	Hudson Valley Acoustics Laboratory **TEST REPORT**	**R101215S2**
Standard: ASTM C423-07: Sound Absorption and Sound Absorption Coefficients by the Reverberation Room Method		
Building 704, Boardman Road Site 2455 South Road, M/S P226 Poughkeepsie, New York 12601	2010 December 20	Phone: (845) 435-4959 FAX: (845) 432-9880

Client: FabriTrak Systems, Inc., 2553 Route 130 South, Suite 2, Cranbury, NJ 08512

Sound Absorption of Acoustical Wall Panel
HVAL Test Number T101215T2

General

The IBM Hudson Valley Acoustics Laboratory is accredited to ISO/IEC 17025:2005 by the National Institute of Standards and Technology under its National Voluntary Laboratory Accreditation Program (NVLAP) for performing measurements according to the standardized test method described below. The test described in this report was conducted on 2010 December 15 at the IBM Hudson Valley Acoustics Laboratory in the Laboratory's 230-m^3 Reverberation Room.

Standardized Test Method Followed

The measurements were performed in full conformance with ASTM C423-07, "Sound Absorption and Sound Absorption Coefficients by the Reverberation Room Method" with the following minor exception. The standard specifies a method for computing the reverberation time based on a linear first-order regression; instead, the IBM HVAL uses a proprietary algorithm built into its Norsonics NE830 real time analyzer. The ASTM C423 procedure is based on the fact that the decay rate (or reverberation time) of sound in a room is proportional to the sound absorption in that room. From measurements of the decay rates first in the empty room, and then in the room with the test specimen added, the absorption of the specimen can be calculated. A large number of repeated decay measurements is taken to ensure that the precision requirements of the standard are met.

Description of Test Specimens

The test specimens were provided directly by the client and consisted of:

1. Two identical panels of 2" thick, 6pcf fiberglass with a standard acoustically transparent fabric, Guilford FR 701, attached via the FabriTrak® system and adhered to a 5/8" thick sheet of gypsum board (sheetrock). Each panel measured 48" × 108" × 2 5/8"

A single test was conducted with the two panels lying flat on the reverberation room floor in the standardized Type A mounting. The two panels were butted together, with no spacing between panels, resulting in an overall sample area of 6.689 m^2 (72 ft^2). The panels were tested with the fabric facing up into the sound field.

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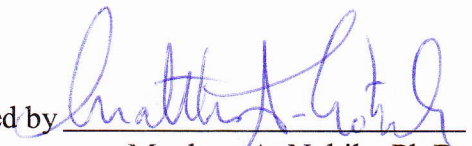
Acoustical Data

The results are given in terms of sound absorption coefficients along with the computed values of the Sound Absorption Average, SAA, and the Noise Reduction Coefficient, NRC, as required by C423. For all the specimens tested here, the results are tabulated in Table 1 for the required 18 one-third octave-band test frequencies from 100 Hz through 5000 Hz.

A detailed record of the test conditions and results, and a complete description of the laboratory and measurement procedures are on file at the IBM Hudson Valley Acoustics Laboratory.

Submitted and Approved by 

Matthew A. Nobile, Ph.D.
Technical Director
IBM Hudson Valley Acoustics Laboratory

NVLAP

Accredited to ISO/IEC 17025:2005 by the National Voluntary Laboratory Accreditation Program for the specific scope of accreditation under Lab Code 100323-0.

Table 1. **Measured one-third octave band sound absorption coefficients per ASTM C423 and computed values of NRC and SAA.**

Sound Absorption Coefficients per ASTM C423 using Type A Mounting	
Frequency (Hz)	**Condition C: 2" fiberglass w/ Guilford FR 701fabric**
100	0.18
125	0.32
160	0.32
200	0.55
250	0.69
315	0.89
400	1.01
500	1.03
630	1.03
800	1.02
1,000	1.02
1,250	1.02
1,600	0.99
2,000	1.00
2,500	0.98
3,150	0.99
4,000	0.99
5,000	0.96
NRC	**0.95**
SAA	**0.94**

Figure 1. **Measured sound absorption coefficients per ASTM C423 for the conditions tested, as a function of frequency.**