



SINCE 1896

# REPORT

**Intertek** ETL SEMKO

3933 US ROUTE 11 CORTLAND, NEW YORK 13045

Date: May 15, 2007

Order No. 3115054

**REPORT NO. 3115054CRT-001**

## **SOUND INSERTION LOSS TESTING OF DUCT LAGGING SYSTEMS**

**RENDERED TO**

**KINETICS NOISE CONTROL  
6300 IRELANE PLACE  
DUBLIN, OH 43017**

### INTRODUCTION

This report gives the results of Sound Insertion Loss Testing of Duct Lagging Systems. The lagging materials were selected and supplied by the client and received at the laboratories on February 19, 2007. The samples appeared to be in a new, unused condition.

### AUTHORIZATION

Signed Intertek Quotation No. 500016195.

### TEST METHOD

The tests were performed in general accordance with the American Society for Testing and Materials designation ASTM E1222-90 (Reapproved 2002), "Standard Test Method for Laboratory Measurement of the Insertion Loss of Pipe Lagging Systems".

**An independent organization testing for safety, performance, and certification.**

This report is for the exclusive use of Intertek's Client and is provided pursuant to the agreement between Intertek and its Client. Intertek's responsibility and liability are limited to the terms and conditions of the agreement. Intertek assumes no liability to any party, other than to the Client in accordance with the agreement, for any loss, expense or damage occasioned by the use of this report. Only the Client is authorized to copy or distribute this report and then only in its entirety. Any use of the Intertek name or one of its marks for the sale or advertisement of the tested material, product or service must first be approved in writing by Intertek. The observations and test results in this report are relevant only to the sample tested. This report by itself does not imply that the material, product, or service is or has ever been under an Intertek certification program. Measurement uncertainty budgets have been determined for applicable test methods and are available upon request.

**TEST EQUIPMENT / SET- UP**

Noise was produced by a loudspeaker and a horn enclosed within a duct which was connected to one end of a 12 inch wide by 24 inch high 20 gauge duct. This duct extended into the Intertek 16,640 cu. ft. (470 cubic meter) reverberation room to provide a 25 foot long test sample. Average sound pressure levels were measured within the reverberation room for two conditions, one with the sound radiating from the bare duct and the other with the duct covered with the lagging system. The insertion loss of the installed lagging system is the difference of the sound pressure levels measured with the sound radiating from the bare and lagged duct, with an adjustment for changes for room absorption due to the presence of the duct lagging system. Test results were obtained in a series of one-third octave bands from 50 to 5,000 Hz.

Description	Serial Number	Calibration Date	Calibration Due Date
Bruel & Kjaer Type 2131 Digital Frequency Analyzer	945136	03/21/2007	03/21/2008
Bruel & Kjaer Type 4166 Condenser Microphone	1734083	05/18/2006	05/18/2007
Bruel & Kjaer Type 4204 Reference Sound Source	2036621	07/24/2006	07/24/2009

**DESCRIPTION OF TEST SPECIMENS**

Sample #1 – The duct lagging over the 20 gauge duct system consisted of 2 inch thick, 5 pound per cubic foot, fiberglass covered by KNM100 ALQ Pipe and Duct Wrap.

Sample #2 – The duct lagging over the 20 gauge duct system consisted of KNM100 ALQ Pipe and Duct Wrap.

**RESULTS OF TESTS****Insertion Loss in dB****1/3 Octave Band  
Center Frequency****Hertz****Sample #1****Sample #2**

50	-1	1
63	2	3
80	5	4
100	8	5
125	10	6
160	11	4
200	14	5
250	16	7
315	20	11
400	24	14
500	27	18
630	29	19
800	32	22
1000	35	24
1250	34	24
1600	34	25
2000	34	27
2500	34	28
3150	33	28
4000	33	28
5000	34	25

**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.

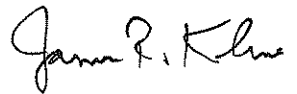
Date of Tests: May 11, 2007

Report Approved by:



Patrick J. Schoof  
Engineering Team Leader  
Acoustical Testing

Report Reviewed By:



James R. Kline  
Engineer/Quality Supervisor  
Acoustical Testing

Attachments: None