

Test Report

FOR: **dB Sound Control**
Mt. Airy, NC

Impact Sound Transmission
RAL-IN18-017

CONDUCTED: 2018-03-21

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ON: Laminate flooring over dB 4 Pro underlayment over 6 in. concrete slab, no ceiling

TEST METHOD

Riverbank Acoustical Laboratories™ is accredited by the U.S. Department of Commerce, National Institute of Standards and Technology (NIST) under the National Voluntary Laboratory Accreditation Program (NVLAP) as an ISO 17025:2005 Laboratory (NVLAP Lab Code: 100227-0) and for this test procedure. The test reported in this document conformed explicitly with ASTM E492-09: "Standard Test Method for Laboratory Measurement of Impact Sound Transmission Through Floor-Ceiling Assemblies Using the Tapping Machine." The single number rating of the specimen was calculated according to ASTM E989-06 (2012): "Standard Classification for Determination of Impact Insulation Class (IIC)." A description of the measuring procedure and room qualifications is available upon request.

DESCRIPTION OF THE SPECIMEN

The test specimen was designated by the manufacturer as Laminate flooring over dB 4 Pro underlayment over 6 in. concrete slab, no ceiling.

The building contractor and RAL staff compiled a detailed construction specification as follows, in order of installation:

Concrete Slab

Material:	Wire-reinforced concrete
Dimensions:	4 @ 609.6 mm (24 in.) x 4267.2 mm (168 in.)
Thickness:	152.4 mm (6.0 in.)
Overall Weight:	3,467.71 kg (7,645 lbs)
Mass per Unit Area:	333.27 kg/m ² (68.26 lb/ft ²)
Installation:	The slab was isolated from the sill by rubber pads
Joints:	Underside sealed with acoustical caulk and tape Top filled with general purpose sand, sealed with ready mix compound

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Underlayment

Trade Name: dB 4 Pro
Material: Felt over vinyl sheet
Installed: Loose laid over concrete slab, felted side down
Overall Dimensions: 2438.4 mm (96 in.) x 2743.2 mm (108 in.)
Measured Thickness: 6.63 mm (0.261 in.)
Overall Weight: 48.99 kg (108 lbs)
Mass per Unit Area: 4.71 kg/m² (0.96 lb/ft²)
Joints: Sealed with tape

Floor Covering

Material: Wood-look laminate over fiberboard flooring tiles
Tile Dimensions: 1290 mm (50.787 in.) x 194 mm (7.638 in.)
Tile Thickness: 6.6 mm (0.26 in.)
Overall Weight: 62.14 kg (137 lbs)
Mass per Unit Area: 5.97 kg/m² (1.22 lb/ft²)
Joints: Locking edge design

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Physical Measures

Size: 2.44 m (96.00 in.) wide by 4.27 m (168.00 in.) long
Thickness: 172.21 mm (6.78 in.)
Weight: 3578.90 kg (7890.00 lbs.)
Transmission Area: 10.40 m² (112.00 ft²)
Mass per Unit Area: 343.97 kg/m² (70.45 lbs./ft²)

Test Aperture

Size: 4.27 m (14.0 ft.) by 2.44 m (8 ft.)
Filler Wall: None
Sealed: Entire periphery (both sides) with dense mastic

Test Environment

Source Room

Volume: 132.6 m³ (4,681.0 ft³)
Temperature: 23±0°C (73±0°F)
Humidity: 50±3%

Receive Room

Volume: 81.7 m³ (2,884.3 ft³)
Temperature: 23±0°C (74±0°F)
Humidity: 52±1%

Requirements

Temperature: 22° C +/- 5° C, not more than 3° C change over all tests.
Humidity: ≥ 30% RH; not more than +/- 3% change over all tests.

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Figure 1 – Specimen mounted in test opening



Figure 2 – Underlayment installed over concrete slab

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Figure 3 – Underside of test specimen

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TEST RESULTS


The impact sound pressure levels, normalized to 10 m², are tabulated at the sixteen standard frequencies. A graphic presentation of the data and additional information appear on the following pages. The precision of the test data is within the limits set by the ASTM Standard E989-06 (2012).

<u>FREQ.</u>	<u>Ln</u>	<u>C.L.</u>	<u>DEV</u>	<u>FREQ.</u>	<u>Ln</u>	<u>C.L.</u>	<u>DEV</u>
100	53	0.59		800	38	0.43	
125	59	0.98	4	1000	32	0.29	
160	57	0.68	2	1250	28	0.38	
200	59	0.91	4	1600	25	0.21	
250	62	0.57	7	2000	20	0.28	
315	63	0.63	8	2500	14	0.54	
400	53	0.58		3150	8	1.71	
500	51	0.52					
630	41	0.38					

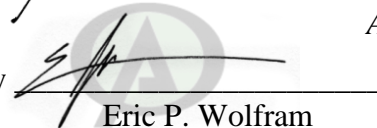
IIC=57

ABBREVIATION INDEX

- FREQ. = FREQUENCY, HERTZ, (cps)
- Ln = NORMALIZED IMPACT SOUND PRESSURE LEVEL, dB
- C.L. = UNCERTAINTY IN dB, FOR A 95% CONFIDENCE LIMIT
- DEV. = DEVIATION, dB > IIC CONTOUR (SUM OF DEV = 25)
- IIC = IMPACT INSULATION CLASS
- * = INDICATES A CORRECTION HAS BEEN APPLIED TO DATA DUE TO BACKGROUND NOISE LEVELS

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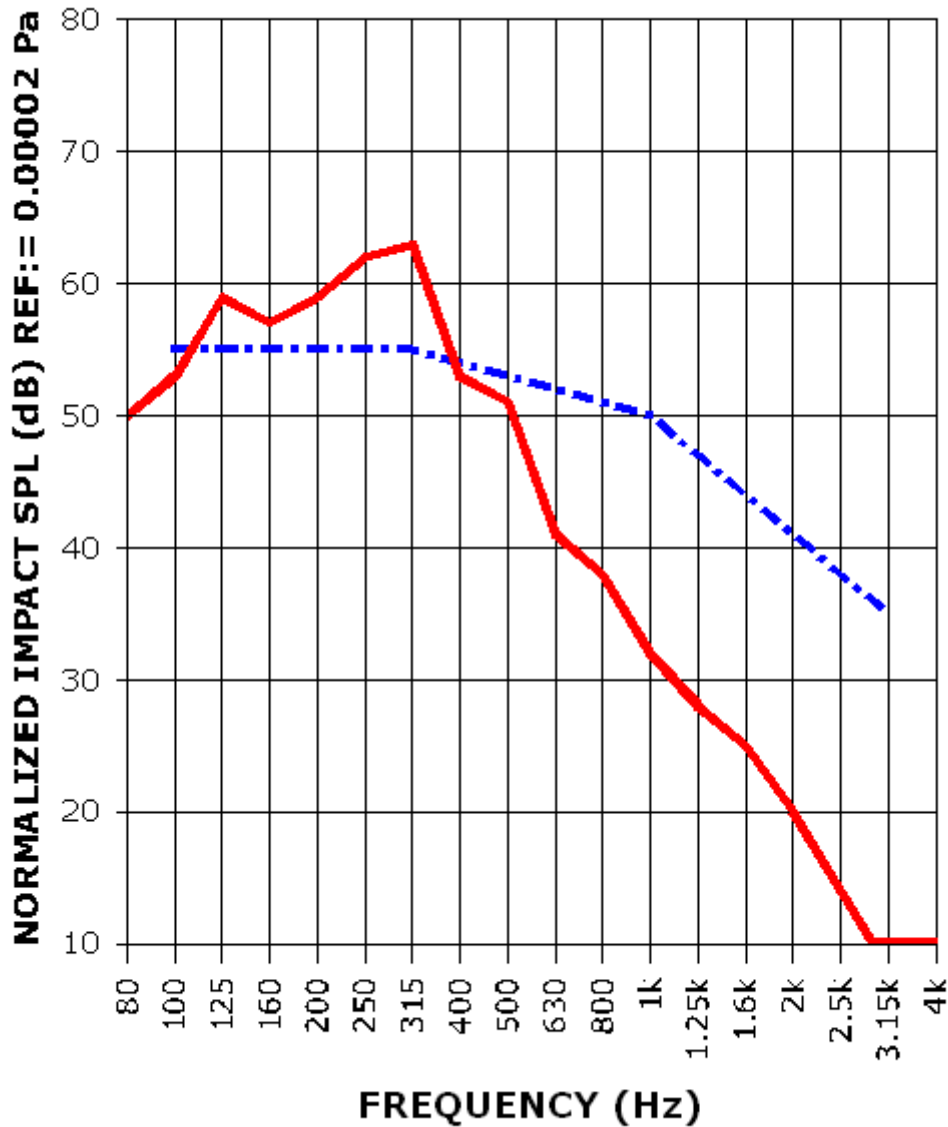
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IMPACT SOUND TRANSMISSION REPORT

Laminate flooring over dB 4 Pro underlayment over 6 in. concrete slab, no ceiling



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IMPACT SOUND PRESSURE LEVEL
IMPACT INSULATION CLASS CONTOUR

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APPENDIX A: Extended Frequency Range Data

Specimen: Laminate flooring over dB 4 Pro underlayment over 6 in. concrete slab, no ceiling (See Full Report)

The following non-accredited data were obtained in accordance with ASTM E989-06 (2012), but extend beyond the defined frequency range of 100Hz to 3,150Hz. These unofficial results are representative of the RAL test environment only and intended for research & comparison purposes.

1/3 Octave Band Center Frequency (Hz)	Normalized Impact Sound Pressure Level (dB)	Repeatability (95% ±)
31.5	57	1.87
40	53	2.08
50	61	0.92
63	57	1.03
80	50	0.94
100	53	0.59
125	59	0.98
160	57	0.68
200	59	0.91
250	62	0.57
315	63	0.63
400	53	0.58
500	51	0.52
630	41	0.38
800	38	0.43
1000	32	0.29
1250	28	0.38
1600	25	0.21
2000	20	0.28
2500	14	0.54
3150	8	1.71
4000	5	2.48
5000	6	2.90
6300	6	2.36
8000	8	1.27
10000	10	0.78
12500	10	0.67



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APPENDIX B: Instruments of Traceability

Specimen: Laminate flooring over dB 4 Pro underlayment over 6 in. concrete slab, no ceiling (See Full Report)

<u>Description</u>	<u>Model</u>	<u>Serial Number</u>	<u>Date of Certification</u>	<u>Calibration Due</u>
Bruel & Kjaer Pulse Analyzer - System4	Type 3560-C	2639093	2017-08-02	2018-08-02
Bruel & Kjaer Mic And Preamp D	Type 4943-B-001	2311440	2017-09-22	2018-09-22
Bruel & Kjaer Tapping Machine-WoodCase	3204	226940	2017-07-11	2018-07-11
Bruel & Kjaer Pistonphone	Type 4228	2781248	2017-08-02	2018-08-02
EXTECH_62	SD700	A.083662	2017-11-20	2018-11-20
EXTECH_63	SD700	A.083663	2017-11-20	2018-11-20

END