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D-K-15140-01-00

Calibration certificate
Kalibrierschein

Calibration mark
Kalibrierzeichen

1922676
D-K-
15140-01-00
08/2019

Object <i>Gegenstand</i>	Combined Wind Sensor
Manufacturer <i>Hersteller</i>	BARANI DESIGN, s.r.o. Slovakia
Type <i>Typ</i>	METEOWIND COMPACT
Serial number <i>Fabrikat/Serien-Nr.</i>	BW190811001
Customer <i>Auftraggeber</i>	BARANI DESIGN, s.r.o. Slovakia
Order No. <i>Auftragsnummer</i>	Email 2019-07-30, Barani
Project No. <i>Projektnummer</i>	VT190709
Number of pages <i>Anzahl der Seiten</i>	4
Date of Calibration <i>Datum der Kalibrierung</i>	27.08.2019

This calibration certificate documents the traceability to national standards, which realize the units of measurement according to the International System of Units (SI).

The DAkKS is signatory to the multilateral agreements of the European co-operation for Accreditation (EA) and of the International Laboratory Accreditation Cooperation (ILAC) for the mutual recognition of calibration certificates. The user is obliged to have the object recalibrated at appropriate intervals.

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Date
Datum

27.08.2019

Head of the calibration laboratory
Leiter des Kalibrierlaboratoriums

Dipl. Phys. Dieter Westermann

Person in charge
Bearbeiter

Alina Roß, M. Sc.

Calibration object <i>Kalibriergegenstand</i>	Combined Wind Sensor	
Calibration procedure <i>Kalibrierverfahren</i>	IEC 61400-12-1:2017	
Place of calibration <i>Ort der Kalibrierung</i>	Wind tunnel of Deutsche WindGuard WindTunnel Services GmbH, Varel	
Test conditions <i>Messbedingungen</i>	wind tunnel area	10000 cm ²
	anemometer frontal area	200 cm ²
	diameter of mounting pipe	20.0 mm
	blockage ratio ¹⁾	0.020 [-]
	software version	P_8.0.03
	¹⁾ Due to the special construction of the test section no blockage correction is necessary.	
Ambient conditions <i>Umgebungsbedingungen</i>	air temperature	27.6 °C ± 0.1 °C
	air pressure	1015.0 hPa ± 0.3 hPa
	relative air humidity	44.6 % ± 2.0 %
Measurement uncertainty <i>Messunsicherheit</i>	The expanded uncertainty assigned to the measurement results is obtained by multiplying the standard uncertainty by the coverage factor $k=2$. It has been determined in accordance with DAkkS-DKD-3. The value of the measurand lies within the assigned range of values with a probability of 95%. The reference flow speed measurement is traceable to the German NMI (Physikalisch-Technische Bundesanstalt) standard for flow speed. It is realized by using a PTB owned and calibrated Laser Doppler Anemometer (Standard Uncertainty 0.2 %, $k=2$)	
Additional remarks <i>Zusätzliche Anmerkungen</i>	Orientation: 180° Mount is unstable under wind load	
Revision <i>Revision</i>	0	

Calibration result
Kalibrierergebnis

Reference	Reference	Test item	Test item
Air velocity	Unc	Speed	Direction
m/s	m/s	Hz	V
3.903	0.05	5.651	1.218
5.920	0.05	8.729	1.217
7.939	0.05	11.802	1.218
9.924	0.05	14.909	1.218
11.920	0.05	18.043	1.217
13.883	0.05	21.160	1.216
15.872	0.05	24.281	1.215
14.966	0.05	22.799	1.215
12.912	0.05	19.555	1.216
10.914	0.05	16.448	1.216
8.907	0.05	13.298	1.216
6.914	0.05	10.234	1.217
4.911	0.05	7.186	1.217

Statistical analysis	Slope	0.64236 (m/s)/(Hz) ±0.00158 (m/s)/(Hz)
	Offset	0.3238 m/s ±0.025 m/s
	Standard error (Y)	0.032 m/s
	Correlation coefficient	0.999967

Remarks The calibrated sensor complies with the demanded linearity of MEASNET



Graphical representation of the result
Grafische Darstellung des Ergebnisses

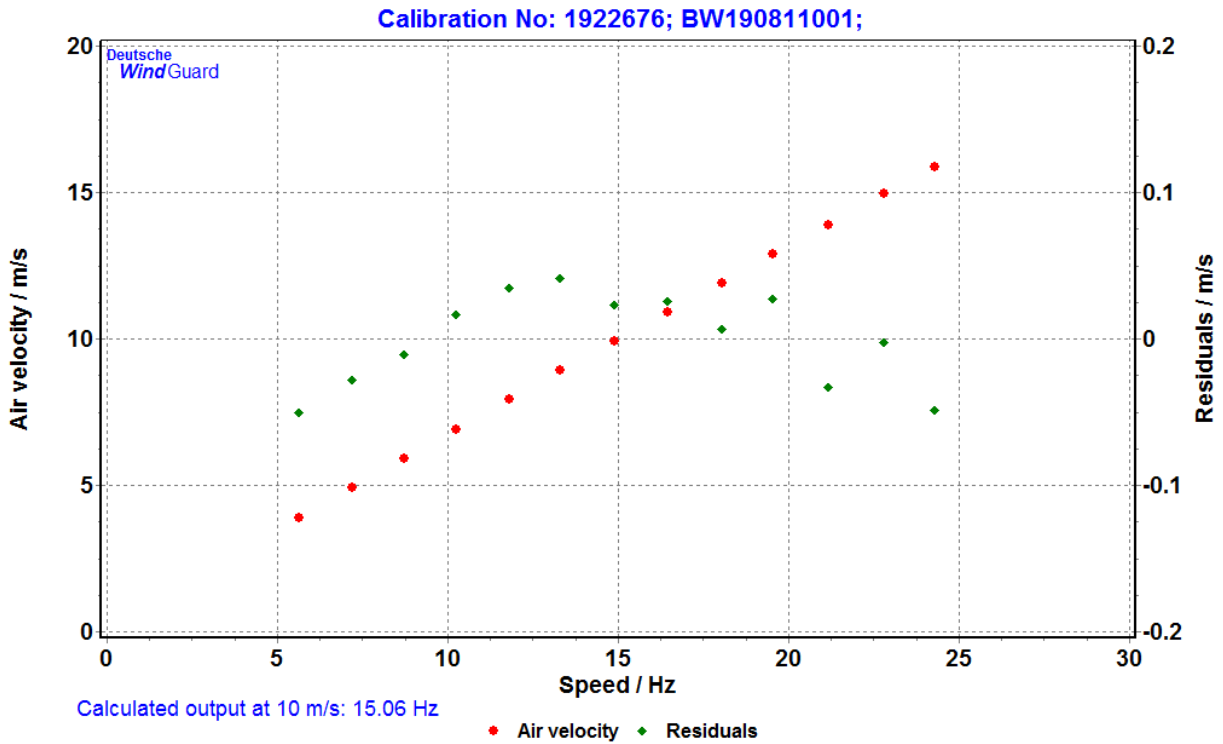


Photo of the measurement setup
Foto des Messaufbaus



Remark: The proportions of the set-up may not be true to scale due to imaging geometry.

- End of document / Ende des Dokuments -



Test Report issued under the responsibility of:



TEST REPORT
IEC 61400-12-1 Annex F
Anemometer Calibration Certificate

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Table for signatures. Columns: Field Name, Printed name/function, Signature. Includes 'Tested by' and 'Approved by' sections with handwritten signatures.

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