

REPORT**3933 US ROUTE 11 CORTLAND, NEW YORK 13045**

Order No. 104614794

Date: March 29, 2021

REPORT NO. 104614794CRT-001b**STATIC PRESSURE VERSUS AIRFLOW
AND SOUND POWER LEVEL TESTS ON A
2 X 4 RETURN AIR LIGHT TROFFER****RENDERED TO****TADD, LLC
188 S. NORTHWEST HIGHWAY
CARY, IL 60013****INTRODUCTION**

This report gives the results of tests conducted on a light troffer. The test results include Static Pressure and Sound Power Level. The sample was selected and supplied by the client and was received at the laboratories on March 5, 2021. The sample appeared to be in new unused condition upon receipt.

AUTHORIZATION

Signed Intertek Quote No Qu-01074241-0

TEST METHOD

The fixture was tested in accordance with the ASHRAE 70-2006 Standard "Method of Testing for Rating the Performance of Air Outlets and Inlets. Acoustical data was obtained employing a Bruel & Kjaer Sound Level Meter. The reference sound source used for this test was a calibrated Bruel & Kjaer Type 4204, which conforms to the above standard. The octave band sound power levels were plotted on graph of Noise Criteria Curves which is in the ADC Test Code. These curves are reprinted with permission from the ASHRAE Handbook and Product Directory, 2017. The fixture was installed in the facility and supplied with measured volumes of air. The static pressure was measured downstream of the sample. The testing was done with isothermal air.

EQUIPMENT

Equipment	Calibration Date	Due Date	S/N	Model	Brand	Asset
Sound Analyzer	9/8/2020	9/8/2021	2706893	2270	Brüel and Kjær	A350
Microphone	9/8/2020	9/8/2021	-	4189	Brüel and Kjær	-
Reference Sound Source	10/12/2018	10/12/2021	2036621	4204	Brüel and Kjær	A230

DESCRIPTION OF TEST SPECIMEN**2 X 4 RETURN AIR LIGHT TROFFER**

The sample consisted of a 23 $\frac{3}{4}$ inch wide by 47 $\frac{3}{4}$ inch long by 1 $\frac{3}{4}$ inch light troffer with eight 1 $\frac{1}{4}$ inch long by $\frac{3}{16}$ inch wide air return slots on opposite long sides. The sample was constructed from aluminum. The testing was done in the return air direction using isothermal air.

PHOTOGRAPH OF TEST SAMPLE

RESULTS OF TESTS

Octave Band Center <u>Frequency Hertz</u>	<u>RETURN AIR</u>				
	2 X 4 RETURN AIR LIGHT TROFFER				
	<u>Sound Power Level dB re 10⁻¹² Watt</u>				
125	38.0*	38.7*	38.5*	38.2*	38.6*
250	32.2*	32.4*	36.7*	34.4*	39.5
500	27.1*	30.2*	59.1	44.0	49.9
1000	26.4*	26.1*	27.0*	42.2	52.7
2000	21.4*	21.1*	21.8*	21.5*	31.1
4000	18.8*	18.6*	18.9*	18.9*	19.3*
8000	22.7*	22.7*	22.7*	22.7*	22.7*
Return Air Volume, CFM	33	38	43	50	60
Static Pressure, in. H ₂ O	0.03	0.04	0.05	0.07	0.10
**Noise Criteria (NC)	<15	<15	45	28	41

Octave Band Center <u>Frequency Hertz</u>	<u>RETURN AIR</u>			
	2 X 4 RETURN AIR LIGHT TROFFER			
	<u>Sound Power Level dB re 10⁻¹² Watt</u>			
125	40.5*	42.4*	42.8*	44.9
250	45.3	43.7	45.9	48.7
500	57.5	52.2	53.5	55.0
1000	60.9	63.4	68.2	70.1
2000	51.2	64.5	67.2	68.3
4000	31.8	45.0	48.6	58.8
8000	22.7*	23.3*	27.4*	35.5
Return Air Volume, CFM	72	84	95	104
Static Pressure, in. H ₂ O	0.15	0.20	0.25	0.30
**Noise Criteria (NC)	50	55	58	59

* Sound Power Level data has reached ambient levels in the test room or is determined by instrument limitations. Actual levels are less than or equal to the levels indicated.

** Noise Criteria ratings were determined by subtracting a room absorption of 10dB from the Sound Power Level data.

CONCLUSION

The test method employed for this test has no pass-fail criteria; therefore, the evaluation of the test results is left to the discretion of the client.

Date of Tests: March 18, 2021

Report Approved by:



Brian Cyr
Engineer
Acoustical Testing
Attachments: None

Report Reviewed By:



James R. Kline
Engineer/Quality Supervisor
Acoustical Testing