

Customer Information :

Etesian Technologies
274 Sunderland Rd
Amherst, MA 01002
USA

Instrument Under Test (IUT)

Model No: Etesian Breeze
Serial No: 10
Output: Serial
Signal Power: 0 VDC
Heater Power: 0 VDC
Mount Diameter: 12.7mm
Test Procedure: Q-2011-0001

Wind Tunnel Test Facility

Otech Tunnel ID: WT2B
Type: Eiffel (open circuit, suction)
Test Section Size: 0.61 m x 0.61 m x 1.22 m
Manufacturer: Engineering Laboratory Design, Inc.

Data Acquisition

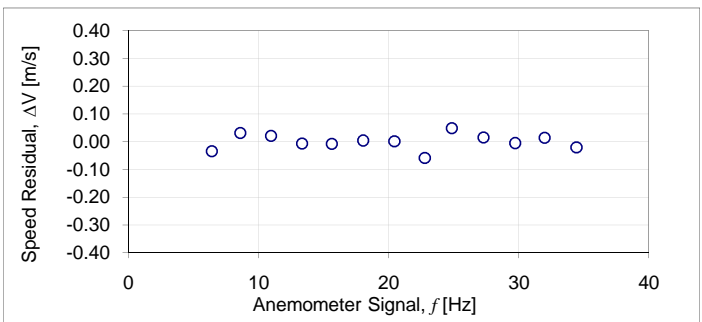
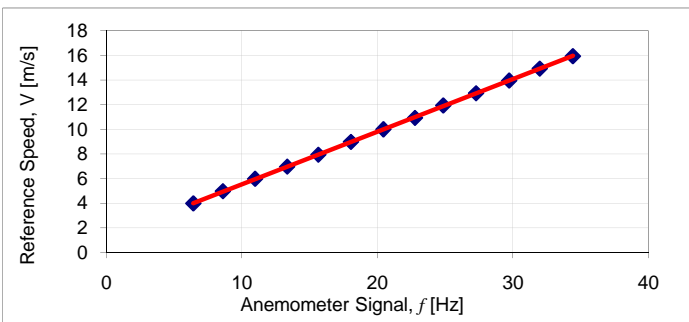
Hardware: National Instruments CDAQ-9172 USB 2.0 chassis
with NI 9205 32-chan 16-bit AI module
Software: National Instruments LabVIEW 2010
Signal Reduction Method for IUT: N/A

Measuring Equipment

Reference Speed: United Sensor Type PA Pitot-Static Tube
sensed by an MKS Barotron Type 220D Differential Pressure
Transducer (NIST traceable)
Amb. Pressure: Setra Model 270 Barometer (NIST Traceable)
Amb. Temperature: OMEGA HX94 SS RH Probe (NIST Traceable)
Relative Humidity: OMEGA HX94 SS RH Probe (NIST Traceable)

Test Conditions

Diff Pressure Transducer Position Correction = 1
Blockage Correction = 1
Mean Ambient Pressure = 102087 Pa
Mean Ambient Temperature = 23.1 deg C
Mean Relative Humidity = 44.3% RH
Mean Density = 1.1951 kg/cubic meter



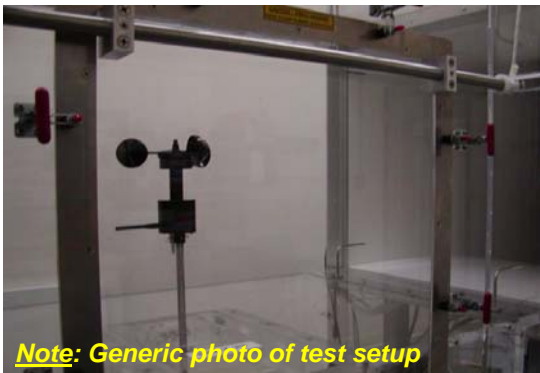
Transfer Function Test Results:

$V \text{ [m/s]} = 0.426 * f \text{ [Hz]} + 1.28$

Regression Parameters

$r = 0.99997$ std. err. estimate = 0.029 m/s
slope = 0.426 m/s per Hz std. err. slope = 0.00092 m/s per Hz
offset = 1.28 m/s std. err. offset = 0.02048 m/s

Reference Speed [m/s]	Anemometer Output [Hz]	Speed Residual [m/s]	Ref. Speed Uncertainty
3.98	6.4	-0.034	0.670%
5.97	11.0	0.020	0.564%
7.94	15.6	-0.008	0.545%
10.00	20.5	0.001	0.518%
11.93	24.9	0.049	0.501%
13.95	29.7	-0.005	0.491%
15.94	34.5	-0.021	0.499%
14.93	32.0	0.014	0.498%
12.93	27.3	0.015	0.509%
10.93	22.8	-0.059	0.513%
8.98	18.1	0.004	0.513%
6.96	13.3	-0.007	0.589%
4.97	8.6	0.031	0.608%



Note: Generic photo of test setup

Approved by:

Adam Havner
Lab Manager

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