R.M. Young Company
2801 Aero Park Drive
Traverse City, Michigan 49686 USA

CALIBRATION REPORT
Wind Speed

Customer: *NOAA*

Test Number: 2322-04W
Test Date: 14 April 2022

Customer PO: (M Peperato)
Sales Order: 9441

Instrument Under Test

Anemometer: 05106 Wind Monitor-MA
Serial Number: *WM82304*

Propeller/Cup: 08234
Serial Number: *55289*

Report of calibration comparison with National Institute of Standards and Technology calibrated anemometer in the R.M. Young Company 50 x 75 cm rectangular test section open return wind tunnel. The following data describe the relationship between test section wind speed, as determined by the NIST calibrated standard anemometer, and test anemometer rpm, as determined by its output. Indicated wind speed is calculated using anemometer's published formula.

Wind Speed According to Standard Anemometer		Wind Speed According to Instrument Under Test			
Model: 05103 / 08234 Serial #: 00005		Anem: 05106 Serial #: WM82304		Prop/Cup: 08234 Serial #: 55289	
Nominal Speed m/s	Actual Speed m/s (1)	100 Second Pulse Count	Output Frequency	Propeller RPM (2)	Indicated Speed m/s (3)
30.0	30.0	30356	303.6	6071	29.7
25.0	25.0	25286	252.9	5057	24.8
20.0	20.0	20172	201.7	4034	19.8
16.0	16.0	16102	161.0	3220	15.8
14.0	14.0	14075	140.8	2815	13.8
12.0	12.0	12066	120.7	2413	11.8
10.0	10.0	10052	100.5	2010	9.9
8.0	8.0	8022	80.2	1604	7.9
6.0	6.1	6015	60.2	1203	5.9
5.0	5.1	4984	49.8	997	4.9
4.0	4.1	3985	39.9	797	3.9
3.0	3.1	2987	29.9	597	2.9
2.0	2.1	1962	19.6	392	1.9
1.0	1.1	916	9.2	183	0.9

National Institute of Standards and Technology Reference
Calibrated Standard Anemometer (4)
Test #: TN251034
Date: 9 Nov 1992
Model: 08234 Serial #: 00005

Environmental Conditions
Barometric Pressure (hPa): 999
Temperature (C): 25.2
Relative Humidity (%): 20.8

(1) Actual wind speed determined by relationship between tunnel fan rpm and NIST calibrated standard propeller rpm.
(2) Instrument Under Test output: Rpm = Hz / 3 pulse(s) per revolution x 60 seconds.
(3) Published calibration: Wind speed (m/s) = 0.00490 x propeller rpm + 0.0 m/s.
(4) NIST Calibration accuracy is within 1%.

Tested By *D. Ochs*

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CALIBRATION REPORT

Wind Speed (page 2)

Test Number: 2322-04W

Linear Regression

A linear regression is performed on the calibration data to determine the best fit straight line representing the relationship between propeller rpm and actual wind speed as determined by the NIST calibrated standard anemometer.

Slope:	*0.00492*	meters per second per RPM
Intercept:	*0.16*	meters per second
Pitch:	29.51	centimeters per revolution
Correlation Coefficient:	1.00000	

Wind Speed =		Slope	x RPM +	Intercept	Slope	x Hz +	Intercept
m/s	=	0.00492	x RPM +	0.16	0.09837	x Hz +	0.16
mph	=	0.01100	x RPM +	0.36	0.22005	x Hz +	0.36
knots	=	0.00955	x RPM +	0.31	0.19109	x Hz +	0.31
km/hr	=	0.01771	x RPM +	0.57	0.35414	x Hz +	0.57

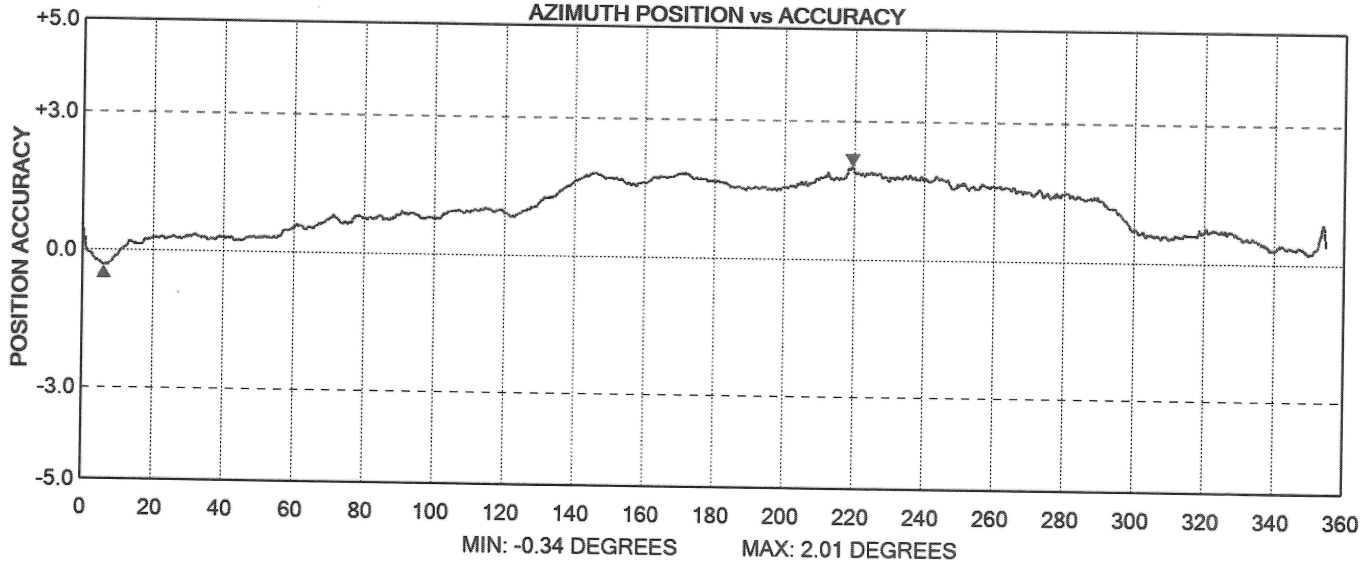
Threshold Measurements

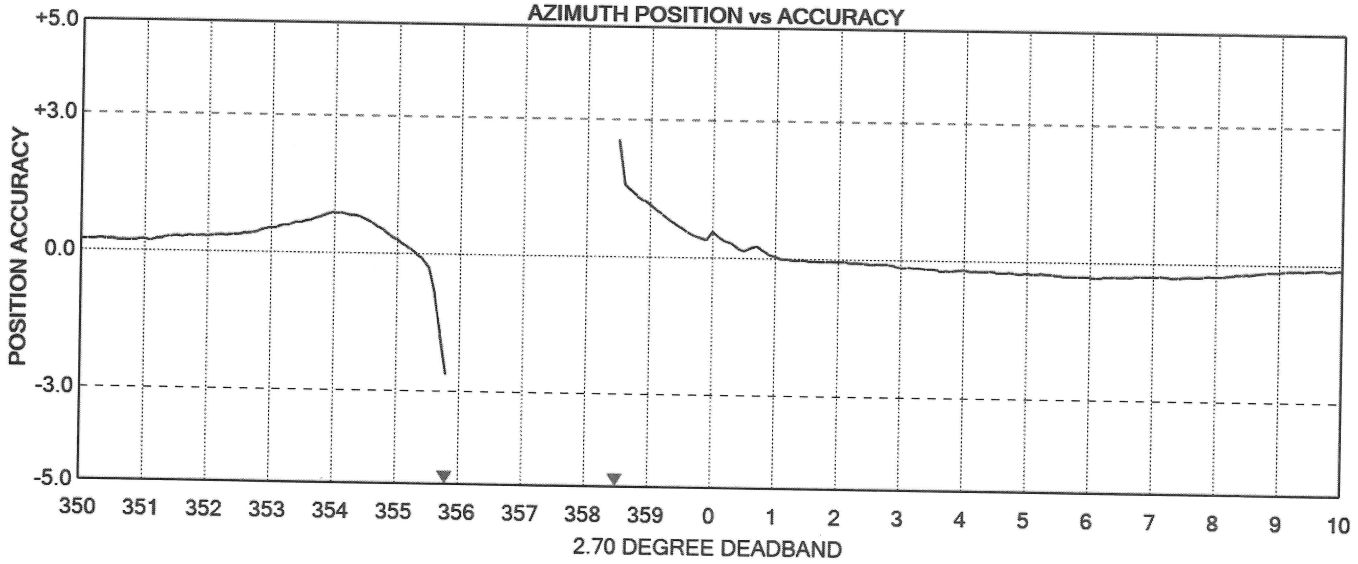
	New Instrument	As Found	As Left
Start:	n/a	0.4 m/s	0.4 m/s
Stop:		0.2 m/s	0.2 m/s

R. M. YOUNG COMPANY WIND SENSOR CALIBRATION CERTIFICATE

SENSOR: 05106 WIND MONITOR MA
SENSOR SERIAL NUMBER: WM82304
BEARINGS: SEALED/ WATERPROOF GREASE LUBE
DATE: APRIL 14, 2022
WIND SPEED THRESHOLD: PASS
LOW WIND SPEED AMPLITUDE/FREQUENCY TEST: PASS
HIGH WIND SPEED AMPLITUDE/FREQUENCY TEST: PASS
VANE TORQUE TEST: PASS
SPECIAL NOTES:

Inspected By: DD





NOTE: Azimuth Position vs Accuracy graphs are accurate to within 0.5 degrees. The accuracy shown in the potentiometer deadband region between 355 and 0 degrees is the result of no resistance change while position changes. The gap represents the actual deadband (open circuit).

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