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GENEVA, IL 60134
630-232-0104

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WALLACE CLEMENT SABINE

Test Report

FOR: **Regupol Acoustics**
Lebanon, PA

Sound Transmission Loss
RAL-TL17-308

CONDUCTED: 2017-07-12

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ON: Quarry Floor Tiles and Regupol SonusPlus (underlayment) over 8 inch 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 E90-09 (2016): "Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions and Elements." The single number rating of the specimen was calculated according to ASTM E413-16: "Classification for Rating Sound Insulation." A description of the measuring procedure and room qualifications is available upon request. The transmission loss values are for a single direction of measurement. The product designation used in this report was provided to RAL by the sponsor and attributed to the specimen under test.

DESCRIPTION OF THE SPECIMEN

The test specimen was designated by the manufacturer as Quarry Floor Tiles and Regupol SonusPlus (underlayment) over 8 inch Concrete Slab (no Ceiling). A full Choose an item. inspection performed on the test specimen by Riverbank personnel verified the manufacturer's description.

Concrete Slab

Dimensions:	Four at 609.60 mm (24.0 in.) wide by 4.23 m (166.50 in.) long
Thickness:	203.2 mm (8 in.)
Material:	Wire-reinforced concrete
Weight:	5,023.08 kg (11,074 lbs.)
Mass per Unit Area:	482.75 kg/m ² (98.875 lbs./ft ²)
Joints:	Sealed with acoustical caulk (underside) Filled with general purpose sand, sealed with ready mix compound.



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Flooring

Layer 1

Material: Rubber-like Underlayment

Dimensions: 2 @ 1219.2 mm (48 in.) x 4267.2 mm (168 in.)

Overall Thickness: 12.7 mm (0.5 in.)

Weight: 73.94 kg (163 lbs)

Area Mass Density: 7.13 kg/m² (1.46 lbs/ft²)

Layer 2

Material: Ultraflex 3 thinset mortar

Trowel: 1/4"-3/8"-1/4"

Weight: 36.97 kg (81.5 lbs)

Area Mass Density: 3.55 kg/m² (0.73 lbs/ft²)

Layer 3

Material: Quarry tile

Dimensions: 304.8 mm (12 in.) x 304.8 mm (12 in.)

Thickness: 11.94 mm (0.47 in.)

Overall Weight: 283.04 kg (624 lbs)

Area Mass Density: 27.19 kg/m² (5.57 lbs/ft²)



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Physical Measures

Overall Dimensions: 2.44 m (96.00 in.) wide by 4.27 m (168.00 in.) high
Overall Thickness: 228.60 mm (9.00 in.)
Overall Weight: 5427.66 kg (11965.75 lbs.)
Transmission Area: 10.40 m² (112.00 ft²)
Mass per Unit Area: 521.64 kg/m² (106.84 lbs./ft²)

Test Aperture

Size: 4.27 m (14.0 ft) x 6.10 m (20.0 ft)
Filler Wall: Yes – STC 77 filler – isolated concrete slabs with
suspended gypsum board ceiling
Sealed: Entire periphery (both sides) with dense mastic

Test Environment

Source Room

Volume: 130.4 m³ (4604.6 ft³)
Temperature: 24±0°C (75±1°F)
Humidity: 64±1%

Receive Room

Volume: 83.2 m³ (2938.7 ft³)
Temperature: 22±0°C (72±0°F)
Humidity: 63±1%

Requirements

Temperature: 22° C +/- 2° 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 the test opening.



Figure 2 – Concrete slabs mounted in the test opening.



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Figure 3 – Detail of underlayment installed on concrete slabs.



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TEST RESULTS

Sound transmission loss values are tabulated at the eighteen standard frequencies. A graphic presentation of the data and additional information appear on the following pages. The precision of the transmission loss test data is within the limits set by the ASTM Standard E90-09 (2016).

<u>FREQ.</u>	<u>T.L.</u>	<u>C.L.</u>	<u>DEF.</u>	<u>FREQ.</u>	<u>T.L.</u>	<u>C.L.</u>	<u>DEF.</u>
100	33	0.71		800	63	0.26	
125	35	2.14	5	1000	67	0.20	
160	37	0.84	6	1250	71	0.17	
200	39	0.72	7	1600	75*	0.17	
250	45	0.85	4	2000	78	0.14	
315	49	0.68	3	2500	82	0.11	
400	53	0.55	2	3150	87*	0.11	
500	56	0.41		4000	90*	0.09	
630	60	0.30		5000	90*	0.11	

STC=56

ABBREVIATION INDEX

FREQ. = FREQUENCY, HERTZ, (cps)

T.L. = TRANSMISSION LOSS, dB

C.L. = UNCERTAINTY IN dB, FOR A 95% CONFIDENCE LIMIT

DEF. = DEFICIENCIES, dB<STC CONTOUR (SUM OF DEF = 27)


STC = SOUND TRANSMISSION CLASS

* = FILLER CORRECTION ACCORDING TO ASTM E90 APENDIX A3

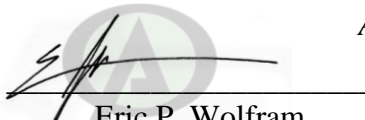
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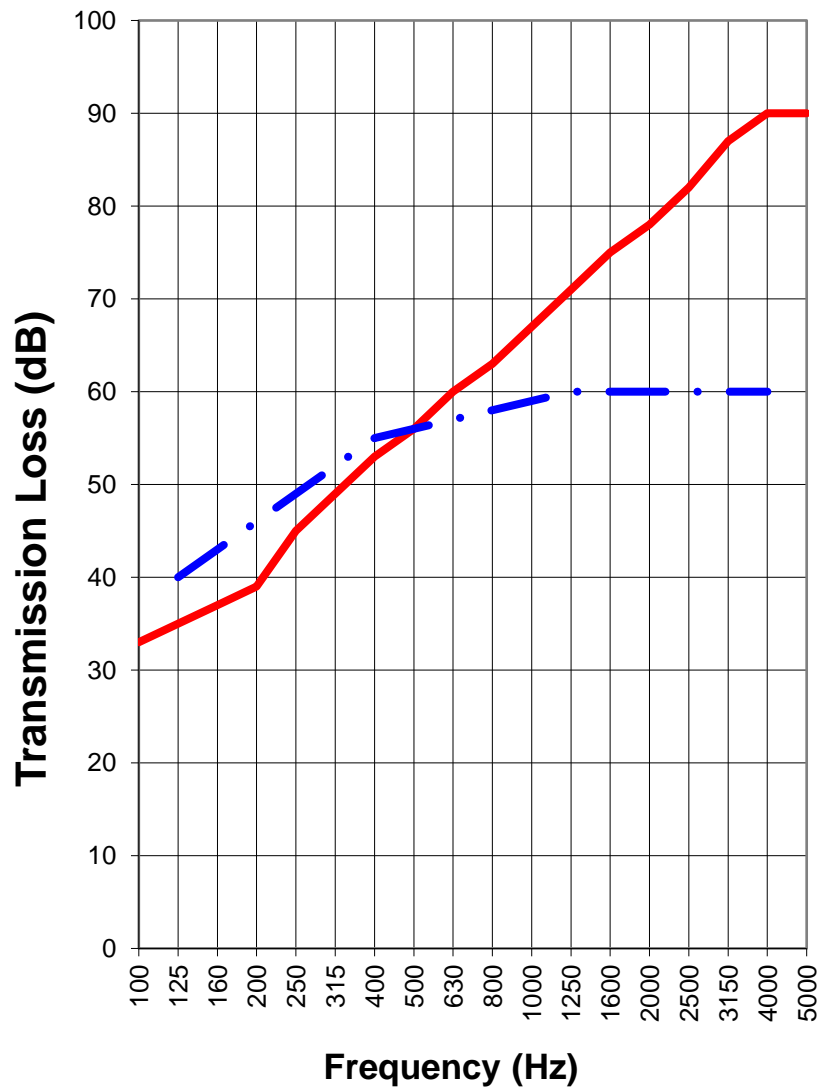
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SOUND TRANSMISSION REPORT

Quarry Floor Tiles and Regupol SonusPlus (underlayment) over 8 inch Concrete Slab
(no Ceiling)



STC=56



TRANSMISSION LOSS
SOUND TRANSMISSION LOSS CONTOUR



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APPENDIX A: Extended Frequency Range Data

Specimen: Quarry Floor Tiles and Regupol SonusPlus (underlayment) over 8 inch Concrete Slab (no Ceiling)
(See Full Report)

The following non-accredited data were obtained in accordance with ASTM E90-09 (2016), but extend beyond the defined frequency range of 100Hz to 5,000Hz. These unofficial results are representative of the RAL test environment only and intended for research & comparison purposes.

1/3 Octave Band Center Frequency (Hz)	Sound Transmission Loss (dB)	Uncertainty (95% \pm)
31.5	36	1.50
40	38	1.90
50	36	1.09
63	33	0.72
80	35	1.14
100	33	0.71
125	35	2.14
160	37	0.84
200	39	0.72
250	45	0.85
315	49	0.68
400	53	0.55
500	56	0.41
630	60	0.30
800	63	0.26
1000	67	0.20
1250	71	0.17
1600	75	0.17
2000	78	0.14
2500	82	0.11
3150	87	0.11
4000	90	0.09
5000	90	0.11
6300	88	0.09
8000	86	0.05
10000	79	0.06
12500	72	0.03



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APPENDIX B: Instruments of Traceability

Specimen: Quarry Floor Tiles and Regupol SonusPlus (underlayment) over 8 inch 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	2016-07-26	2017-07-26
Bruel & Kjaer Mic And Preamp A	Type 4943-B-001	2311428	2016-09-19	2017-09-19
Bruel & Kjaer Pistonphone	Type 4228	2781248	2016-07-25	2017-07-25
Omega Digital Thermo-Hygrometer A	Model # RH411	H0102487	2016-08-12	2017-08-12
Omega Digital Thermo-Hygrometer B	Model # RH411	H0101841	2017-01-17	2018-01-18

END



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