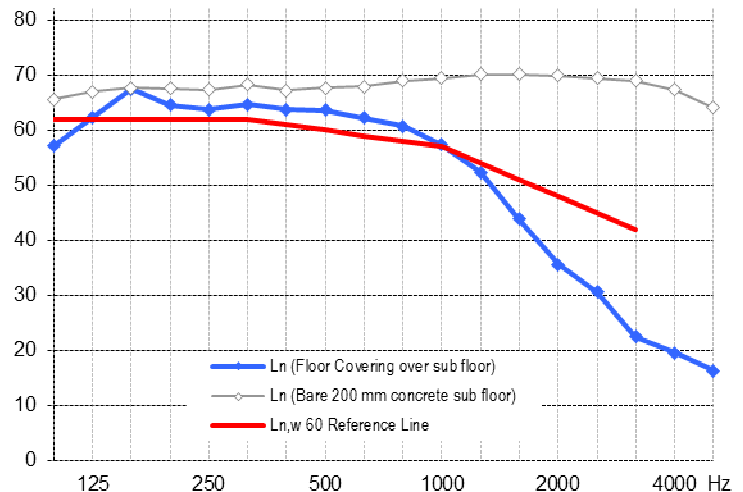


Test specimen laid in laboratory, as tested.

Measurement Details & Results

Freq (Hz)	Specimen Floor	Bare Concrete
	L_n (dB)	Floor L_n (dB)
100	57.1	65.6
125	62.4	67.0
160	67.5	67.7
200	64.6	67.6
250	63.8	67.3
315	64.7	68.3
400	63.8	67.2
500	63.6	67.7
630	62.2	67.9
800	60.7	69.0
1000	57.4	69.4
1250	52.4	70.1
1600	43.9	70.1
2000	35.6	69.9
2500	30.7	69.5
3150	22.5	69.0
4000	19.6	67.3
5000	16.3	64.1

The concrete test floor, being 200 mm thick, is not suitable for testing in accordance with AS ISO 140.8; hence ΔL values are not reported. Impact noise figures for the bare concrete floor have been measured at another time, and are included for information only.



Performance Index Numbers (laboratory method)

$L_{n,w}$ (C_i) = 60 (-1)
IIC = 50

The tapping machine was placed diagonally in eight different locations across the test floor area; sound levels in the room below were measured over a whole microphone rotation (33 sec) at each location, and the results averaged.

Measurement Conditions	With Floor Covering	Bare Concrete Floor
Date of measurement:	19 December 2016	28 June 2016
On top of floor:	27 °C, 21 % R.H.	11 °C, 80 % R.H.
Chamber underneath floor:	21 °C, 38 % R.H.	10 °C, 85 % R.H.
Atmospheric pressure:	997 mBar	1013 mBar

Notes, Deviations etc

1. \leq and \geq signify results, if any, where measurement was limited by proximity to background level.
2. L_n = dB re 20 μ Pa, corrected to mean sea level pressure.
3. L_n results represent noise levels; i.e. lower = quieter. For IIC results, higher = quieter.
4. IIC has been calculated according to ASTM E989-89; laboratory requirements for which may differ from those of the AS ISO 140.6 standard.
5. Testing was carried out unloaded; the weight of the tapping machine being the only load on top of the floor.
6. Physical characteristics given for materials may be as per supplier's advice; not necessarily verified by CSIRO.
7. The test specimen material suffered no visible damage during the course of the test.

Issuing Authority

Signed: David Truett
Date: 2 February 2017

Acoustic Instrumentation

Real time analyser: • Brüel & Kjær PULSE LAN-XI type 3160-A-4/2
Microphone/preamp: • GRAS 40AP microphone on Brüel & Kjær 2669 preamp, rotating continuously with 33 sec period about 1.31 m radius.
Noise source: • Norsonic Nor277 tapping machine (complies with ISO 140)
Calibration: • Brüel & Kjær type 4228 Pistonphone: Feb 2016 (NATA cal)
• Analyser: Feb 2016 (NATA cal)
• Sensitivity of measurement system was calibrated against the pistonphone at the time of measurement.

Laboratory Construction

Chamber: • 300 mm thick concrete • parallelepiped with dimensional proportions 1:1.3:1.6 for uniform distribution of room modes
• room volume approx 200 m³ • room surface area approx 212 m².
Diffusers: • 20 stationary diffusers, approx 40 m² (combined area of both sides).
Test floor: • The roof area of the reverberation chamber was constructed with a 200 mm thick area (3.60 x 3.00 m) for use as a floor test area. The test floor and the surrounding concrete roof of the chamber form a single monolithic structure.