

KINETICS NOISE CONTROL TEST REPORT #AT001097

- **KINETICS NOISE CONTROL PRODUCTS:**

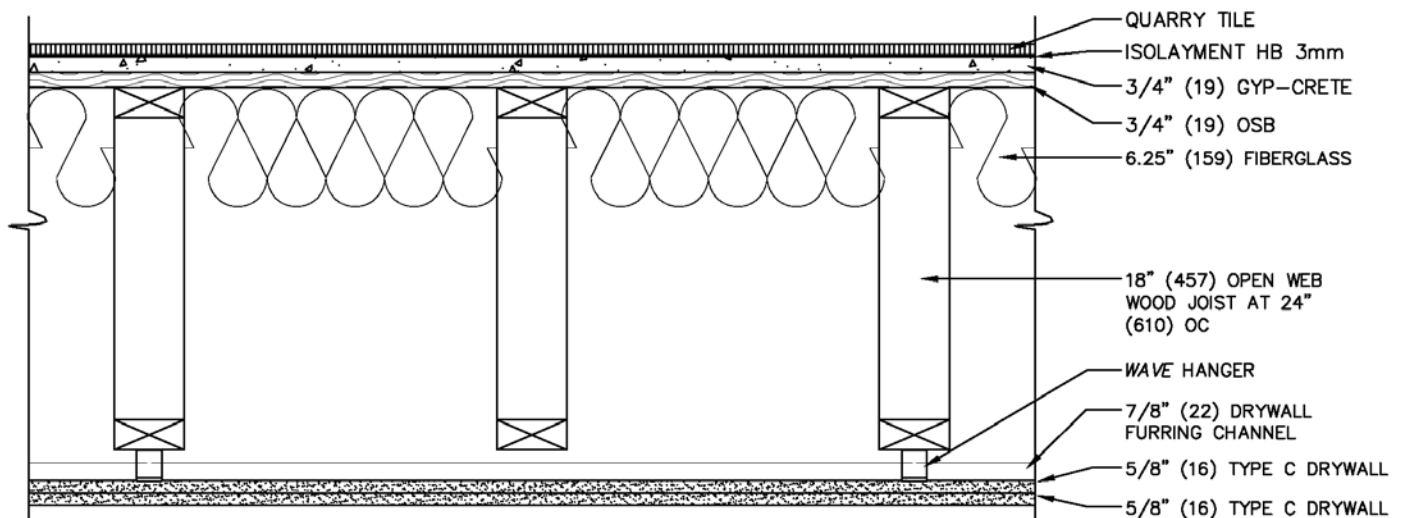
- WAVE HANGER
- ISOLAYMENT HB 3MM

- **ACOUSTICAL RATINGS:**

- STC 60
- IIC 56

- **TESTING AGENCY & REPORT NUMBER:**

- NGC TESTING SERVICES
- NGC 5011039
- NGC 7011067



KINETICS DRAWING NUMBER: AT001097



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TEST REPORT

For

MAXXON® Corporation
920 Hamel Road
Hamel, MN 55340
Josh Jonsson / (763) 478-9600

Kinetics® Noise Control
6300 Irelan Place
Dublin, OH 43017
Matt Golden / (614) 889-0480

Sound Transmission Loss Test

ASTM E 90 – 04 / E 413 - 04

**Quarry Tile Flooring on
Kinetics® IsoLayment HB Underlayment on
3/4 inch (19.0mm) Gyp-Crete 2000®/3.2K Gypsum Floor Underlayment on
18 inch (457.2mm) Wood Truss Floor-Ceiling Assembly with
Fiberglass Insulation, Kinetics® Noise Control WAVE Hanger, Hat Channel
And Double Layers of 5/8 Inch Type C Gypsum Board Ceiling**

Report Number: NGC 5011039


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Assignment Number: G-652

Test Date: 06/01/2011

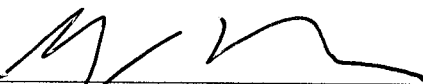
Report Date: 06/20/2011

Submitted by:



Andrew E. Heuer
Test and Quality Engineer

Reviewed by:



Robert J. Menchetti
Director

The results reported above apply to specific samples submitted for measurement.

No responsibility is assumed for performance of any other specimen.

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Report Number: NGC 5011039

Test Method: This test method conforms explicitly with the American Society for Testing and Materials Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions and Elements - Designation: E 90 - 04 / E 413 - 04.

Specimen Description: 18 inch (457.2mm) wood truss floor-ceiling assembly including Kinetics® Noise Control WAVE Hangers for resilient support of gypsum board ceiling, overlaid with, according to client, Quarry Tile flooring over Kinetics® IsoLayment HB Underlayment on 3/4 inch (19.1mm) Gyp-Crete 2000®/3.2K Gypsum Floor Underlayment.

The test specimen was a floor-ceiling assembly consisting of the following:

- 152.4mm x 152.4mm x 12.7mm (6 in. x 6 in. x 1/2 in.) unglazed clay quarry tile installed using a latex-modified thin set mortar mixture meeting ANSI Specification 118.11 and a polymer enhanced sanded grout mixture meeting ANSI Specification 118.6 and 118.7. Mortar troweled on with 1/4 in. by 3/8 in. (6.4mm x 9.5mm) notch trowel. Mortar and grout mixtures sample weight was 32.2 kg/m² (6.6 PSF). Mortar and grout cured for a minimum of 7 days.
- 1 layer of 3.2mm (0.125 in.) Kinetics® IsoLayment HB Underlayment, Sample weight was 2.1 kg/m² (0.44 PSF).
- 1 layer of 19.1mm (3/4 in.) nominal Maxxon® Gyp-Crete 2000® / 3.2K Underlayment. 36.7 kg/m² (7.5 PSF). Cured for a minimum of 14 days.
- 19.1mm (3/4 in.) T&G OSB sub-floor 7.3 kg/m² (1.5 PSF) fastened to wood joists with 6d common nails spaced 304.8mm (12 in.) o.c. in field and 152.4mm (6 in.) o.c. at joints and perimeter and heavy duty sub floor glue.
- 88.9mm x 457.2mm x 3657.6mm (3-1/2 in. x 18 in. x 12 ft.) open web wood truss joists spaced 609.6mm (24 in.) o.c. 11.8 kg/m² (2.42 PSF) Attached with 16d nails @ 3 per side to 50.8mm x 254mm x 4876.8mm (2 in. x 10 in. x 16 ft.) rim boards.
- 1 layer of 158.8mm (6-1/4 in.) fiberglass batt insulation, 1.95 kg/m² (0.40 PSF) installed at the top of open truss air space.
- Kinetics® Noise Control WAVE Hangers, Black No-44, 31 units and Silver No-22, 4 units. All hangers installed 609.6mm (24 in.) along the bottom of alternate truss joists per Kinetics® installation instructions.
- 20 ga. Hat channels hung perpendicular to the joists using the WAVE Hangers spaced 609.6mm (24 in.) on center. 0.85 kg/m² (0.175 PSF)
- 2 layers 15.9mm (5/8 in.) Type C wallboard 24.4 kg/m² (5.0 PSF), attached 304.8mm (12 in.) o.c. perpendicular to hat channels with 31.8mm (1-1/4 in.) type S Screws first layer, 41.3mm (1-5/8 in.) second layer. The wallboard joints were staggered with surface joints taped.

The overall weight of the test assembly is 117.4 kg/m² (24.04 PSF) nominal.

The perimeter of the floor assembly was sealed with rubber gasketing and a sand filled trough. The test assembly is structurally isolated from the receiving room.

Specimen size: 3657.6mm x 4876.8mm (12 ft x 16 ft).

Test samples were submitted by client and tested as received.

Test Results: The results of the tests are given on pages 3 and 4.

The results reported above apply to specific samples submitted for measurement.

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Sound Transmission Loss Test Data

Test: ASTM E 90 - 04 / ASTM E 413 - 04

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Test Report: NGC5011039

Date: 6/1/2011

Specimen Size [m²]: 17.8

Source room

Volume [m³]: 53.2

Rm Temp [°C]: 24

Humidity [%]: 70

Receiving room

Volume [m³]: 61.2

Rm Temp [°C]: 21.5

Humidity [%]: 56

Sound Transmission Class STC [dB]: 60

Sum of Unfavorable Deviations [dB]: 31

Max. Unfavorable Deviation [dB]: 7 at 200 Hz

Frequency [Hz]	STL [dB]	L1 [dB]	L2 [dB]	d [dB/s]	Corr. [dB]	u.Dev. [dB]	ΔSTL
100	40	103.6	70.7	19.9	7.0		2.08
125	45	100.7	63.9	18.0	8.2		1.78
160	41	99.8	67.2	15.4	8.5	6	2.79
200	43	103.9	69.5	15.6	8.6	7	2.09
250	50	104.3	61.8	17.6	7.6	3	1.13
315	51	101.5	58.0	19.7	7.5	5	0.62
400	52	101.1	55.9	21.4	6.7	7	0.59
500	57	101.5	51.2	24.7	6.7	3	1.08
630	62	101.4	45.9	26.6	6.6		0.46
800	66	102.0	41.7	28.0	5.8		0.80
1000	68	97.9	35.8	29.1	5.9		0.81
1250	69	97.0	33.7	31.0	5.7		0.65
1600	72	97.3	30.7	33.1	5.3		0.59
2000	76	98.7	27.9	35.9	5.2		0.43
2500	80	99.4	24.0	38.6	4.6		0.96
3150	82	97.2	19.7	40.9	4.5		0.98
4000	82	92.9	14.5	45.9	3.6		1.06
5000	79	83.9	8.6	51.9	3.7		1.16

STL = Sound Transmission Loss, dB

L1 = Source Room Level, dB

L2 = Receiving Room Level, dB

d = Decay Time, dB/second

Δ STL = Uncertainty for 95% Confidence Level

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Sound Transmission Loss Test Data

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Per: ASTM E 90 - 04 / ASTM E 413 - 04

Test Report: NGC5011039

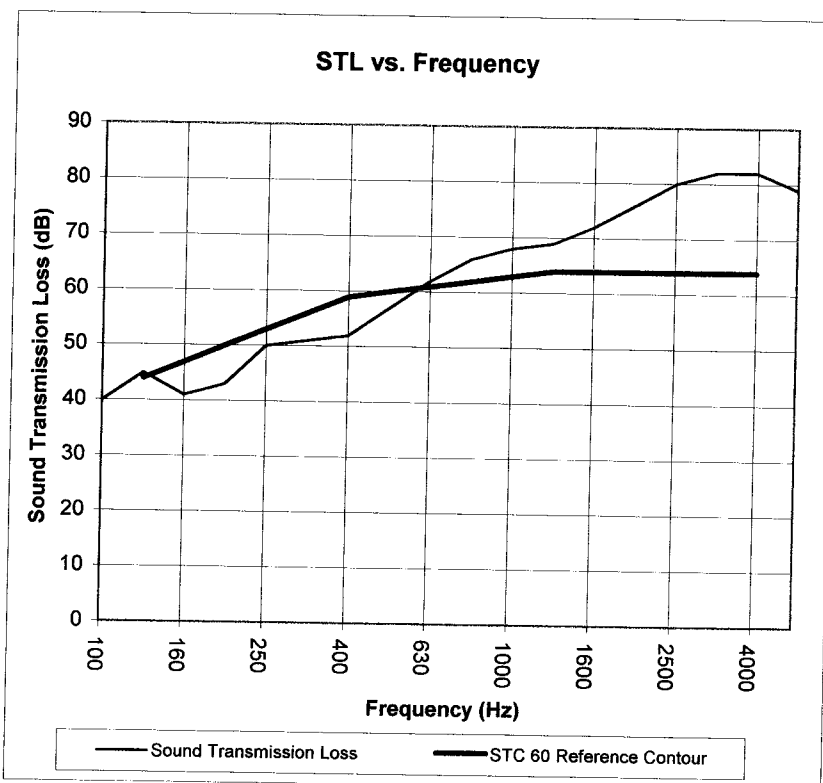
Test Date: 6/1/2011

Specimen Size [m²]: 17.8

Sound Transmission Class STC = 60 dB

Frequency [Hz]	STL [dB]	ΔSTL
100	40	2.08
125	45	1.78
160	41	2.79
200	43	2.09
250	50	1.13
315	51	0.62
400	52	0.59
500	57	1.08
630	62	0.46
800	66	0.80
1000	68	0.81
1250	69	0.65
1600	72	0.59
2000	76	0.43
2500	80	0.96
3150	82	0.98
4000	82	1.06
5000	79	1.16

* Due to high insulating value of specimen, background levels limit results at these frequencies.



STL = Sound Transmission Loss, dB
 Δ STL = Uncertainty for 95% Confidence Level

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Acoustical Testing Laboratory



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Laboratory Accreditation Program
for the specific scope of accreditation
under Lab Code 200291

TEST REPORT

For

MAXXON® Corporation
920 Hamel Road
Hamel, MN 55340
Josh Jonsson / (763) 478-9600

Kinetics Noise Control
6300 Irelan Place
Dublin, OH 43017
Matt Golden / (614) 889-0480

Impact Sound Transmission Test

ASTM E 492 – 09 / ASTM E 989 – 06

On

Quarry Tile Flooring on
Kinetics® IsoLayment HB Underlayment
3/4 inch (19.0mm) Gyp-Crete 2000®/3.2K Gypsum Floor Underlayment on
18 inch (457.2mm) Wood Truss Floor-Ceiling Assembly with
Fiberglass Insulation, Kinetics® Noise Control WAVE Hanger, Hat Channel
And Double Layers 5/8 Inch Type C Gypsum Board Ceiling

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Report Number: NGC 7011067

Assignment Number: G-652

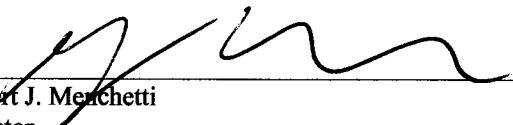
Test Date: 06/01/2011

Report Date: 06/20/2011

Submitted by:


Andrew E. Heuer
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Reviewed by:


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Report Number: NGC 7011067

Test Method: This test method is in accordance with American Society for Testing and Materials Standard Test Method for Laboratory Measurement of Sound Transmission Through Floor-Ceiling Assemblies Using the Tapping Machine - Designation: E 492 – 09 / E989 – 06.
The uncertainty limits of each tapping machine location met the precision requirements of section A1.4 of ASTM E 492-09.

Specimen Description: 18 inch (457.2mm) wood truss floor-ceiling assembly including Kinetics® Noise Control WAVE Hangers for resilient support of gypsum board ceiling, overlaid with, according to client, Quarry Tile flooring over Kinetics® IsoLayment HB Underlayment on 3/4 inch (19.0mm) Gyp-Crete 2000®/3.2K Gypsum Floor Underlayment.
The test specimen was a floor-ceiling assembly consisting of the following:

- 152.4mm x 152.4mm x 12.7mm (6 in. x 6 in. x ½ in.) unglazed clay quarry tile installed using a latex-modified thin set mortar mixture meeting ANSI Specification 118.11 and a polymer enhanced sanded grout mixture meeting ANSI Specification 118.6 and 118.7. Mortar troweled on with 1/4 in. by 3/8 in. (6.4mm by 9.5mm) notch trowel. Mortar and grout mixtures sample weight was 32.2 kg/m² (6.6 PSF). Mortar and grout cured for a minimum of 7 days.
- 1 layer of 3.2mm (0.125 in.) Kinetics® IsoLayment HB Underlayment, Sample weight was 2.1 kg/m² (0.44 PSF).
- 1 layer of 19.1mm (3/4 in.) nominal Maxxon® Gyp-Crete 2000® / 3.2K Underlayment. 36.7 kg/m² (7.5 PSF). Cured for a minimum of 14 days.
- 19.1mm (3/4 in.) T&G OSB sub-floor 7.3 kg/m² (1.5 PSF) fastened to wood joists with 6d common nails spaced 304.8mm (12 in.) o.c. in field and 152.4mm (6 in.) o.c. at joints and perimeter and heavy duty sub floor glue.
- 88.9mm x 457.2mm x 3657.6mm (3-1/2 in. x 18 in. x 12 ft.) open web wood truss joists spaced 609.6mm (24 in.) o.c. 11.8 kg/m² (2.42 PSF) Attached with 16d nails @ 3 per side to 50.8mm x 254mm x 4876.8mm (2 in. x 10 in. x 16 ft.) rim boards.
- 1 layer of 158.8mm (6-1/4 in.) fiberglass batt insulation, 1.95 kg/m² (0.40 PSF) installed at the top of open truss air space.
- Kinetics® Noise Control WAVE Hangers, Black No-44, 31 units and Silver No-22, 4 units. All hangers installed 609.6mm (24 in.) OC along the bottom of alternate truss joists per Kinetics® installation instructions.
- 20 ga. Hat channels hung perpendicular to the joists using the WAVE Hangers spaced 609.6mm (24 in.) on center. 0.85 kg/m² (0.175 PSF)
- 2 layers 15.9mm (5/8 in.) Type C wallboard 24.4 kg/m² (5.0 PSF), attached 304.8mm (12 in.) o.c. perpendicular to hat channels with 31.8mm (1-1/4 in.) type S Screws first layer, 41.3mm (1-5/8 in.) second layer. The wallboard joints were staggered with surface joints taped.

The overall weight of the test assembly is 117.3 kg/m² (24.0 PSF) nominal.
The perimeter of the floor assembly was sealed with rubber gasketing and a sand filled trough. The test assembly is structurally isolated from the receiving room.

Specimen size: 3657.6mm x 4876.8mm (12 ft x 16 ft).

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Test Results: The results of the tests are given on pages 3 and 4.

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Normalized impact sound pressure level						
Test: ASTM E 492 - 09 / ASTM E 989 - 06						
Test Report: NGC7011067					Date: 6/1/2011	
Specimen Size [m²]: 17.8					Page 3 of 4	
Source room			Receiving room			
Rm Temp [°C]: 24			Volume [m³]: 61.2			
Humidity [%]: 70			Rm Temp [°C]: 21.5			
			Humidity [%]: 56			
Impact Insulation Class IIC [dB]: 56						
Sum of Unfavorable Deviations [dB]: 24						
Max. Unfavorable Deviation [dB]: 6 at 100 Hz						
Frequency	L _n	L ₂	d	Corr.	u.Dev.	ΔL _n
[Hz]	[dB]	[dB]	[dB/s]	[dB]	[dB]	
100	62	66.5	23.2	-4.5	6	2.26
125	55	60.5	18.5	-5.5		2.64
160	55	61.6	15.0	-6.6		1.66
200	57	62.9	15.3	-5.9	1	1.01
250	57	62.0	17.8	-5.0	1	0.49
315	59	63.5	20.1	-4.5	3	0.59
400	59	63.4	21.2	-4.4	4	0.39
500	53	57.2	24.9	-4.2		0.17
630	52	56.0	27.2	-4.0		0.29
800	52	55.6	28.0	-3.6		0.30
1000	53	56.0	29.3	-3.0	2	0.51
1250	52	54.9	31.2	-2.9	4	0.43
1600	47	49.9	32.7	-2.9	2	0.27
2000	43	45.8	35.8	-2.8	1	0.28
2500	39	40.8	38.4	-1.8		0.37
3150	31	32.9	41.0	-1.9		0.37
4000	23	24.5	46.2	-1.5		0.40
5000	14	15.4	51.9	-1.4		0.21

L_n = Normalized Sound Pressure Level, dB

L₂ = Receiving Room Level, dB

d = Decay Time, dB/second

ΔL_n = Uncertainty for 95% Confidence Level

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Normalized impact sound pressure level

Test: ASTM E 492 - 09 / ASTM E 989 - 06

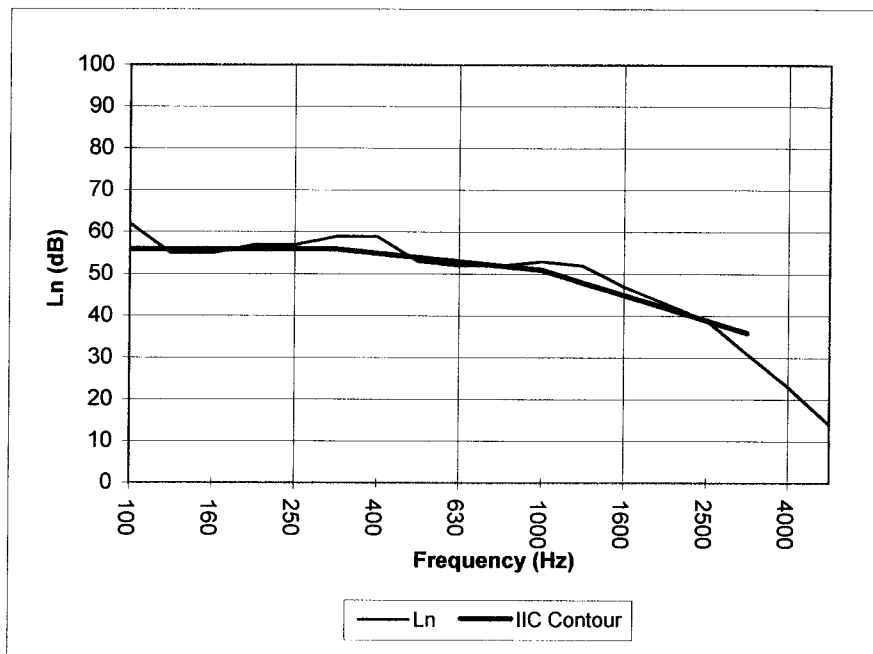
Test Report: NGC7011067

Test Date: 6/1/2011

Specimen Size [m²]: 17.8

Impact Insulation Class IIC [dB]: 56

Frequency	L_n
[Hz]	[dB]
100	62
125	55
160	55
200	57
250	57
315	59
400	59
500	53
630	52
800	52
1000	53
1250	52
1600	47
2000	43
2500	39
3150	31
4000	23
5000	14



* Due to high insulating value of specimen, background levels limit results at these frequencies.

L_n = Normalized Sound Pressure Level, dB

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