Test Report

FOR: **Commercial Acoustics**
Tampa, FL

Impact Sound Transmission
RAL-IN18-015

CONDUCTED: 2018-03-21
ON: Laminate flooring over Floor Blokker Lite 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 Fiber 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 slabs
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

Underlayment

Trade Name:	dB Fiber
Material:	Felt over clear plastic 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:	3.81 mm (0.15 in.)
Overall Weight:	52.84 kg (116.5 lbs)
Mass per Unit Area:	5.08 kg/m^2 (1.04 lb/ft^2)
Joints:	Sealed with tape

Floor Covering

Material:	Wood-look laminate over fiberboard flooring tiles
Installed:	Loose laid over underlayment
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/m^2 (1.22 lb/ft^2)
Joints:	Locking edge design

Physical Measures

Size:	2.44 m (96.00 in.) wide by 4.27 m (168.00 in.) long
Thickness:	162.81 mm (6.41 in.)
Weight:	3582.76 kg (7898.50 lbs.)
Transmission Area:	10.40 m^2 (112.00 ft^2)
Mass per Unit Area:	344.31 kg/m^2 (70.52 $lbs./ft^2$)

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 m^3 (4,681.0 ft^3)
Temperature:	23±0ºC (73±0ºF)
Humidity:	50±1%

Receive Room

Volume:	81.7 m^3 (2,884.3 ft^3)
Temperature:	23±0ºC (74±1ºF)
Humidity:	50±0%

Requirements

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

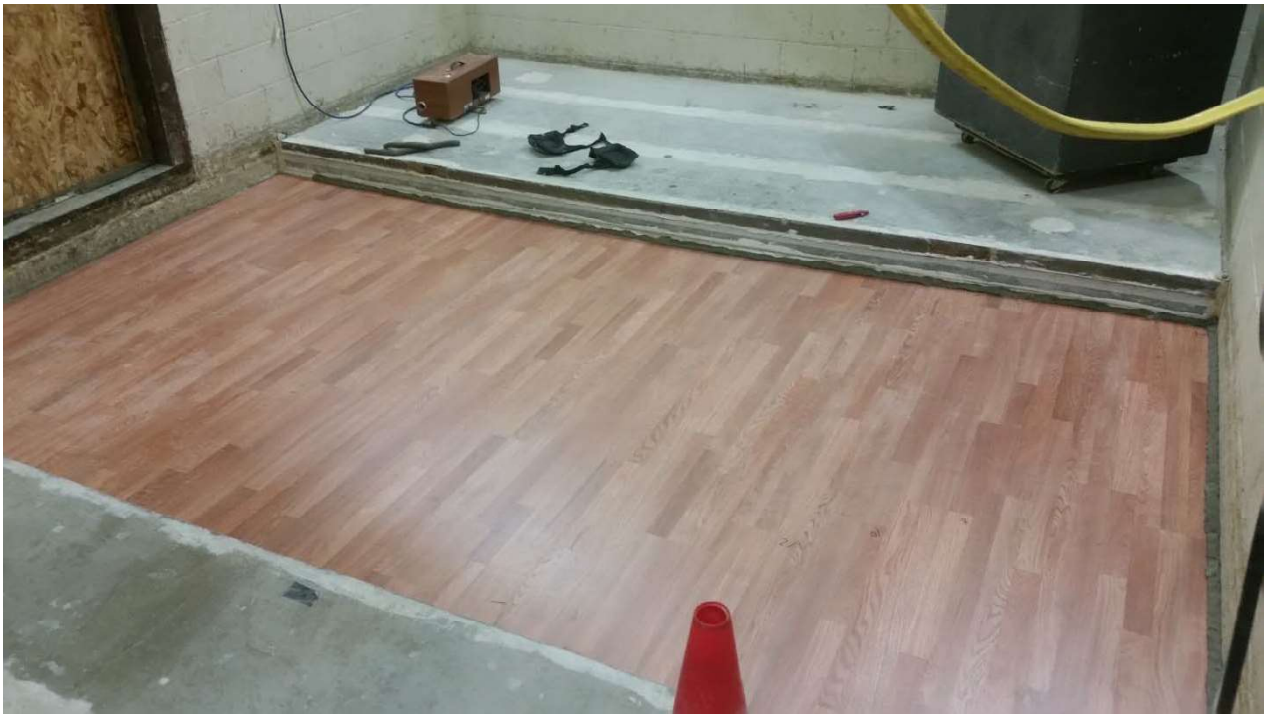

Figure 1 – Specimen mounted in test opening.

Figure 2 – Underlayment partially installed on concrete slab

Figure 3 – Underside of test specimen

TEST RESULTS

The impact sound pressure levels, normalized to 10 m^2, 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).

FREQ.	Ln	C.L.	DEV	FREQ.	Ln	C.L.	DEV
100	53	0.60		800	42	0.31	
125	59	0.92	2	1000	37	0.38	
160	57	0.51		1250	33	0.36	
200	60	0.69	3	1600	30	0.40	
250	61	0.61	4	2000	25	0.27	
315	65	0.68	8	2500	20	0.47	
400	57	0.60	1	3150	17	0.52	
500	54	0.46					
630	45	0.39					

IIC=55

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 = 18)
IIC = IMPACT INSULATION CLASS
* = INDICATES A CORRECTION HAS BEEN APPLIED TO DATA DUE TO BACKGROUND NOISE LEVELS

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Experimentalist

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Laboratory Manager

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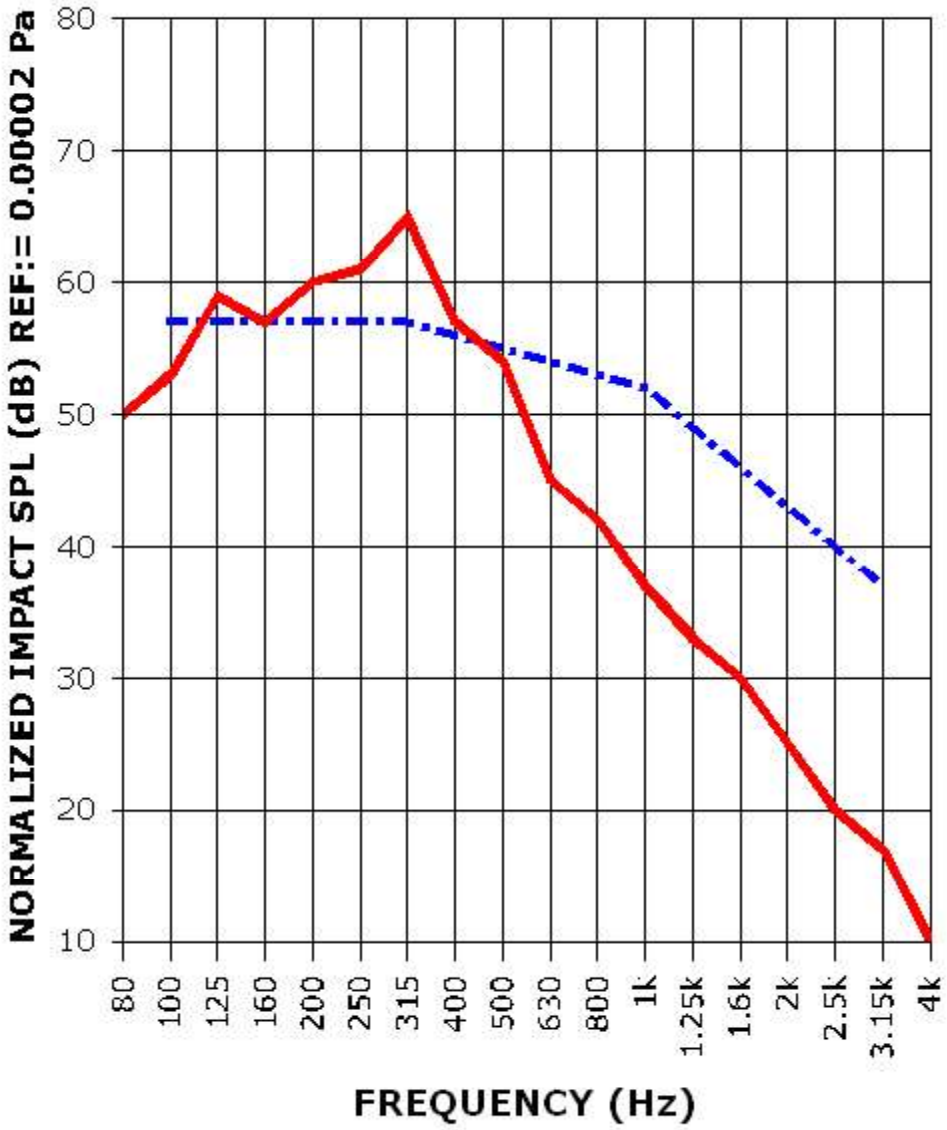
Date: 2018.04.05 16:43:29 -05'00'

IMPACT SOUND TRANSMISSION REPORT

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



IIC=55

IMPACT SOUND PRESSURE LEVEL
IMPACT INSULATION CLASS CONTOUR

APPENDIX A: Extended Frequency Range Data

Specimen: Laminate flooring over dB Fiber 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	55	1.67
40	52	2.03
50	59	0.53
63	58	1.08
80	50	0.69
100	53	0.60
125	59	0.92
160	57	0.51
200	60	0.69
250	61	0.61
315	65	0.68
400	57	0.60
500	54	0.46
630	45	0.39
800	42	0.31
1000	37	0.38
1250	33	0.36
1600	30	0.40
2000	25	0.27
2500	20	0.47
3150	17	0.52
4000	10	1.27
5000	7	2.27
6300	8	2.06
8000	9	1.64
10000	11	1.13
12500	11	1.17

APPENDIX B: Instruments of Traceability

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

Description	Model	Serial Number	Date of Certification	Calibration Due
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