



REPORT

3933 US ROUTE 11 CORTLAND, NEW YORK 13045

Order No. 100989233

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REPORT NO. 100989233CRT-001e

**SOUND AND PRESSURE DROP TESTING OF
A BETA PRESSURE INDEPENDENT SINGLE
DUCT AIR TERMINAL, MODEL SDV250**

RENDERED TO

**BETA INDUSTRIAL L.L.C.
P.O. BOX 50708,
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INTRODUCTION

This report gives the results of Sound Power Level and Pressure Drop tests, which were conducted on a Beta Pressure Independent Single Duct Air Terminal, Model SDV250. The sample was selected and supplied by the client and received at the laboratories on January 22, 2013. The unit appeared to be in new, unused condition.

| <u>Section No. *</u> | <u>Title of Test</u> |
|----------------------|---------------------------------|
| 7 | Primary Airflow Rate, cfm |
| 7 | Radiated Sound Power Level, dB |
| 7 | Discharge Sound Power Level, dB |

The results contained herein are for technical evaluation only and are applicable only to the specific specimens referenced herein.

The tests herein reported have not been performed at the request of the Air Conditioning, Heating and Refrigeration Institute (AHRI), and use of these findings in any advertising or other literature shall state therein that the test is not part of the AHRI Certification Program.

*AHRI Standard 880-2008

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GENERAL

Authorization to test the sample came from Intertek India. The sample was selected and supplied by the client and received at the laboratories on January 22, 2013. The unit appeared to be in new, unused condition.

TEST METHOD

The laboratory method used in conducting this series of tests was in accordance with Industry Standards AHRI 880-2008, "Performance Rating of Air Terminals" and ASHRAE 130-2008, "Methods of Testing Air Terminal Units".

The reference sound source used for this test was a calibrated Bruel & Kjaer Type 4204, which conforms to the above standard. Airflow was measured employing a nozzle metering station and a Dwyer Inclined Manometer Model No. 424-5.

| Equipment | Calibration Date | Due Date | S/N | Model | Brand | Asset |
|------------------------|------------------|-----------|---------|-------|----------------|-------|
| Microphone/Pre - DF | 3/22/2012 | 3/22/2013 | 2381159 | 4942 | Brüel and Kjær | E449 |
| Pulse Analyzer | 3/19/2012 | 3/19/2013 | 2519258 | 7539 | Brüel and Kjær | E446 |
| Reference Sound Source | 7/27/2012 | 7/27/2015 | 2036621 | 4204 | Brüel and Kjær | A230 |
| Manometer Incline | 3/16/2012 | 3/16/2013 | - | 424-5 | Dwyer | F166 |
| Manometer Incline | 3/16/2012 | 3/16/2013 | S39C | 424-5 | Dwyer | F167 |
| Microphone Calibrator | 3/19/2012 | 3/19/2013 | 2130586 | 4231 | Brüel and Kjær | A227 |

All static pressures in this report have been corrected to standard conditions.

TEST SPECIMEN

The test specimen consisted of a Beta Pressure Independent Single Duct Terminal Unit, Model SDV250. The terminal measured 18 3/8 inches in length by 14 inches in width by 12 1/2 inches in height. The inlet measured 10 in diameter while the outlet measured 13 1/4 by 11 inches. The sheet metal thickness measured 0.039 inches. The terminal was lined with 1/2 inch thick dual density insulation. The base terminal was tested with a flowcross inlet flow sensor.



RESULTS OF TEST – Model SDV250

Measurement of the minimum operating pressure at 100% of standard airflow.

| | |
|----------------------|---------------------------|
| <u>Rated Airflow</u> | <u>Measured</u> |
| 1100 cfm | 0.00 in. H ₂ O |

For the Casing Radiated Sound Power Level Test, the terminal was mounted in accordance with paragraph 6.1.4.2 of AHRI Standard 880-2008 and Figure 12 of ASHRAE 130-2008.

| <u>Octave Band Center Frequency Hertz</u> | <u>Radiated Sound Power Level Lw dB re 10⁻¹² Watt</u> |
|---|--|
| 125 | 58 |
| 250 | 55 |
| 500 | 56 |
| 1000 | 46 |
| 2000 | 37 |
| 4000 | 30 |
| 8000 | 26* |
| Air Volume in cfm | 1100 |
| Operating Pressure in. H ₂ O | 1.5 |

For the Discharge Sound Power Level Test, the unit was mounted in accordance with paragraph 6.1.4.1 of AHRI Standard 880-2008 and Figure 8 of ASHRAE 130-2008.

| <u>Octave Band Center Frequency Hertz</u> | <u>Discharge Sound Power Level Lw dB re 10⁻¹² Watt</u> | |
|---|---|----------------|
| | <u>Test #1</u> | <u>Test #2</u> |
| 125 | 74 | 62 |
| 250 | 72 | 58 |
| 500 | 65 | 52 |
| 1000 | 63 | 47 |
| 2000 | 62 | 38 |
| 4000 | 59 | 34 |
| 8000 | 56 | 28* |
| Air Volume in cfm | 1100 | 1100 |
| Operating Pressure in. H ₂ O | 1.5 | Minimum |

*Sound Power Level data denoted with an asterisk 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.

REMARKS

1. Ambient Temperature: 69 - 70° F
2. Relative Humidity: 19 - 22%
3. Barometric Pressure: 28.08 – 28.64 Inches Hg

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.

Dates of Tests: January 31 through February 1, 2013

Report Approved by:

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Attachments: None