

# KINETICS NOISE CONTROL TEST REPORT #AT001094

- **KINETICS NOISE CONTROL PRODUCTS:**

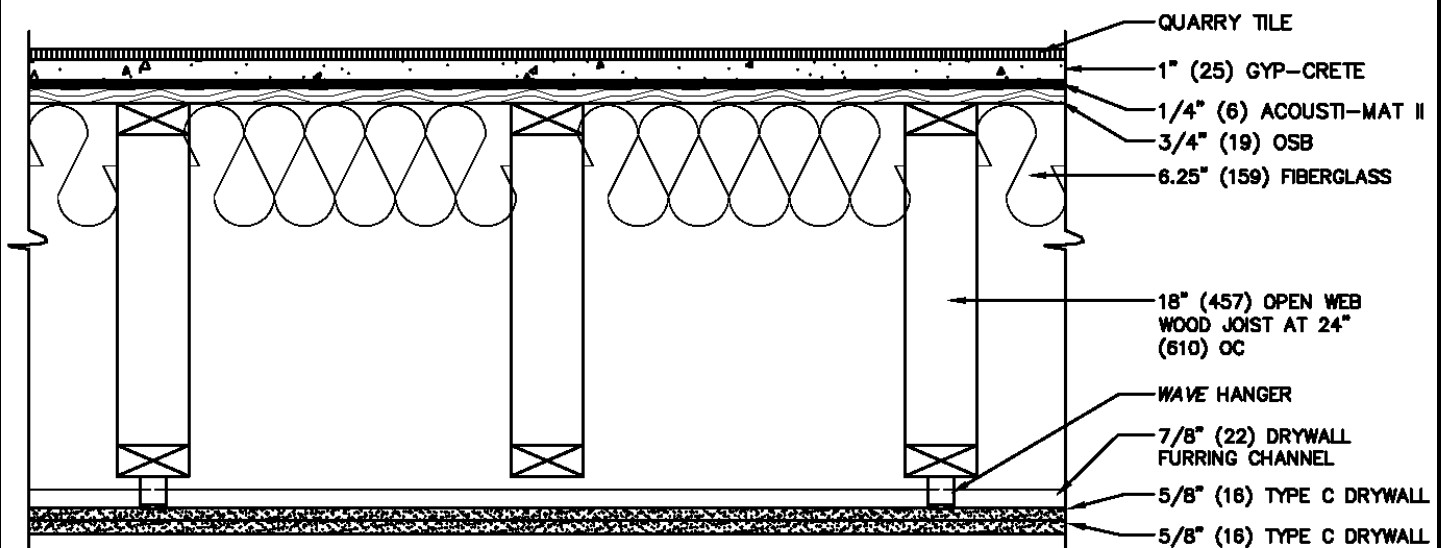
- WAVE HANGER

- **ACOUSTICAL RATINGS:**

- STC 60
- IIC 56

- **TESTING AGENCY & REPORT NUMBER:**

- NGC TESTING SERVICES
- NGC 5011029
- NGC 7011054



KINETICS DRAWING NUMBER: AT001094



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# Acoustical Testing Laboratory



Accredited by the National Voluntary  
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

### Sound Transmission Loss Test

ASTM E 90 – 04 / E 413 - 04

Quarry Tile Flooring on  
1 inch (25.4mm) Gyp-Crete 2000®/3.2K Gypsum Floor Underlayment on  
Acousti-Mat II® over  
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

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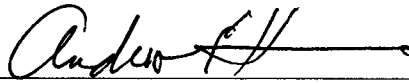
Report Number: NGC 5011029

Assignment Number: G-652


Test Date: 04/28/2011

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.  
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Report Number: NGC 5011029

**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 on 1 inch (25.4mm) Gyp-Crete 2000®/3.2K Gypsum Floor Underlayment over Acousti-Mat® II.

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/m<sup>2</sup> (6.6 PSF). Mortar and grout cured for a minimum of 7 days.
- 1 layer of 25.4mm (1 in.) nominal Maxxon® Gyp-Crete 2000® / 3.2K Underlayment. 49.8 kg/m<sup>2</sup> (10.2 PSF). Cured for a minimum of 14 days.
- 1 layer of Acousti-Mat® II, sound deadening pad, filaments with white fabric installed by client, 6.4mm (¼ in.) thick, 0.58 kg/m<sup>2</sup> (0.12 PSF).
- 19.1mm (¾ in.) T&G OSB sub-floor 7.3 kg/m<sup>2</sup> (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/m<sup>2</sup> (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/m<sup>2</sup> (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/m<sup>2</sup> (0.175 PSF)
- 2 layers 15.9mm (5/8 in.) Type C wallboard 24.4 kg/m<sup>2</sup> (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 129.0 kg/m<sup>2</sup> (26.42 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.

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## Sound Transmission Loss Test Data

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

Test Report: NGC5011029

Date: 4/28/2011

Specimen Size [m<sup>2</sup>]: 17.8

**Source room**

Volume [m<sup>3</sup>]: 50.5

Rm Temp [°C]: 19.5

Humidity [%]: 50

**Receiving room**

Volume [m<sup>3</sup>]: 61.2

Rm Temp [°C]: 19

Humidity [%]: 65

Sound Transmission Class **STC [dB]: 60**

Sum of Unfavorable Deviations [dB]: 28

Max. Unfavorable Deviation [dB]: 8 at 200 Hz

Frequency [Hz]	STL [dB]	L1 [dB]	L2 [dB]	d [dB/s]	Corr. [dB]	u.Dev. [dB]	ΔSTL
100	41	103.5	70.3	17.6	7.9		2.50
125	45	100.0	62.7	17.8	7.7		3.04
160	42	98.4	65.1	15.8	8.6	5	2.77
200	42	103.0	69.4	15.4	8.4	8	2.54
250	49	103.8	62.7	16.5	7.9	4	1.53
315	52	101.1	56.4	19.4	7.3	4	0.77
400	56	101.6	53.2	20.4	7.6	3	0.43
500	58	101.4	50.2	23.7	6.8	2	1.09
630	59	101.8	49.1	25.4	6.3	2	0.66
800	65	101.8	42.6	26.7	5.8		0.89
1000	68	97.7	35.1	27.9	5.4		0.73
1250	73	96.1	29.1	29.9	6.0		0.40
1600	77	96.9	25.1	31.3	5.2		0.86
2000	81	99.3	23.6	35.0	5.3		0.56
2500	82	99.3	21.9	37.2	4.6		0.85
3150	82	97.8	19.8	40.2	3.9		0.93
4000	82	94.6	16.2	44.5	3.6		1.43
5000	80	88.1	11.8	50.6	3.7		1.56

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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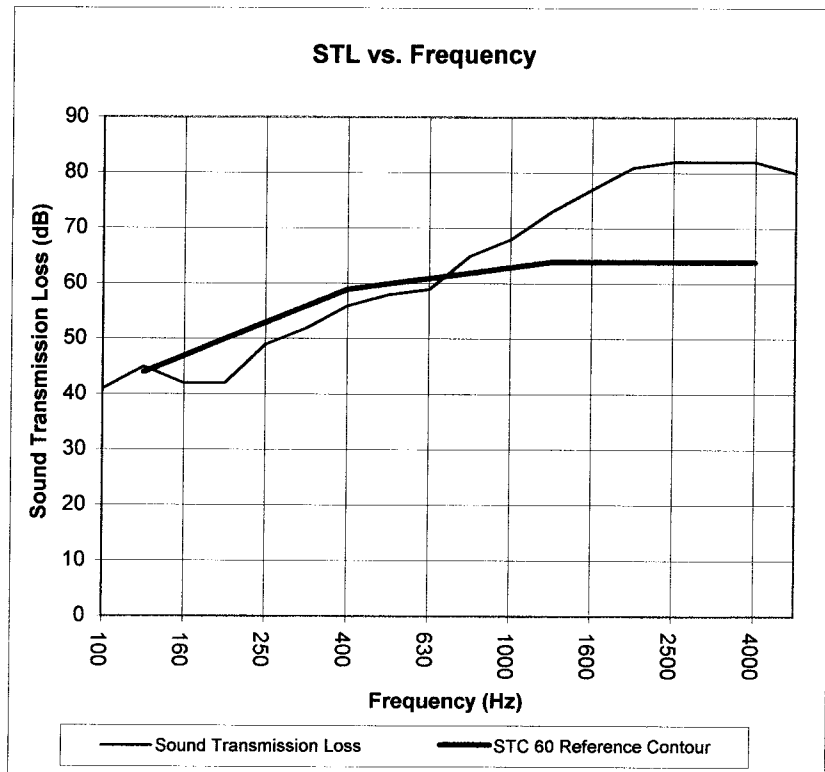
## Sound Transmission Loss Test Data

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

Test Report: NGC5011029  
 Test Date: 4/28/2011  
 Specimen Size [m<sup>2</sup>]: 17.8

**Sound Transmission Class STC = 60 dB**

Frequency [Hz]	STL [dB]	ΔSTL
100	41	2.50
125	45	3.04
160	42	2.77
200	42	2.54
250	49	1.53
315	52	0.77
400	56	0.43
500	58	1.09
630	59	0.66
800	65	0.89
1000	68	0.73
1250	73	0.40
1600	77	0.86
2000	81	0.56
2500	82	0.85
3150	82	0.93
4000	82	1.43
5000	80	1.56



\* 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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## TEST REPORT

For

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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  
1 inch (25.4mm) Gyp-Crete 2000®/3.2K Gypsum Floor Underlayment on  
Acousti-Mat II® over  
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

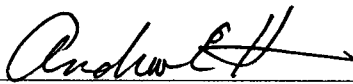
Page 1 of 4

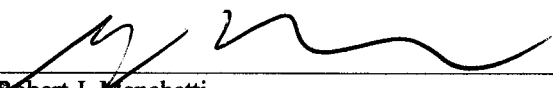
Report Number: NGC 7011054

Assignment Number: G-652

Test Date: 04/28/2011

Report Date: 06/20/2011

Submitted by:   
Andrew E. Heuer  
Test and Quality Engineer

Reviewed by:   
Robert J. Menchetti  
Director

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Report Number: NGC 7011054

**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 on 1 inch (25.4mm) Gyp-Crete 2000®/3.2K Gypsum Floor Underlayment over Acousti-Mat® II.

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

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- 1 layer of 25.4mm (1 in.) nominal Maxxon® Gyp-Crete 2000® / 3.2K Underlayment. 49.8 kg/m<sup>2</sup> (10.2 PSF). Cured for a minimum of 14 days.
- 1 layer of Acousti-Mat® II, sound deadening pad, filaments with white fabric installed by client, 6.4mm (¼ in.) thick, 0.58 kg/m<sup>2</sup> (0.12 PSF).
- 19.1mm (¾ in.) T&G OSB sub-floor 7.3 kg/m<sup>2</sup> (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/m<sup>2</sup> (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.
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The overall weight of the test assembly is 129.0 kg/m<sup>2</sup> (26.42 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.

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Normalized impact sound pressure level						
Test: ASTM E 492 - 09 / ASTM E 989 - 06						
Test Report: NGC7011054					Date: 4/28/2011	
Specimen Size [m <sup>2</sup> ]: 17.8					Page 3 of 4	
Source room			Receiving room			
Rm Temp [°C]: 19			Volume [m <sup>3</sup> ]: 61.2			
Humidity [%]: 62			Rm Temp [°C]: 19			
			Humidity [%]: 65			
Impact Insulation Class IIC [dB]:			56			
Sum of Unfavorable Deviations [dB]:			30			
Max. Unfavorable Deviation [dB]:			5 at 630 Hz			
Frequency [Hz]	L <sub>n</sub> [dB]	L <sub>2</sub> [dB]	d [dB/s]	Corr. [dB]	u.Dev. [dB]	ΔL <sub>n</sub>
50	54	59.7	17.45	-5.7		2.84
63	54	59.1	20.76	-5.1		2.87
80	53	58.3	19.07	-5.3		2.68
100	55	60.7	17.50	-5.7		1.88
125	52	57.2	3.24	-5.2		1.93
160	58	64.1	3.88	-6.1	2	1.61
200	60	65.8	3.99	-5.8	4	1.27
250	59	64.2	3.61	-5.2	3	0.73
315	58	62.7	3.08	-4.7	2	0.54
400	57	62.1	2.95	-5.1	2	0.30
500	58	62.5	2.55	-4.5	4	0.25
630	58	62.3	2.37	-4.3	5	0.22
800	55	58.8	2.27	-3.8	3	0.26
1000	53	55.9	2.13	-2.9	2	0.18
1250	50	53.1	2.00	-3.1	2	0.21
1600	45	47.7	1.87	-2.7		0.17
2000	43	45.1	1.72	-2.1	1	0.27
2500	39	40.7	1.59	-1.7		0.27
3150	31	32.6	1.49	-1.6		0.20
4000	23	24.3	1.34	-1.3		0.24
5000	16	17.8	1.18	-1.8		0.22

L<sub>n</sub> = Normalized Sound Pressure Level, dB  
 L<sub>2</sub> = Receiving Room Level, dB  
 d = Decay Time, dB/second  
 ΔL<sub>n</sub> = Uncertainty for 95% Confidence Level

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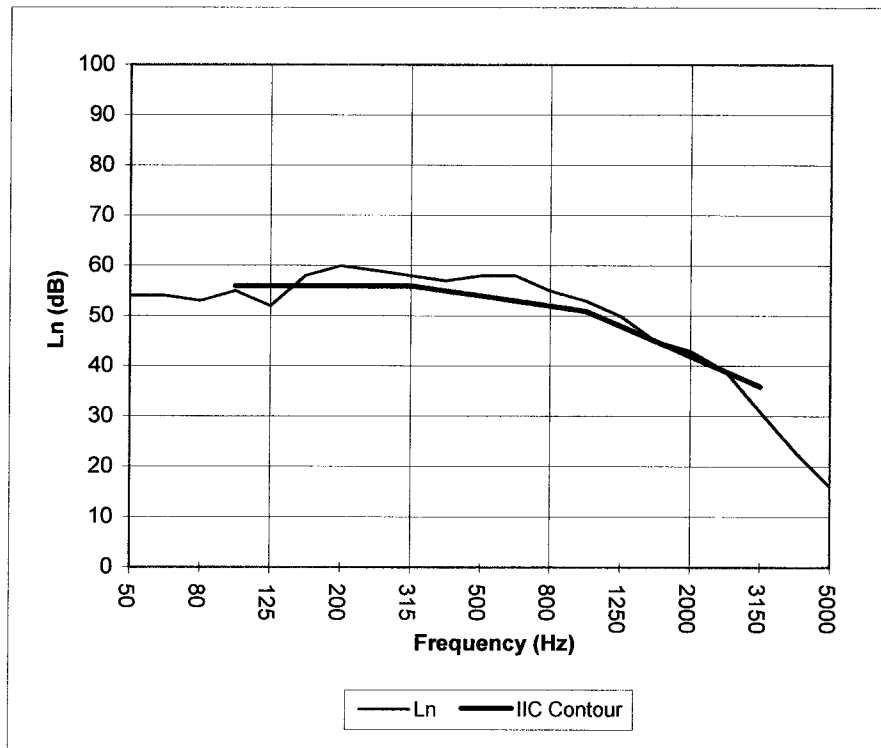
## Normalized impact sound pressure level

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

Test Report: NGC7011054  
 Test Date: 4/28/2011  
 Specimen Size [m<sup>2</sup>]: 17.8

**Impact Insulation Class IIC [dB]: 56**

Frequency [Hz]	L <sub>n</sub> [dB]
50	54
63	54
80	53
100	55
125	52
160	58
200	60
250	59
315	58
400	57
500	58
630	58
800	55
1000	53
1250	50
1600	45
2000	43
2500	39
3150	31
4000	23
5000	16



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

L<sub>n</sub> = Normalized Sound Pressure Level, dB

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