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FIELD FLOOR IMPACT INSULATION TEST REPORT



**UNITS 805-806-803,
15-17 WAVERLEY
SOUTHPORT QLD
4215**

Commissioned by:	Golden Elite Group
Date:	17 April 2025
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Author:	Javier Schneider Navas Jurado

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TITLE	Field Floor Impact Insulation Test Units 805-806-803, 15-17 Waverley Southport QLD 4215, Test Report
TESTS BY	Javier Schneider Navas Engineer - Palmer Acoustics (Australia) Pty Ltd
TEST DATE	14 April 2024
REPORT DATE	17 April 2025
TEST LOCATION	Level 8 Units 805-806-803 Living area to level 7 Unit 705-706-703 Living area
FOR	Golden Elite Group

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1.0 INTRODUCTION

Golden Elite Group has engaged Palmer Acoustics to perform field impact insulation tests at Units 805-806-803, 15-17 Waverley Southport QLD 4215. For these tests, we use an ISO 140 standard tapping machine (per ISO 16283-2: 2020(E)).

The following tests were carried out:

- Test 1 - Concrete- Level 8 Unit 805 Living area to Level 7 Unit 705 Living area
- Test 2 - 8mm Hybrid SPC sample floor- Level 8 Unit 805 Living area to Level 7 Unit 705 Living area(1000x1200mm)
- Test 3 - 9mm Hybrid SPC sample floor- Level 8 Unit 805 Living area to Level 7 Unit 705 Living area(1200x1200mm)
- Test 4 - 7mm Hybrid SPC sample floor- Level 8 Unit 805 Living area to Level 7 Unit 705 Living area(1200x1200mm)
- Test 5 - 3mm GE Rubber Cork Underlay- Level 8 Unit 805 Living area to Level 7 Unit 705 Living area(1000x1200mm)
- Test 6 - Concrete- Level 8 Unit 806 Living area to Level 7 Unit 706 Living area
- Test 7 - 14mm Engineered Timber with 3mm GE Rubber Cork Underlay sample floor- Level 8 Unit 806 Living area to Level 7 Unit 706 Living area(1300x1200mm)
- Test 8 - 5mm Vinyl Plank with 3mm GE Rubber Cork Underlay- Level 8 Unit 806 Living area to Level 7 Unit 706 Living area(1200x1200mm)
- Test 9 - 3mm Vinyl Plank with 3mm GE Rubber Cork Underlay- Level 8 Unit 806 Living area to Level 7 Unit 706 Living area(1200x1200mm)
- Test 10 - 4.5mm Vinyl Plank with 3mm GE Rubber Cork Underlay- Level 8 Unit 806 Living area to Level 7 Unit 706 Living area(1200x1200mm)
- Test 11 - Concrete- Level 8 Unit 803 Living area to Level 7 Unit 703 Living area
- Test 12 - 600x600mm GE tile with 4mm GE Rubber Underlay- Level 8 Unit 803 Living area to Level 7 Unit 703 Living area(1200x1200mm)
- Test 13 - 4.5mm Vinyl Plank (Glued)- Level 8 Unit 803 Living area to Level 7 Unit 703 Living area(1200x1200mm)
- Test 14 - 5mm Vinyl Plank (Glued)- Level 8 Unit 803 Living area to Level 7 Unit 703 Living area(1200x1200mm)
- Test 15 - 9mm Hybrid Herringbone SPC- Level 8 Unit 803 Living area to Level 7 Unit 703 Living area(1200x1500mm)

2.0 EQUIPMENT AND PROCEDURES

2.1 Measurement Procedures

Testing conformed to ISO 16283-2:2020 "*Field measurement of impact sound insulation of floors*". Evaluation of the results to derive the single figure L'nT,w rating was conducted to ISO 717-2 2020 "*Rating of insulation in buildings and of building elements – Part 2 Impact Sound Insulation*".

The ambient sound levels were measured before testing.

The receiving room reverberation times were measured at various locations throughout the space, using the balloon-burst impulse test method, with the results averaged.

The Receiving room tapping sound levels were measured for 30 seconds at various locations throughout the space, with the results averaged.

The test results were analysed per ISO 16283 and ISO 717.

2.2 Instrumentation

The following instruments were used:

- B & K Type 2250 1/3 octave band Sound Level Meter (Serial No. 2728498)
- B & K Tapping machine Type 3207 (serial number 2574503)
- B & K 4231 Calibrator (serial number 2153030)

Before and after each measurement session, the equipment was field calibrated and was within 0.2dB of the reference signal. All instruments hold a current calibration certificate from a NATA accredited calibration laboratory.

3.0 DESCRIPTION OF ROOMS

3.1 Unit 805 Living Area

All windows and doors were closed in the source and receiving rooms.

Transmitting Room (Level 8 U805 Living area)

Walls: Plasterboard;
Floor: Concrete slab under 8mm,9mm, 7 mm SPC Hybrid and 3mm GE Rubber
Cork Underlay sample floors;
Room finish: Unfurnished.
Volume L: 82m³

Receiving Room (Level 7 U705 Living area)

Slab: Concrete;
Walls: Plasterboard;
Ceiling: Plasterboard;
Floor: Concrete;
Room finish: Unfurnished.
Volume L: 82 m³



Figure 1: Test #1 - Concrete Slab



Figure 2: Test #2 – 9mm Hybrid SPC (Size 1000mmx1200mm)



Figure 3: Test #3 - 8mm Hybrid SPC (Size 1200mmx1200mm)



Figure 4: Test #4 - 7mm Hybrid SPC (Size 1200mmx1200mm)



Figure 5: Test #5 3mm GE Rubber Cork Underlay (Size 1000mmx1200mm)

3.2 Unit 806 Living Area

All windows and doors were closed in the source and receiving rooms.

Transmitting Room (Level 8 U806 Living area)

Walls: Plasterboard;
Floor: Concrete slab under 14mm Engineered Timber, 5mm, 3 mm and 4.5mm Vinyl
with 3mm GE Rubber Cork Underlay sample floors;
Room finish: Unfurnished.
Volume L: 70m³

Receiving Room (Level 7 U706 Living area)

Slab: Concrete
Walls: Plasterboard;
Ceiling: Plasterboard;
Floor: Concrete;
Room finish: Unfurnished.
Volume L: 70 m³



Figure 6: Test #6 – Concrete Slab



Figure 7: Test #7 – 14mm Engineered Timber with 3mm GE Rubber Cork Underlay(Size 1300mmx1200mm)



Figure 8: Test #8 - 5mm Vinyl Plank with 3mm GE Rubber Cork Underlay (Size 1200mmx1200mm)



Figure 9: Test #9 – 3mm Vinyl Plank with 3mm GE Rubber Cork Underlay (Size 1200mmx1200mm)



Figure 10: Test #10 – 4.5mm Vinyl Plank with 3mm GE Rubber Cork Underlay (Size 1200mmx1200mm)

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3.3 Unit 803 Living Area

All windows and doors were closed in the source and receiving rooms.

Transmitting Room (Level 8 U803 Living area)

Walls: Plasterboard;
Floor: Concrete slab under 600x600mm GE tile with 4mm GE Rubber Underlay, 4.5mm, 5 mm Vinyl (Glued) and 9mm Hybrid Herringbone SPC(Loose laid) sample floors;
Room finish: Unfurnished.
Volume L: 66m³

Receiving Room (Level 7 U703 Living area)

Slab Concrete
Walls: Plasterboard;
Ceiling: Plasterboard;
Floor: Concrete;
Room finish: Unfurnished.
Volume L: 66 m³



Figure 11: Test #11 – Concrete Slab



Figure 12: Test #12 600x600mm GE tile with 4mm GE Rubber Underlay



Figure 13: Test #13 - 4.5mm Vinyl Sample Floor (Size 1200mmx1200mm)



Figure 14: Test #14 - 5mm Vinyl Sample Floor (Size 1200mmx1200mm)



Figure 15: Test #15 - 9mm Hybrid Herringbone SPC Sample Floor (Size 1200mmx1200mm)

4.0 RESULTS

Our tests give the following results:

Table 1: Test Result Summary – Floor impact test

	Test System	L'nT,w
1.	Concrete- Level 8 Unit 805 Living area to Level 7 Unit 705 Living area	59
2.	8mm Hybrid SPC sample floor- Level 8 Unit 805 Living area to Level 7 Unit 705 Living area(1000x1200mm)	41
3.	9mm Hybrid SPC sample floor- Level 8 Unit 805 Living area to Level 7 Unit 705 Living area(1200x1200mm)	44
4.	7mm Hybrid SPC sample floor- Level 8 Unit 805 Living area to Level 7 Unit 705 Living area(1200x1200mm)	41
5.	3mm GE Rubber Cork Underlay- Level 8 Unit 805 Living area to Level 7 Unit 705 Living area(1000x1200mm)	40
6.	Concrete- Level 8 Unit 806 Living area to Level 7 Unit 706 Living area	59
7.	14mm Engineered Timber with 3mm GE Rubber Cork Underlay sample floor- Level 8 Unit 806 Living area to Level 7 Unit 706 Living area(1300x1200mm)	45
8.	5mm Vinyl Plank with 3mm GE Rubber Cork Underlay- Level 8 Unit 806 Living area to Level 7 Unit 706 Living area(1200x1200mm)	43
9.	3mm Vinyl Plank with 3mm GE Rubber Cork Underlay- Level 8 Unit 806 Living area to Level 7 Unit 706 Living area(1200x1200mm)	44
10.	4.5mm Vinyl Plank with 3mm GE Rubber Cork Underlay- Level 8 Unit 806 Living area to Level 7 Unit 706 Living area(1200x1200mm)	45
11.	Concrete- Level 8 Unit 803 Living area to Level 7 Unit 703 Living area	60
12.	600x600mm GE tile with 4mm GE Rubber Underlay- Level 8 Unit 803 Living area to Level 7 Unit 703 Living area(1200x1200mm)	49
13.	4.5mm Vinyl Plank (Glued)- Level 8 Unit 803 Living area to Level 7 Unit 703 Living area(1200x1200mm)	51
14.	5mm Vinyl Plank (Glued)- Level 8 Unit 803 Living area to Level 7 Unit 703 Living area(1200x1200mm)	53
15.	9mm Hybrid Herringbone SPC- Level 8 Unit 803 Living area to Level 7 Unit 703 Living area(1200x1500mm)	44

Appendix C contains the Test Certificates detailing the $\frac{1}{3}$ octave band results for this report in terms of L'nT,w following ISO 717 - 2: 2020.

L'nT,w is a term used in the National Construction Code (NCC - see Appendix A) and represents a corrected room noise level, with a lower number showing better performance.

5.0 CRITERIA

Below is taken directly from the National Construction Code 2022 (current)

F7V3 Sound transmission through floors [F7P3]

Compliance with F7P3 to avoid the transmission of airborne and impact generated sound through floors is verified when it is measured in-situ that the separating floor has-

- (a) airborne: a weighted standardised level difference (D_{ntw}) not less than 40 when determined under AS/NZS ISO 717.1; and*
- (b) impact: a weighted standardised impact sound pressure level (L_{ntw}) not more than 62 when determined under AS ISO 717.2.*

The current Australian Standard is the NCC2022 L'nT,w 62. This achieves “deemed to satisfy” but not amenity. Body Corporates can still expect a high level of noise complaints if meeting this level.

Association of Australasian Acoustical Consultants (AAAC), we recommend maintaining a level of amenity of **L'nT,w 55 or lower**, although not all buildings can accommodate this.

6.0 CONCLUSIONS

All the sample floors tested in level 8 achieved $L'nT,w$ under 62, which complies with the National Construction Code 2022 (NCC) requirements ($L'nT,w \leq 62$) and represent close to an AAAC star rating as Follows:

	Test System	$L'nT,w$	Star Rating (approx.)
	Concrete- Level 8 Unit 805 Living area to Level 7 Unit 705 Living area	59	2
2.	8mm Hybrid SPC sample floor- Level 8 Unit 805 Living area to Level 7 Unit 705 Living area(1000x1200mm)	41	5*
3.	9mm Hybrid SPC sample floor- Level 8 Unit 805 Living area to Level 7 Unit 705 Living area(1200x1200mm)	44	5
4.	7mm Hybrid SPC sample floor- Level 8 Unit 805 Living area to Level 7 Unit 705 Living area(1200x1200mm)	41	5*
5.	3mm GE Rubber Cork Underlay- Level 8 Unit 805 Living area to Level 7 Unit 705 Living area(1000x1200mm)	40	6
6.	Concrete- Level 8 Unit 806 Living area to Level 7 Unit 706 Living area	59	2
7.	14mm Engineered Timber with 3mm GE Rubber Cork Underlay sample floor- Level 8 Unit 806 Living area to Level 7 Unit 706 Living area(1300x1200mm)	45	5
8.	5mm Vinyl Plank with 3mm GE Rubber Cork Underlay- Level 8 Unit 806 Living area to Level 7 Unit 706 Living area(1200x1200mm)	43	5*
9.	3mm Vinyl Plank with 3mm GE Rubber Cork Underlay- Level 8 Unit 806 Living area to Level 7 Unit 706 Living area(1200x1200mm)	44	5*
10.	4.5mm Vinyl Plank with 3mm GE Rubber Cork Underlay- Level 8 Unit 806 Living area to Level 7 Unit 706 Living area(1200x1200mm)	45	5
11.	Concrete- Level 8 Unit 803 Living area to Level 7 Unit 703 Living area	60	2
12.	600x600mm GE tile with 4mm GE Rubber Underlay- Level 8 Unit 803 Living area to Level 7 Unit 703 Living area(1200x1200mm)	49	4*
13.	4.5mm Vinyl Plank (Glued)- Level 8 Unit 803 Living area to Level 7 Unit 703 Living area(1200x1200mm)	51	3*
14.	5mm Vinyl Plank (Glued)- Level 8 Unit 803 Living area to Level 7 Unit 703 Living area(1200x1200mm)	53	3*
15.	9mm Hybrid Herringbone SPC- Level 8 Unit 803 Living area to Level 7 Unit 703 Living area(1200x1500mm)	44	5*

Note* Certain samples exhibit characteristics align more closely with a higher category, although they do not fully meet the criteria. Nevertheless, it can be noted that their quality surpasses that of samples categorized at a lower level. See figure Below as reference

ISO Rating	Star Rating	Approx. ASTM Rating	Perception
$L'_{nT,w}$ 70	No rating	FIIC 40	All floor impacts clearly audible (e.g. dropping comb on floor)
$L'_{nT,w}$ 65	2 Star	FIIC 45	Footsteps on tiled or parquetry floors clearly audible below
<u>$L'_{nT,w}$ 60</u>	<u>2 ½ Star</u>	<u>FIIC 50</u>	Footsteps on tiled or parquetry floors audible below;
$L'_{nT,w}$ 55	3 Star	FIIC 55	Footsteps on tiled or parquetry floors audible below
$L'_{nT,w}$ 50	4 Star	FIIC 60	Footsteps on tiled or parquetry floors barely audible below
$L'_{nT,w}$ 45	5 Star	FIIC 65	Footsteps on tiled or parquetry floors normally inaudible below
<u>$L'_{nT,w}$ 40</u>	6 Star	FIIC 65	Footsteps on tiled or parquetry floors near inaudible below

Qualification

The test results above are specific to this test and cannot be directly applied to any other location or flooring system. When applied to another floor, Palmer Acoustics can advise on the possible performance, but this must be in consultation with our office.

Author:



JAVIER S. NAVAS
Engineer

Approved by:



ROSS H. PALMER CPEng RPEQ 3534
Principal Engineer

APPENDIX A

GLOSSARY

IMPACT MEASUREMENT AND ASSESSMENT DESCRIPTORS

- $L_{Aeq,T}$ – Time average A-weighted sound pressure level is the average energy equivalent level of the A-weighted sound over a period "T".
- L_{Aeq} – Equivalent Continuous Noise Level. The noise level in dB(A) which, if present for the entire measurement period, would produce the same sound energy to be received as was actually received as a result of a signal which varied with time. Normally abbreviated to "Leq" or "LAeq", often followed by a specification of the time period (such as 1 hour or 8 hours) indicating the period of time to which the measured value has been normalised;
- $L'_{nT,w}$ – Weighted Standardised impact sound pressure level; a measurement of impact sound transmission between rooms. Lower values denote better performance. The single figure measure is derived by adapting a standard response curve to measured 1/3 octave band sound pressure levels. Measured results are adjusted based upon a reverberation time of 0.5 sec in receiving room. Normally derived from a field test.
- $L'_{n,w}$ – Weighted Normalised impact sound pressure level; a laboratory measurement of impact sound transmission between rooms. Lower values denote better performance. The single figure measure is derived by adapting a standard response curve to measured 1/3 octave band sound pressure level measurements. Measured results are adjusted based on the absorption of 10m² in the receiving room. Normally derived from a laboratory test.
- C_I – A spectrum adaptation term compensating for the effect of floor coverings when applied to bare floors under test. The usually negative value, in decibels, is added to the single-number quantity, $L'_{n,w}$ or $L'_{nT,w}$.
- **Impact Sound Pressure Level (L)** – the average sound pressure level in a specified frequency band produced in the receiving room by the operation of the standard tapping machine on the floor assembly, averaged over each of the specified machine positions.
- L'_{nT} – **Standardised Impact Sound Pressure Level** – the impact sound pressure level standardised to a room with a reference reverberation time of 0.5 seconds.
- L'_n – **Normalized Impact Sound Pressure Level** – the impact sound pressure level normalised to reference absorption area of 10 metric sabins (108 sabins).
- **Receiving Room** – a room below or adjacent to the floor specimen under test in which the impact sound pressure levels are measured.
- **Source Room** – the room containing the tapping machine

STANDARDS

- **ISO 16283 – 2**
Acoustics – Field measurement of sound insulation in buildings and of building elements
- **ISO 717 – 2**
Acoustics – Rating of sound insulation in building and of building elements – Part 2: Impact sound insulation
- **ISO 3382-2:2008**
Acoustics – Measurement of room acoustic parameters — Part 2: Reverberation time in ordinary rooms
- **ASTM Classification E 1007 – 97**
Standard Test Method for Field Measurement of Tapping Machine Impact Sound Transmission Through Floor-Ceiling Assemblies and Associated Support Structures
- **ASTM Classification E 989 – 89**
Standard Classification for Determination of Impact Insulation Class (IIC)
- **NCC F7P3 - Sound transmission through floors in a residential care building**
A floor separating sole-occupancy units must minimise the transmission of airborne and impact generated sound such that the separating floor, including the effect of services and their penetrations, has —
 - b. *a weighted standardised impact sound pressure level ($L_{nT,w}$) not more than 62 for impact generated sound.*

APPENDIX B

CALCULATION METHODOLOGY - $L'_{nT,w}$

Correction to the signal level for background noise – ISO 16283-2:2020

If $(L_{sb} - L_b) > 10$, then $L = L_{sb}$

If $10 > (L_{sb} - L_b) > 6$, then $L = 10 \log \left(10^{\frac{L_{sb}}{10}} - 10^{\frac{L_b}{10}} \right)$

If $6 > (L_{sb} - L_b)$, then $L = L_{sb} - 1.3$

L is the adjusted signal level, in decibels;

L_{sb} is the level of signal and background noise combined, in decibels;

L_b is the background noise level, in decibels.

Standardised impact sound pressure level – ISO 16283-2:2020

$$L'_{nT} = L_i - 10 \log \left(\frac{T}{T_0} \right)$$

L'_{nT} is the standardised impact sound pressure level;

L_i is the impact sound pressure level;

T is the reverberation time in the receiving room;

T_0 is the reference reverberation time in the receiving room; for dwellings, $T_0 = 0.5$ s.

Method of comparison – ISO 717-2:2020

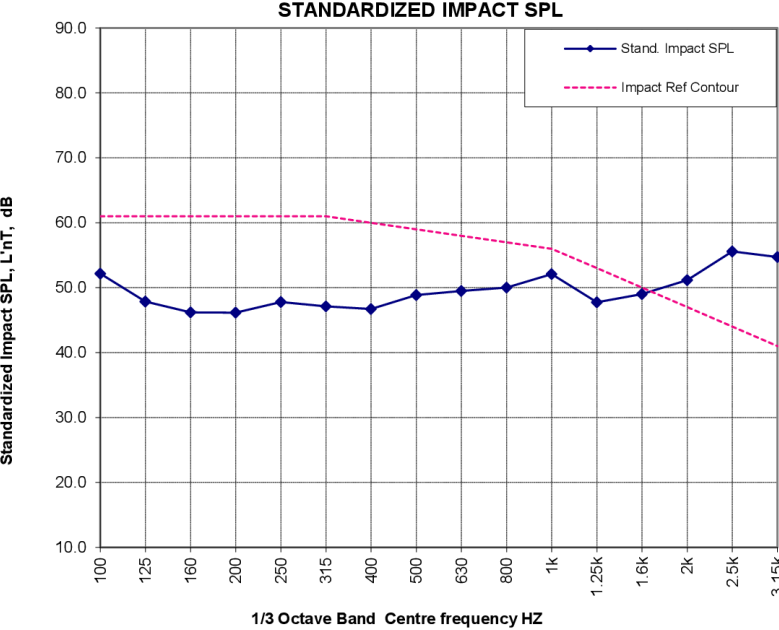
To evaluate the results of a measurement of L'_{nT} in one-third-octave bands, the reference curve is shifted in increments of 1 dB towards the L'_{nT} curve until the sum of unfavourable deviations is as large as possible but not more than 32.0 dB.

An unfavourable deviation at a particular frequency occurs when the results of measurements exceed the reference value. Only the unfavourable deviations are taken into account.

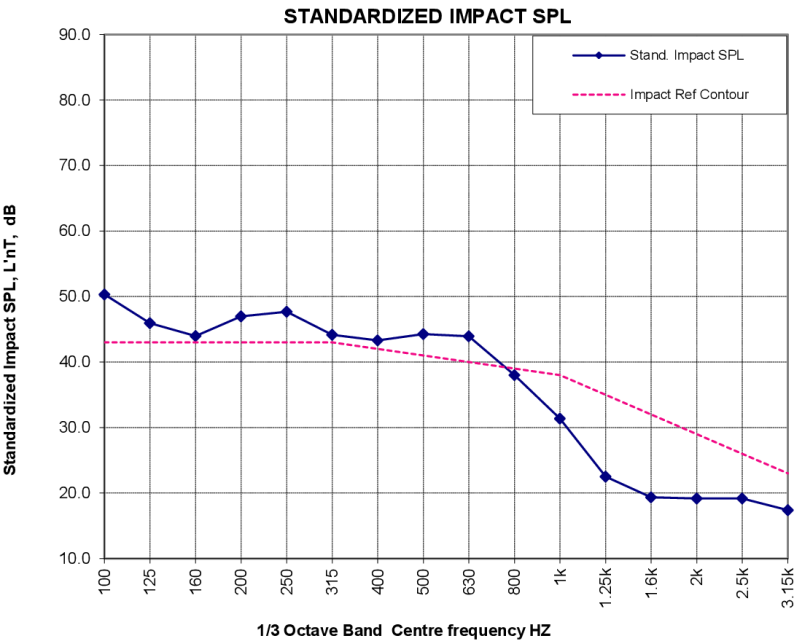
The value, in decibels, of the reference curve at 500 Hz, after shifting in accordance with this procedure is $L'_{nT,w}$.

APPENDIX C

Test certificate (15)

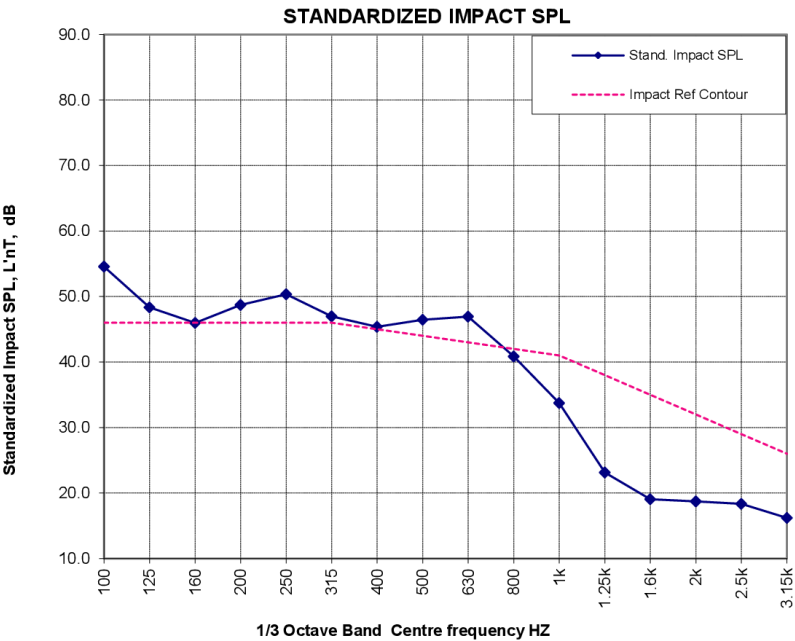
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24 Mexicanus Drive Park Ridge QLD 4125 Ph (61 7) 3802 2155																																																																															

LNT - Test 2

FIELD FLOOR IMPACT INSULATION TEST REPORT
UNITS 805-806-803, 15-17 WAVERLEY SOUTHPORT QLD 4215

		 Member Firm: AAAC Association of Australasian Acoustical Consultants																																																																												
FIELD IMPACT SOUND INSULATION - TEST CERTIFICATE																																																																														
Test 3 of 15																																																																														
9mm Hybrid SPC Loose Laid																																																																														
ADDRESS: 15-17 Waverley St Southport QLD 4215 LNT Test Location: 15-17 Waverley St Southport QLD 4215 Unit 805 to 15-17 Client: Waverley St Southport QLD 4215 Unit 705 Goldem Elite Group Test Performed: Jasli Benevice/Javier Navas	PN: 6340 Meas. Date: 14-Apr-2025 Meas. Parameter: Leq Tapping Machine: B & K Receiving Room Volume: 82 m ³																																																																													
DESCRIPTION OF FLOOR AND SPECIMEN Test Surface: 9mm Hybrid SPC Loose Laid Underlay: Adhesive: Ceiling: Plasterboard Slab:		No. of Source posn: 2 Mic. posn: 2 sweeps RT meas: 5 Imp. SLM: B & K 2250 Calibrator: B & K 4231																																																																												
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24 Mexicanus Drive Park Ridge QLD 4125 Ph (61 7) 3802 2155 www.palmeracoustics.com																																																																														
																																																																														

LNT - Test 3

FIELD FLOOR IMPACT INSULATION TEST REPORT
UNITS 805-806-803, 15-17 WAVERLEY SOUTHPORT QLD 4215

palmer acoustics Since 1992 Acoustic, Audio Visual, and Theatre Consultants AU VN		aa ac Association of Australasian Acoustical Consultants Member Firm: AAAC	
FIELD IMPACT SOUND INSULATION - TEST CERTIFICATE			
		Test	4 of 15
7mm Hybrid SPC Loose Laid			
ADDRESS: 15-17 Waverley St Southport QLD 4215 LNT		PN: 6340	
Test Location: 15-17 Waverley St Southport QLD 4215 Unit 805 to 15-17		Meas. Date: 14-Apr-2025	
Client: Waverley St Southport QLD 4215 Unit 705 Goldem Elite Group		Meas. Parameter: Leq	
Test Performed: Jasli Benevice/Javier Navas		Tapping Machine: B & K	
		Receiving Room Volume: 82 m ³	
DESCRIPTION OF FLOOR AND SPECIMEN		No. of Source posn: 2	
Test Surface: 7mm Hybrid SPC Loose Laid		Mic. posn: 2 sweeps	
Underlay:		RT meas: 5 Imp.	
Adhesive:		SLM: B & K 2250	
Ceiling: Plasterboard		Calibrator: B & K 4231	
Slab:			
Weighted Standardized Impact SPL		L'nT,w 41	
Results standardized to a RT of 0.5 seconds		ISO 16283-2:2020 & 717-2:2020	
Centre Frequency	Stand. Impact SPL	Impact Ref Contour	Deficiencies
Hz	dB	dB	dB
100	49.8	43	6.8
125	48.2	43	5.2
160	46.1	43	3.1
200	48.0	43	5.0
250	46.6	43	3.6
315	43.4	43	0.4
400	42.8	42	0.8
500	41.1	41	0.1
630	39.6	40	
800	36.3	39	
1k	31.0	38	
1.25k	21.4	35	
1.6k	< 18.5	32	
2k	< 18.8	29	
2.5k	< 18.5	26	
3.15k	< 15.3	23	
Total			
L'nT,w	41	25.0	
24 Mexicanus Drive Park Ridge QLD 4125			
Ph (61 7) 3802 2155 www.palmeracoustics.com			
palmer acoustics Since 1992 Acoustic and Audio Visual Engineers AU VN			

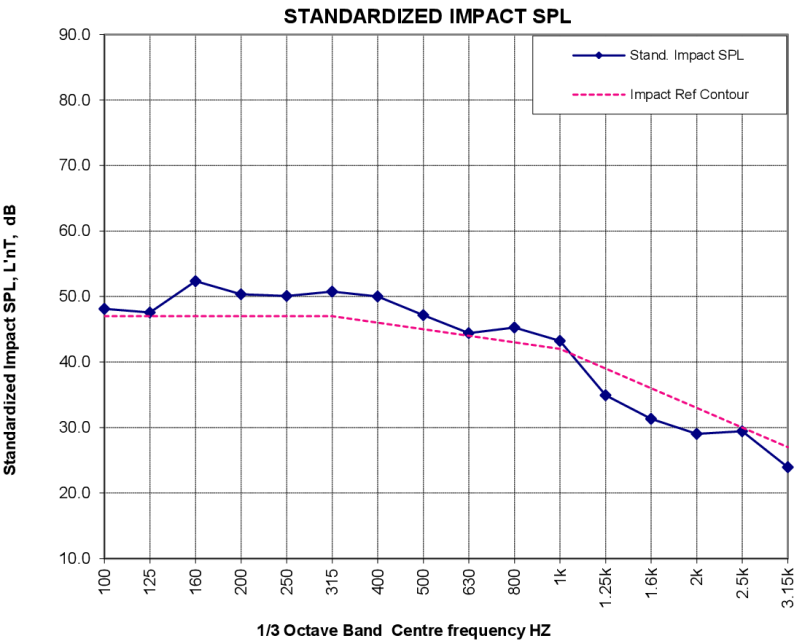
LNT - Test 4

FIELD FLOOR IMPACT INSULATION TEST REPORT
UNITS 805-806-803, 15-17 WAVERLEY SOUTHPORT QLD 4215

palmer acoustics Since 1992 Acoustic, Audio Visual, and Theatre Consultants AU VN		aa Association of Australasian Acoustical Consultants Member Firm: AAAC	
FIELD IMPACT SOUND INSULATION - TEST CERTIFICATE			
		Test	5 of 15
3mm GE Rubber Cork Underlay Loose Laid			
ADDRESS: 15-17 Waverley St Southport QLD 4215 LNT		PN: 6340	
Test Location: 15-17 Waverley St Southport QLD 4215 Unit 805 to 15-17		Meas. Date: 14-Apr-2025	
Client: Waverley St Southport QLD 4215 Unit 705 Goldem Elite Group		Meas. Parameter: Leq	
Test Performed: Jasli Benevice/Javier Navas		Tapping Machine: B & K	
		Receiving Room Volume: 82 m ³	
DESCRIPTION OF FLOOR AND SPECIMEN		No. of Source posn: 2	
Test Surface: 3mm GE Rubber Cork Underlay Loose Laid		Mic. posn: 2 sweeps	
Underlay:		RT meas: 5 Imp.	
Adhesive:		SLM: B & K 2250	
Ceiling: Plasterboard		Calibrator: B & K 4231	
Slab:			
Weighted Standardized Impact SPL		L'nT,w 40	
Results standardized to a RT of 0.5 seconds		ISO 16283-2:2020 & 717-2:2020	
Centre Frequency	Stand. Impact SPL	Impact Ref Contour	Deficiencies
Hz	dB	dB	dB
100	50.6	42	8.6
125	47.5	42	5.5
160	44.8	42	2.8
200	47.1	42	5.1
250	47.4	42	5.4
315	43.9	42	1.9
400	42.9	41	1.9
500	40.7	40	0.7
630	36.6	39	
800	29.4	38	
1k	< 19.7	37	
1.25k	< 16.0	34	
1.6k	< 15.9	31	
2k	< 16.9	28	
2.5k	< 16.8	25	
3.15k	< 14.7	22	
Total			
L'nT,w	40	31.8	
24 Mexicanus Drive Park Ridge QLD 4125 Ph (61 7) 3802 2155		palmer acoustics Since 1992 Acoustic and Audio Visual Engineers AU VN	

LNT - Test 5

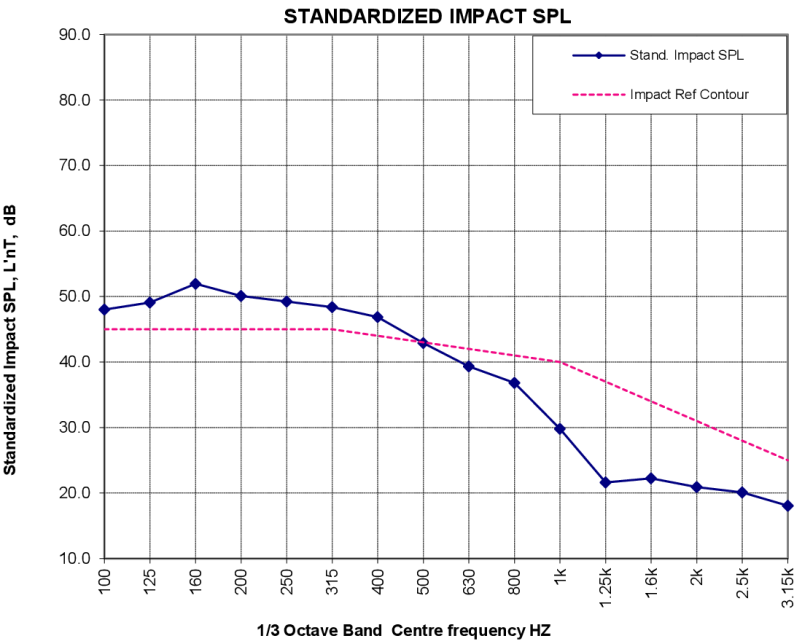
FIELD FLOOR IMPACT INSULATION TEST REPORT
UNITS 805-806-803, 15-17 WAVERLEY SOUTHPORT QLD 4215

 Since 1992 Acoustic, Audio Visual, and Theatre Consultants AU VN		 Member Firm: AAAC Association of Australasian Acoustical Consultants																																																																												
FIELD IMPACT SOUND INSULATION - TEST CERTIFICATE																																																																														
Test 7 of 15																																																																														
14mm Engineered Timber Glued 3mm GE Rubber Cork Underlay																																																																														
ADDRESS: 15-17 Waverley St Southport QLD 4215 LNT Test Location: 15-17 Waverley St Southport QLD 4215 Unit 806 to 15-17 Client: Waverley St Southport QLD 4215 Unit 706 Goldem Elite Group Test Performed: Jasli Benevice/Javier Navas	PN: 6340 Meas. Date: 14-Apr-2025 Meas. Parameter: Leq Tapping Machine: B & K Receiving Room Volume: 70 m ³																																																																													
DESCRIPTION OF FLOOR AND SPECIMEN Test Surface: 14mm Engineered Timber Glued Underlay: 3mm GE Rubber Cork Underlay Adhesive: Ceiling: Plasterboard Slab:		No. of Source posn: 2 Mic. posn: 2 sweeps RT meas: 5 Imp. SLM: B & K 2250 Calibrator: B & K 4231																																																																												
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Centre Frequency	Stand. Impact SPL	Impact Ref Contour	Deficiencies																																																																											
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24 Mexicanus Drive Park Ridge QLD 4215 Ph (61 7) 3802 2155 www.palmeracoustics.com																																																																														

LNT - Test 7

FIELD FLOOR IMPACT INSULATION TEST REPORT
UNITS 805-806-803, 15-17 WAVERLEY SOUTHPORT QLD 4215

 Since 1992 Acoustic, Audio Visual, and Theatre Consultants AU VN		 Member Firm: AAAC Association of Australasian Acoustical Consultants	
FIELD IMPACT SOUND INSULATION - TEST CERTIFICATE			
		Test	8 of 15
5mm Vinyl Plank Glued		3mm GE Rubber Cork Underlay	
ADDRESS:	15-17 Waverley St Southport QLD 4215 LNT	PN:	6340
Test Location:	15-17 Waverley St Southport QLD 4215 Unit 806 to 15-17	Meas. Date:	14-Apr-2025
Client:	Waverley St Southport QLD 4215 Unit 706 Goldem Elite Group	Meas. Parameter:	Leq
Test Performed:	Jasli Benevice/Javier Navas	Tapping Machine:	B & K
		Receiving Room Volume:	70 m ³
DESCRIPTION OF FLOOR AND SPECIMEN		No. of Source posn: 2	
Test Surface:	5mm Vinyl Plank Glued	Mic. posn:	2 sweeps
Underlay:	3mm GE Rubber Cork Underlay	RT meas:	5 Imp.
Adhesive:		SLM:	B & K 2250
Ceiling:	Plasterboard	Calibrator:	B & K 4231
Slab:			
Weighted Standardized Impact SPL Results standardized to a RT of 0.5 seconds		L'nT,w	43
		ISO 16283-2:2020 & 717-2:2020	
Centre Frequency	Stand. Impact SPL	Impact Ref Contour	Deficiencies
Hz	dB	dB	dB
100	48.0	45	3.0
125	49.1	45	4.1
160	51.9	45	6.9
200	50.1	45	5.1
250	49.2	45	4.2
315	48.4	45	3.4
400	46.8	44	2.8
500	42.9	43	
630	39.3	42	
800	36.8	41	
1k	29.8	40	
1.25k	< 21.6	37	
1.6k	< 22.3	34	
2k	< 20.9	31	
2.5k	< 20.1	28	
3.15k	< 18.1	25	
Total			
L'nT,w	43	29.6	



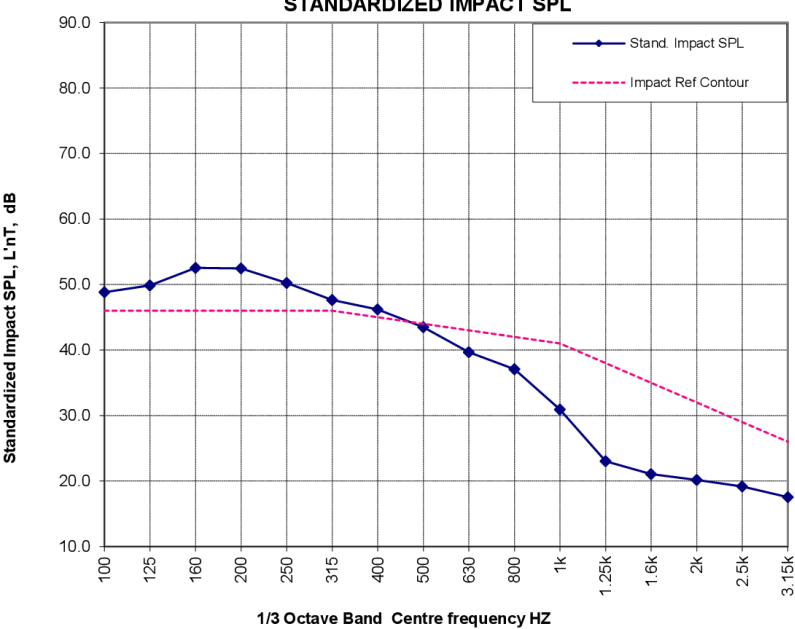
24 Mexicanus Drive Park Ridge QLD 4125

Ph (61 7) 3802 2155 www.palmeracoustics.com


Since 1992
 Acoustic and Audio Visual Engineers AU VN

LNT - Test 8

FIELD FLOOR IMPACT INSULATION TEST REPORT
UNITS 805-806-803, 15-17 WAVERLEY SOUTHPORT QLD 4215

 Since 1992 Acoustic, Audio Visual, and Theatre Consultants AU VN		 Member Firm: AAAC Association of Australasian Acoustical Consultants																																																																													
FIELD IMPACT SOUND INSULATION - TEST CERTIFICATE																																																																															
		Test 9 of 15																																																																													
3mm Vinyl Plank Glued		3mm GE Rubber Cork Underlay																																																																													
ADDRESS: 15-17 Waverley St Southport QLD 4215 LNT Test Location: 15-17 Waverley St Southport QLD 4215 Unit 806 to 15-17 Client: Waverley St Southport QLD 4215 Unit 706 Goldem Elite Group Test Performed: Jasli Benevice/Javier Navas	PN: 6340 Meas. Date: 14-Apr-2025 Meas. Parameter: Leq Tapping Machine: B & K Receiving Room Volume: 70 m ³																																																																														
DESCRIPTION OF FLOOR AND SPECIMEN Test Surface: 3mm Vinyl Plank Glued Underlay: 3mm GE Rubber Cork Underlay Adhesive: Ceiling: Plasterboard Slab:		No. of Source posn: 2 Mic. posn: 2 sweeps RT meas: 5 Imp. SLM: B & K 2250 Calibrator: B & K 4231																																																																													
Weighted Standardized Impact SPL Results standardized to a RT of 0.5 seconds		L'nT,w	44																																																																												
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<table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <thead> <tr> <th>Centre Frequency</th> <th>Stand. Impact SPL</th> <th>Impact Ref Contour</th> <th>Deficiencies</th> </tr> <tr> <th>Hz</th> <th>dB</th> <th>dB</th> <th>dB</th> </tr> </thead> <tbody> <tr><td>100</td><td>48.8</td><td>46</td><td>2.8</td></tr> <tr><td>125</td><td>49.9</td><td>46</td><td>3.9</td></tr> <tr><td>160</td><td>52.5</td><td>46</td><td>6.5</td></tr> <tr><td>200</td><td>52.5</td><td>46</td><td>6.5</td></tr> <tr><td>250</td><td>50.2</td><td>46</td><td>4.2</td></tr> <tr><td>315</td><td>47.6</td><td>46</td><td>1.6</td></tr> <tr><td>400</td><td>46.2</td><td>45</td><td>1.2</td></tr> <tr><td>500</td><td>43.5</td><td>44</td><td></td></tr> <tr><td>630</td><td>39.7</td><td>43</td><td></td></tr> <tr><td>800</td><td>37.1</td><td>42</td><td></td></tr> <tr><td>1k</td><td>30.9</td><td>41</td><td></td></tr> <tr><td>1.25k</td><td>< 23.0</td><td>38</td><td></td></tr> <tr><td>1.6k</td><td>< 21.1</td><td>35</td><td></td></tr> <tr><td>2k</td><td>< 20.1</td><td>32</td><td></td></tr> <tr><td>2.5k</td><td>< 19.2</td><td>29</td><td></td></tr> <tr><td>3.15k</td><td>< 17.5</td><td>26</td><td></td></tr> <tr> <td colspan="3">Total</td><td></td></tr> </tbody> </table>	Centre Frequency	Stand. Impact SPL	Impact Ref Contour	Deficiencies	Hz	dB	dB	dB	100	48.8	46	2.8	125	49.9	46	3.9	160	52.5	46	6.5	200	52.5	46	6.5	250	50.2	46	4.2	315	47.6	46	1.6	400	46.2	45	1.2	500	43.5	44		630	39.7	43		800	37.1	42		1k	30.9	41		1.25k	< 23.0	38		1.6k	< 21.1	35		2k	< 20.1	32		2.5k	< 19.2	29		3.15k	< 17.5	26		Total				STANDARDIZED IMPACT SPL 		
Centre Frequency	Stand. Impact SPL	Impact Ref Contour	Deficiencies																																																																												
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24 Mexicanus Drive Park Ridge QLD 4125 Ph (61 7) 3802 2155 www.palmeracoustics.com		 Since 1992 Acoustic and Audio Visual Engineers AU VN																																																																													

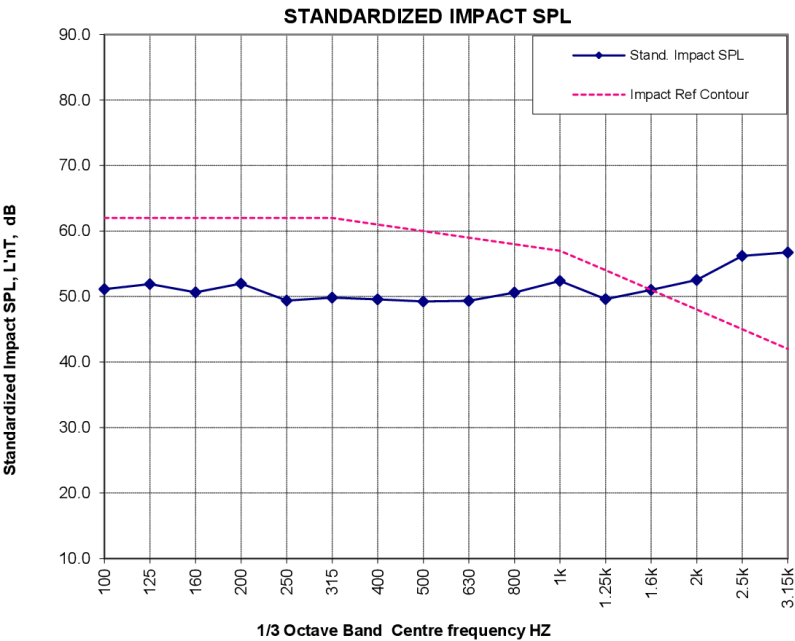
LNT - Test 9

FIELD FLOOR IMPACT INSULATION TEST REPORT
UNITS 805-806-803, 15-17 WAVERLEY SOUTHPORT QLD 4215

palmer acoustics Since 1992 Acoustic, Audio Visual, and Theatre Consultants AU VN		aa ac Association of Australasian Acoustical Consultants Member Firm: AAAC	
FIELD IMPACT SOUND INSULATION - TEST CERTIFICATE			
		Test	10 of 15
4.5mm Vinyl Plank Glued		3mm GE Rubber Cork Underlay	
ADDRESS:	15-17 Waverley St Southport QLD 4215 LNT	PN:	6340
Test Location:	15-17 Waverley St Southport QLD 4215 Unit 806 to 15-17	Meas. Date:	14-Apr-2025
	Waverley St Southport QLD 4215 Unit 706	Meas. Parameter:	Leq
Client:	Goldem Elite Group	Tapping Machine:	B & K
Test Performed:	Jasli Benevice/Javier Navas	Receiving Room Volume:	70 m ³
DESCRIPTION OF FLOOR AND SPECIMEN		No. of Source posn:	2
Test Surface:	4.5mm Vinyl Plank Glued	Mic. posn:	2 sweeps
Underlay:	3mm GE Rubber Cork Underlay	RT meas:	5 Imp.
Adhesive:		SLM:	B & K 2250
Ceiling:	Plasterboard	Calibrator:	B & K 4231
Slab:			
Weighted Standardized Impact SPL		L'nT,w	45
Results standardized to a RT of 0.5 seconds		ISO 16283-2:2020 & 717-2:2020	
Centre Frequency	Stand. Impact SPL	Impact Ref Contour	Deficiencies
Hz	dB	dB	dB
100	52.2	47	5.2
125	49.7	47	2.7
160	53.5	47	6.5
200	52.4	47	5.4
250	51.1	47	4.1
315	48.1	47	1.1
400	46.7	46	0.7
500	43.6	45	
630	40.2	44	
800	36.8	43	
1k	30.9	42	
1.25k	< 22.6	39	
1.6k	< 22.5	36	
2k	< 21.3	33	
2.5k	< 21.0	30	
3.15k	< 18.1	27	
Total			
L'nT,w	45	25.8	
24 Mexicanus Drive Park Ridge QLD 4125 Ph (61 7) 3802 2155 www.palmeracoustics.com		palmer acoustics Since 1992 Acoustic and Audio Visual Engineers AU VN	

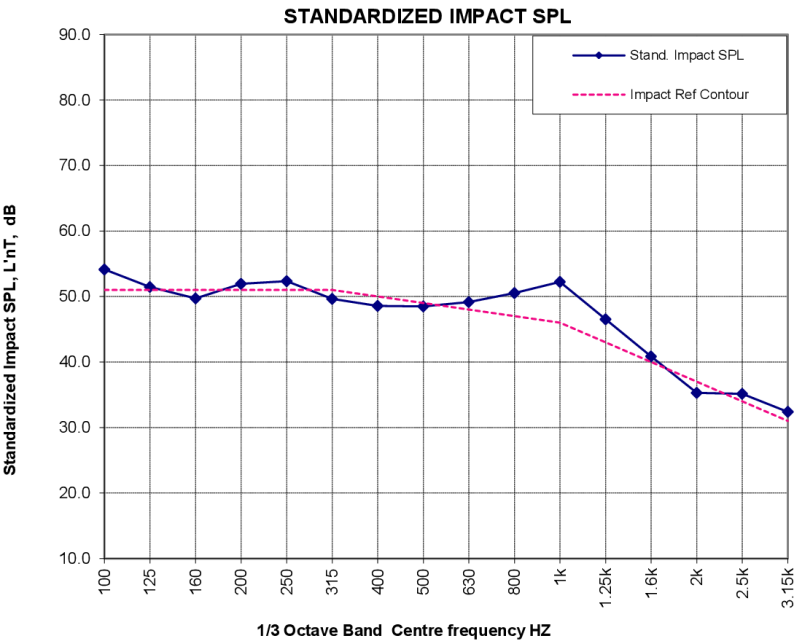
LNT - Test 10

FIELD FLOOR IMPACT INSULATION TEST REPORT
UNITS 805-806-803, 15-17 WAVERLEY SOUTHPORT QLD 4215

 Since 1992 Acoustic, Audio Visual, and Theatre Consultants AU VN		 Member Firm: AAAC Association of Australasian Acoustical Consultants																																																																																
FIELD IMPACT SOUND INSULATION - TEST CERTIFICATE																																																																																		
Test 11 of 15																																																																																		
Concrete																																																																																		
ADDRESS: 15-17 Waverley St Southport QLD 4215 LNT Test Location: 15-17 Waverley St Southport QLD 4215 Unit 803 to 15-17 Client: Waverley St Southport QLD 4215 Unit 703 Goldem Elite Group Test Performed: Jasli Benevice/Javier Navas	PN: 6340 Meas. Date: 14-Apr-2025 Meas. Parameter: Leq Tapping Machine: B & K Receiving Room Volume: 66 m ³																																																																																	
DESCRIPTION OF FLOOR AND SPECIMEN Test Surface: Concrete Underlay: Adhesive: Ceiling: Plasterboard Slab:		No. of Source posn: 2 Mic. posn: 2 sweeps RT meas: 5 Imp. SLM: B & K 2250 Calibrator: B & K 4231																																																																																
Weighted Standardized Impact SPL Results standardized to a RT of 0.5 seconds		L'nT,w 60 ISO 16283-2:2020 & 717-2:2020																																																																																
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Centre Frequency	Stand. Impact SPL	Impact Ref Contour	Deficiencies																																																																															
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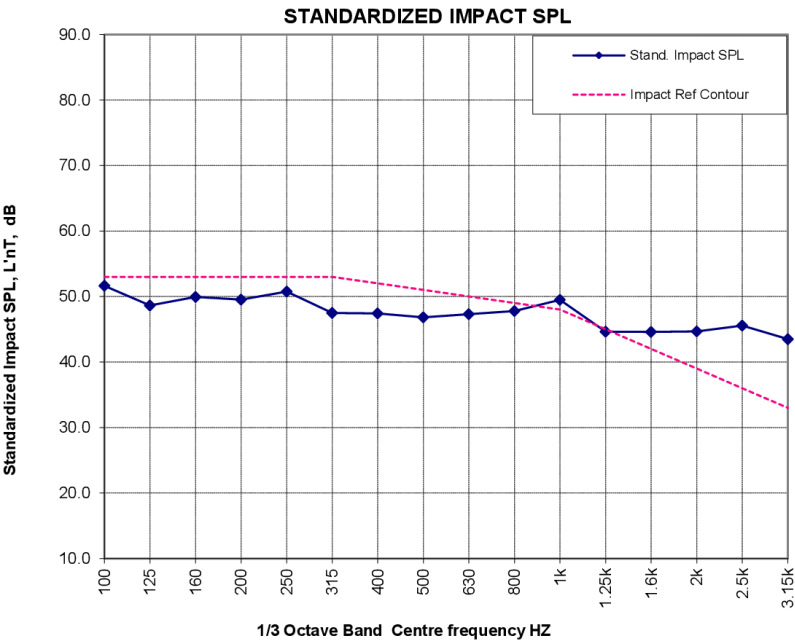
LNT - Test 11

FIELD FLOOR IMPACT INSULATION TEST REPORT
UNITS 805-806-803, 15-17 WAVERLEY SOUTHPORT QLD 4215

 Since 1992 Acoustic, Audio Visual, and Theatre Consultants AU VN		 Member Firm: AAAC Association of Australasian Acoustical Consultants																																																																												
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Test 12 of 15																																																																														
600x600mm GE Tile Glued 4mm GE Rubber Underlay																																																																														
ADDRESS: 15-17 Waverley St Southport QLD 4215 LNT Test Location: 15-17 Waverley St Southport QLD 4215 Unit 803 to 15-17 Client: Waverley St Southport QLD 4215 Unit 703 Goldem Elite Group Test Performed: Jasli Benevice/Javier Navas	PN: 6340 Meas. Date: 14-Apr-2025 Meas. Parameter: Leq Tapping Machine: B & K Receiving Room Volume: 66 m ³																																																																													
DESCRIPTION OF FLOOR AND SPECIMEN Test Surface: 600x600mm GE Tile Glued Underlay: 4mm GE Rubber Underlay Adhesive: Ceiling: Plasterboard Slab:		No. of Source posn: 2 Mic. posn: 2 sweeps RT meas: 5 Imp. SLM: B & K 2250 Calibrator: B & K 4231																																																																												
Weighted Standardized Impact SPL Results standardized to a RT of 0.5 seconds		L'nT,w 49 ISO 16283-2:2020 & 717-2:2020																																																																												
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Centre Frequency	Stand. Impact SPL	Impact Ref Contour	Deficiencies																																																																											
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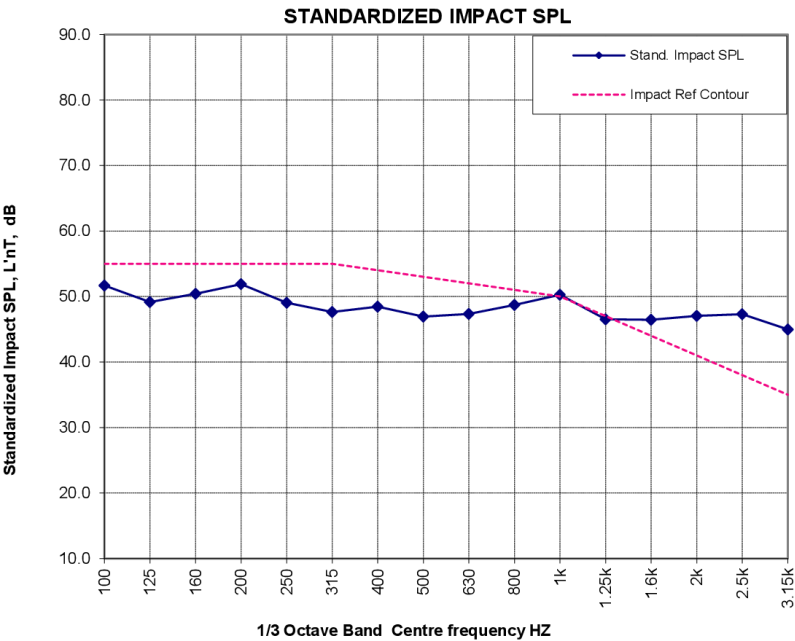
LNT - Test 12

FIELD FLOOR IMPACT INSULATION TEST REPORT
UNITS 805-806-803, 15-17 WAVERLEY SOUTHPORT QLD 4215

 Since 1992 Acoustic, Audio Visual, and Theatre Consultants AU VN		 Member Firm: AAAC Association of Australasian Acoustical Consultants																																																																												
FIELD IMPACT SOUND INSULATION - TEST CERTIFICATE																																																																														
Test 13 of 15																																																																														
4.5mm Vinyl Plank Glued																																																																														
ADDRESS: 15-17 Waverley St Southport QLD 4215 LNT Test Location: 15-17 Waverley St Southport QLD 4215 Unit 803 to 15-17 Client: Waverley St Southport QLD 4215 Unit 703 Goldem Elite Group Test Performed: Jasli Benevice/Javier Navas	PN: 6340 Meas. Date: 14-Apr-2025 Meas. Parameter: Leq Tapping Machine: B & K Receiving Room Volume: 66 m ³																																																																													
DESCRIPTION OF FLOOR AND SPECIMEN Test Surface: 4.5mm Vinyl Plank Glued Underlay: Adhesive: Ceiling: Plasterboard Slab:		No. of Source posn: 2 Mic. posn: 2 sweeps RT meas: 5 Imp. SLM: B & K 2250 Calibrator: B & K 4231																																																																												
Weighted Standardized Impact SPL Results standardized to a RT of 0.5 seconds		L'nT,w 51 ISO 16283-2:2020 & 717-2:2020																																																																												
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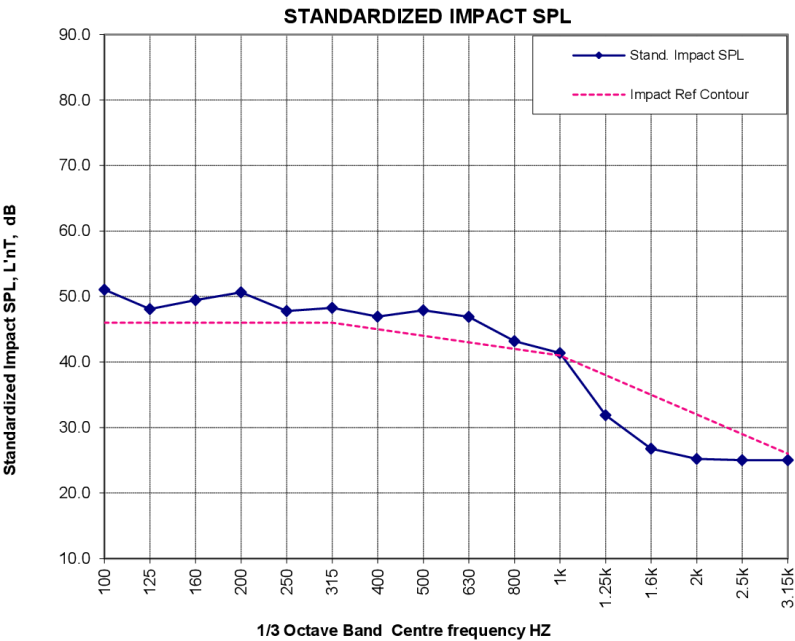
LNT - Test 13

FIELD FLOOR IMPACT INSULATION TEST REPORT
UNITS 805-806-803, 15-17 WAVERLEY SOUTHPORT QLD 4215

 Since 1992 Acoustic, Audio Visual, and Theatre Consultants AU VN		 Member Firm: AAAC Association of Australasian Acoustical Consultants																																																																																
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LNT - Test 14

FIELD FLOOR IMPACT INSULATION TEST REPORT
UNITS 805-806-803, 15-17 WAVERLEY SOUTHPORT QLD 4215

 Since 1992 Acoustic, Audio Visual, and Theatre Consultants AU VN		 Member Firm: AAAC Association of Australasian Acoustical Consultants																																																																												
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LNT - Test 15