

Summary of Cup Anemometer Classification According to CLASSCUP Classification Scheme

Make and Type: RISØ P2546

Description:

Rotor diameter: 188mm
 Cup diameter: 70mm
 Height: 285mm
 Signal reading: Permanent magnet with switch, two pulses per revolution

Reference report: RISØ-R-1364(EN)ver.2, Jan 2004



Classification Results:

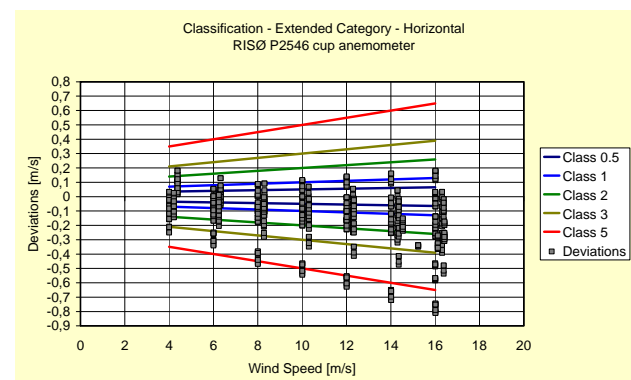
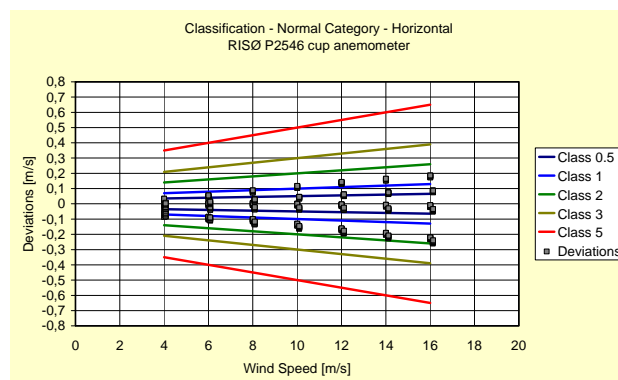
Method: CLASSCUP (Report: RISØ-R-1348(EN))

Classification is made according to the horizontal wind speed definition

Normal and extended ranges of influential parameters according to tables below

Parameter	Normal range		
	Min	Ave	Max
Wsp (10min) [m/s]	4	4-16	16
Turb.int.	0,03	0,10	0,12+0,48/V
Turbulence structure $\sigma_u/\sigma_v/\sigma_w$.	1/0,8/0,5 (non-isotropic turbulence)		
Length scale L_k [m]	100	500	2000
Air temp. [°C]	0	10	40
Air density [kg/m ³]	0,9	1,23	1,35
Slope [°]	-5	0	5
Ice, snow, rime conditions	Not included		

Parameter	Extended range		
	Min	Ave	Max
Wsp (10min) [m/s]	4	4-16	16
Turb.int.	0,03	0,10	0,12+1,13/V
Turbulence structure $\sigma_u/\sigma_v/\sigma_w$.	1/1/1 (isotropic turbulence)		
Length scale L_k [m]	100	500	2000
Air temp. [°C]	-10	10	40
Air density [kg/m ³]	0,9	1,23	1,35
Slope [°]	-15	0	15
Ice, snow, rime conditions	Excluded		



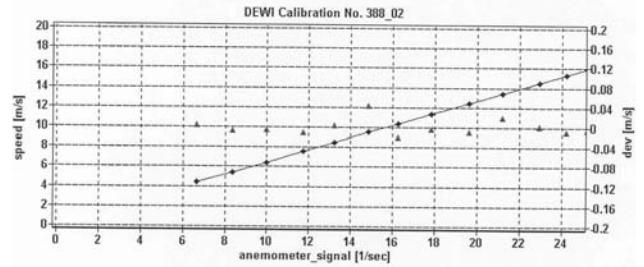
Results:

Normal category: Class 1,99 (horizontal wind speed definition)
 Extended category: Class 6,24 (horizontal wind speed definition)

Basic measurements of characteristics

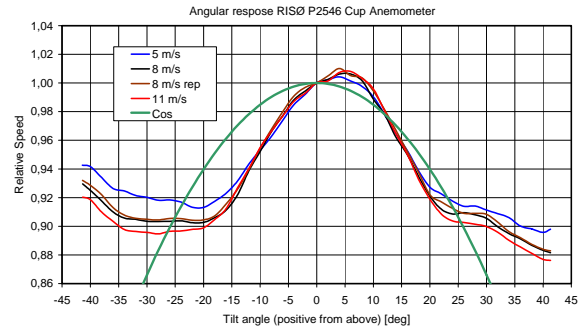
Calibration

Calibration certificate: DEWI 22/4-2002
 Slope: 0.62251 m
 Offset: 0.241 m/s
 Correlation r^2 : 0.999991
 Uncertainty: 0.08-0.14m/s



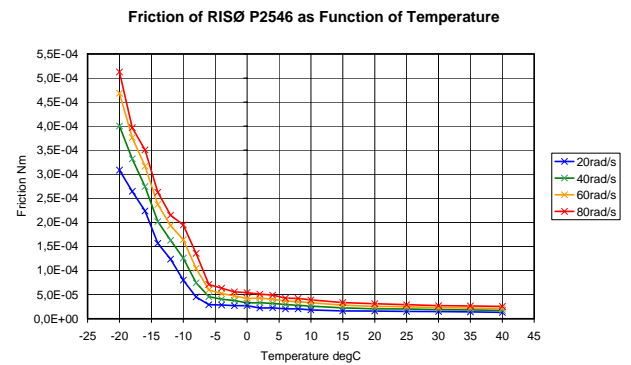
Angular Characteristics

Wind tunnel: FOI-LT5
 Wind speeds: 5, 8, 11m/s



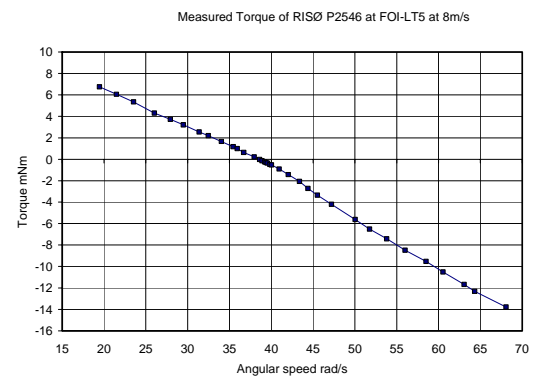
Friction Characteristics

Method: Flywheel testing
 Temperature range: -15°C to 40°C



Torque Characteristics

Wind tunnel: FOI-LT5
 Wind speed: 8m/s
 From presented measurement torque of rotor is generalized as torque coefficient versus speed ratio



Rotor Inertia

Method: Oscillation test
 Inertia: $1,01 \cdot 10^{-4} \text{ kgm}^2$