

IMPACT NOISE INSULATION FIELD TEST REPORT

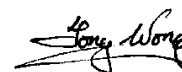
Reference Number:	TL238-01F03 Carpet Floor Impact Test - Ultimate Range Sample (r0)			
Date of Test:	26 November 2019			
Building address:	119 Glengary Drive, Glenmore Park			
Form of Construction:	<u>Floor finish in Living/Dining area of Apartment above Display Unit:</u> 1m x 1m sample of Inspired Floorcoverings Ultimate Range carpet tiles adhered to 200mm concrete slab. Ultimate Range carpet tile specification: <i>Yarn System: 100% Solution Dyed Nylon 6.6</i> <i>Construction: Multi-level Loop Pile</i> <i>Pile Weight: 23Oz (652gram)</i> <i>Pile Height: 4.5mm</i> <i>Total Thickness: 6.8mm, Gauge: 1/12</i> <u>Ceiling beneath in Living/Dining/Kitchen of Display Unit:</u> 13mm plasterboard ceiling suspended 100mm below slab soffit with standard hangers and insulation in ceiling cavity.			
Source Room:	Apartment No:	Level 1 Typical Apartment	Occupancy Type:	Living/Dining
Receiver Room:	Apartment No:	Ground Floor Display Apartment	Occupancy Type:	Living/Dining/ Kitchen
Measured Weighted Standardised Sound Level Difference and Spectrum Adaptation Term	$L'_{nT,w}$ (Ci)		36 (1) ¹	
Improvement in Impact Sound Reduction Compared to Bare Slab ($L'_{nT,w}$ 60)	ΔL		24 dB	
Measured Field Impact Isolation Class	FIIC		67	
Impact Sound Insulation Requirement of Current National Construction Code of Australia (2019)	$L'_{nT,w}$		No more than 62	
Comply with NCC 2019 Impact Sound Insulation Requirement?			Yes	
AAAC Star Rating of Tested Floor/Ceiling System ²			★★★★★	

Measurements conducted in accordance with International Standard ISO 16283-2:2018 "Acoustics – Field measurement of sound insulation in buildings and of building elements – Part 2: Impact sound insulation"; International Standard ISO 717-2 "Impact sound insulation"; ASTM E492-90 "Laboratory Measurement of Impact Sound Transmission Through Floor-Ceiling Assemblies Using the Tapping Machine" and, ASTM E989-89 "Determination of Impact Insulation Class (IIC)". Measurements and procedures documented in this report have been carried out in accordance with the Renzo Tonin & Associates Quality Assurance System. This quality system is based on Australian/New Zealand Standard AS/NZS ISO 9001:2000.



Graduate Engineer

Reymar Victoria



Checked By

Tony Wong

1. Sample floor test results are indicative only, acoustic performance of completed system may vary. Generally, a 3dB allowance is applied when estimating performance of completed floor from a sample test.

2. Association of Australasian Acoustical Consultants AAAC (Maximum of 6 Stars)

Standardized Impact Sound Pressure Level according to ISO 140-7

Field measurements of impact sound insulation of floors

Client: Inspired Floorcoverings

Date of test: 26/11/2019

Description and identification of the building construction and test arrangement:

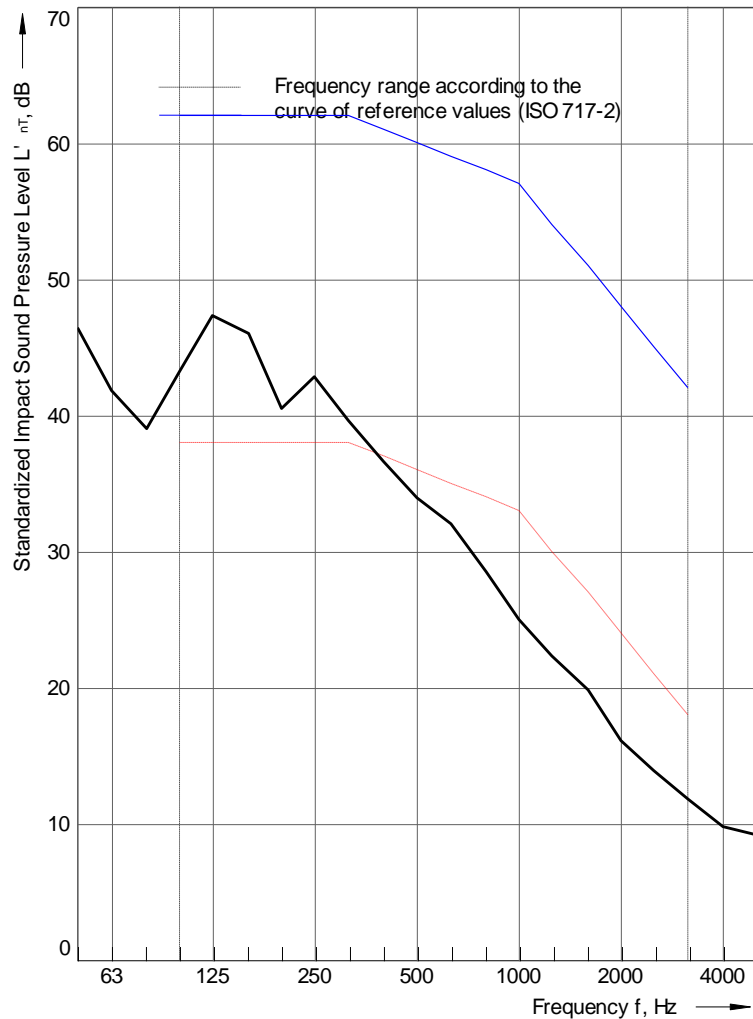
Floor finish in Living/Dining area of Apartment above Display Unit:

1m x 1m sample of Inspired Floorcoverings Ultimate Range carpet tiles adhered to 200mm concrete slab. Ultimate Range carpet tile specification: Yarn System: 100% Solution Dyed Nylon 6.6. Construction: Multi-level Loop Pile. Pile Weight: 23Oz (652gram). Pile Height: 4.5mm. Total Thickness: 6.8mm. Gauge: 1/12

Ceiling beneath in Living/Dining/Kitchen of Display Unit: 13mm plasterboard ceiling suspended 100mm below slab soffit with standard hangers and insulation in ceiling cavity.

Receiving room volume V: 106.80 m³

Frequency f Hz	L'_{nT} 1/3 Octave dB
50	≤ 46.4
63	≤ 41.8
80	≤ 39.0
100	43.2
125	47.3
160	46.0
200	40.5
250	42.8
315	39.6
400	36.6
500	33.9
630	32.0
800	28.5
1000	25.0
1250	22.3
1600	≤ 19.8
2000	≤ 16.1
2500	≤ 13.9
3150	≤ 11.8
4000	≤ 9.8
5000	≤ 9.2



Rating according to ISO 717-2

$$L'_{nT,w}(C_i) = 36 (1) \text{ dB}$$

$$C_{i,50-2500} = 3 \text{ dB}$$

Evaluation based on field measurement results obtained in one-third-octave bands by an engineering method

No. of test report:

Name of test institute: Renzo Tonin & Associates (NSW) Pty Ltd

Date: 27/11/2019

Signature: 

1 Test Methodology Introduction

This report provides results of impact isolation tests conducted in accordance with the following Australian/New Zealand and International:

1. ISO 16283-2:2018 'Acoustics – Field measurement of sound insulation in buildings and of building elements – Part 2: Impact sound insulation'
2. Australian Standard AS ISO 717.2-2004 "Acoustics – Rating of sound insulation in buildings and of building elements – Part 2: Impact sound insulation";
3. Australian Standard AS ISO 354-2006 "Acoustics – Measurement of sound absorption in a reverberation room";

2 Test Procedure

Tests were conducted according to the following procedure:

1. A tapping machine was placed in different positions on the sample the floor in accordance with ISO Standards indicated above.
2. While this tapping machine was operating, noise levels were recorded in four positions in the receiving room for each of the four tapping machine positions using a Bruel & Kjaer Type 2250 Investigator Sound Level Meter. The measured noise level was filtered simultaneously in all one-third octave frequency bands in real time. These values were recorded and subsequently statistically analysed to determine the average sound pressure levels for each room and to indicate the precision of the measurements.
3. The reverberation time of the receiving room was measured in accordance with AS ISO 354-2006.

3 Instrumentation and Analysis

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 4231 Acoustic Calibrator. The sound level meter conforms to a Type 1 instrument as defined in AS 1259-1990 "Acoustic – Sound level meters".

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

$$L'_{nT} = L_i - 10 \lg \frac{T}{T_0}$$

Where:

L_i = the average sound pressure level in the receiving room, decibels

T = the reverberation time in the receiving room (sec)

T_0 = the reference reverberation time, for dwellings, $T_0 = 0.5s$

The Weighted Standardised Impact Sound Pressure Level $L'_{nT,w}$ and the adaptation term C_1 were determined in accordance with AS ISO 717.2.

4 Precision

Estimates of precision are outlined on Section 2 of this report.