TEST REPORT

for

Spirit Acoustics Inc.
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Stanhope, New Jersey 07874
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Sound Attenuation of Suspended Ceiling Test

ASTM E 1414 / E1414 M-16 / E413-16

On

2' x 4' Flat Lay-In Mineral Board Ceiling Tiles With (4) 2' x 4' Recessed Light Fixtures Installed

Report Number: NGC 6020010

Assignment Number: G-1718

Test Date: 10/15/2020

Report Approval Date: 10/26/2020

Submitted by: _____
Anthony J. Rivers
Test Technician

Reviewed by: _____
Robert J Menchetti
Director

Revision Summary:

Date	SUMMARY
Approval Date: 10/26/2020	Original issue date: 10/26/2020 Original NGCTS report: NGC 6020010

Report Number: NGC 6020010

Test Method: This test method conforms explicitly with the American Society for Testing and Materials Standard Test Method for Airborne Sound Attenuation between Rooms Sharing a Common Ceiling Plenum - Designation: E 1414 / E1414 M-16 / E413-16.

Specimen Description: The Test specimen is a combination of, ceiling tiles and 4 Recessed Light Fixtures installed into a ceiling grid.

The specimen was sealed with caulk between the grid face and the top of the dividing partition. The metal grid system was installed continuous at the dividing partition.

Ceiling Panel Description:

2 ft x 4 ft Flat Lay Mineral Board Ceiling Panels, 610 mm x 1219.2 mm x 16 mm (2 ft. x 4 ft. x 5/8 in.). They were a square edge lay-in panel with a factory painted glass scrim on the front, with a mineral fiber core. The measured panel thickness was 14.48 mm (0.57 in.); the measured panel weight was 2.93 kg/m^2 (0.60 PSF). Unit Size was 603.25 mm x 1212.85 mm (23-3/4 in. x 47-3/4 in.).

Grid System Description:

The metal grid system was a interrupted setup.

Suspended ceiling system consisted of 2 ft. by 4 ft. nominal, lay-in ceiling panels. The T-grid system was an Armstrong Prelude.

Ceiling Test Area: 26 sq. meters.

Suspension System Type: IE.

Data Normalization: The 'direct method' of measuring the receiving room absorption was used.

Preconditioning: Minimum 24 hours at 70°F, 55% R.H.

Test Results: The results of the tests are given on pages 4 and 5.

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Sound Attenuation by Suspended Ceiling

Test: ASTM E 1414 - 16 / ASTM E 413 -16

Test Report: NGC6020010 Date: 10/15/2020
Spec. Area [m²]: 12

Source room		**Receiving room**	
Volume [m³]:	41.26	Volume [m³]:	41.26
Rm Temp [°C]:	21	Rm Temp [°C]:	25
Humidity [%]:	53	Humidity [%]:	50

Ceiling Attenuation Class CAC [dB] = 34
Sum of Unfavorable Deviations [dB]: 25
Maximum Unfavorable Deviation [dB]: 5 at 5 Hz

Frequency [Hz]	$D_{n,c}$ [dB]	L1 [dB]	L2 [dB]	d [dB/s]	Corr. [dB]	u.Dev. [dB]	$\Delta D_{n,c}$
100	17	100.7	86.7	45.5	3.0	-	0.762
125	21	98.5	79.1	53.6	1.6	-	0.632
160	24	93.7	71.6	48.8	1.9	-	0.648
200	28	98.8	73.6	43.2	2.9	2	0.374
250	25	96.7	75.0	46.5	3.3	4	0.200
315	26	95.8	71.2	46.9	1.4	5	0.173
400	28	94.3	68.1	44.8	1.9	4	0.200
500	30	95.7	66.8	47.2	1.0	3	0.141
630	32	95.4	64.2	46.9	0.8	2	0.173
800	34	94.1	59.8	45.8	-0.3	1	0.100
1000	36	94.0	57.2	46.9	-0.8	-	0.100
1250	38	92.1	53.9	47.6	-0.2	1	0.100
1600	37	89.8	51.9	50.8	-0.9	2	0.100
2000	36	89.3	52.1	53.6	-1.2	-	0.100
2500	38	90.4	51.5	57.1	-0.9	1	0.100
3150	37	89.1	51.2	60.0	-0.8	3	0.100
4000	35	88.0	51.3	64.5	-1.7	-	-.-
5000	35	86.3	50.7	71.4	-0.6	-	0.100

Dn,c = Normalized Ceiling Attenuation, dB
L1 = Source Room Level, dB
L2 = Receiving Room Level, dB
d = Decay Rate, dB/second
Δ Dn,c = Uncertainty for 95% Confidence Level

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Test Report: NGC6020010
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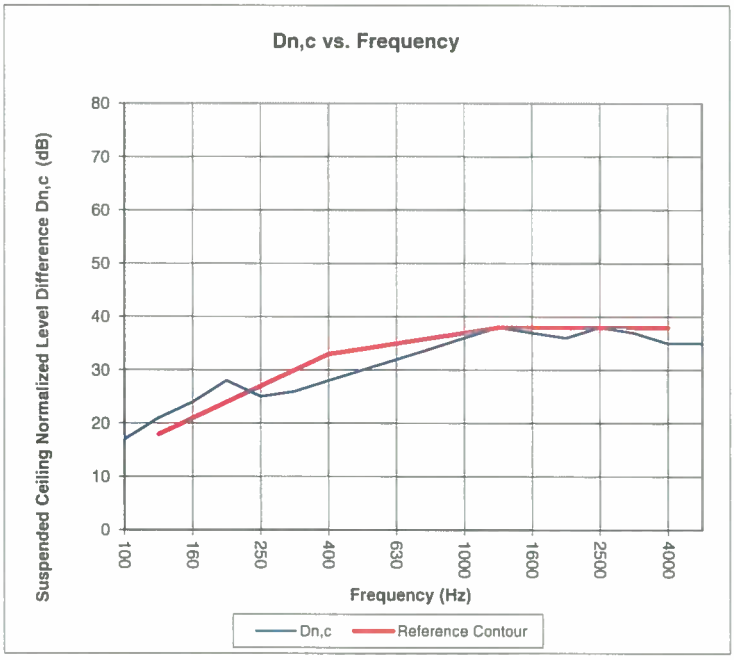
100	17	0.762
125	21	0.632
160	24	0.648
200	28	0.374
250	25	0.200
315	26	0.173
400	28	0.200
500	30	0.141
630	32	0.173
800	34	0.100
1000	36	0.100
1250	38	0.100
1600	37	0.100
2000	36	0.100
2500	38	0.100
3150	37	0.100
4000	35	-.-
5000	35	0.100

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



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