

Summary of Cup Anemometer Classification According to IEC61400-121 Committee Draft

Make and Type: RISØ P2546

Description:

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

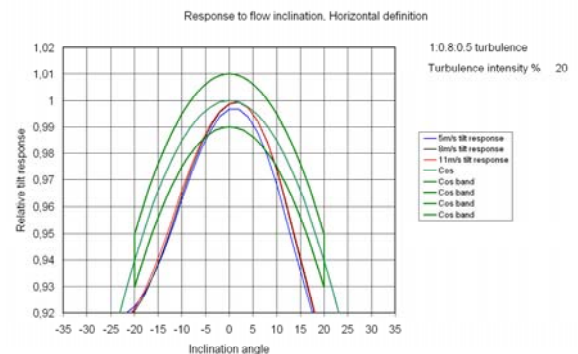
Reference reports: RISØ-R-1364(EN)ver.2, Jan 2004 and SITEPARIDEN Task 6, Report JOR3-CT98-0257-0601-DEWI07, A. Albers, 2001



Classification result: All requirements met

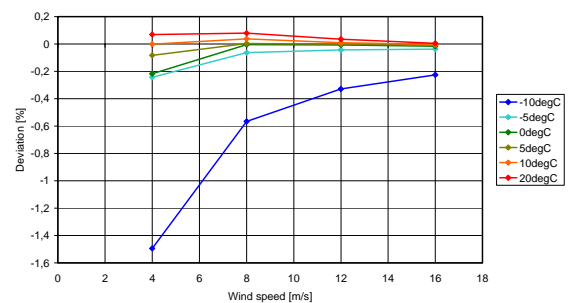
Angular characteristics:

Requirements:
 Angular response within 1% of cosine for 20% turbulence
 Result:
 Requirements met for average flow inclination angles from -4° to 7°.



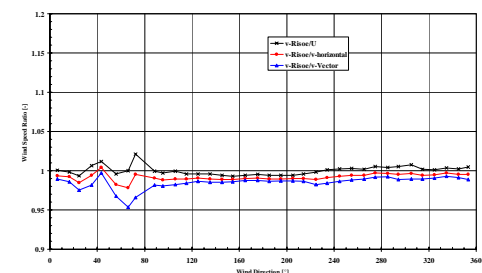
Friction

Requirements:
 Deviation due to friction less than 1%
 Result:
 Requirement met down to -5°C



Field comparison

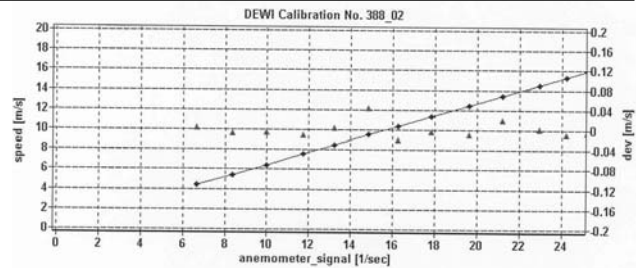
Requirements:
 Deviation in comparison with calibrated sonic less than 1%
 Result:
 For non wake wind directions 110° to 350° average deviation is less than 1%



Basic measurements of characteristics

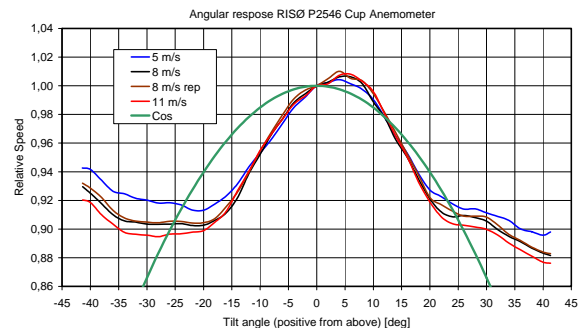
Calibration

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



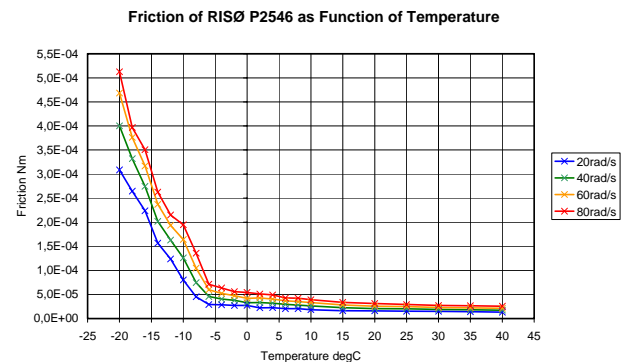
Angular Characteristics

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



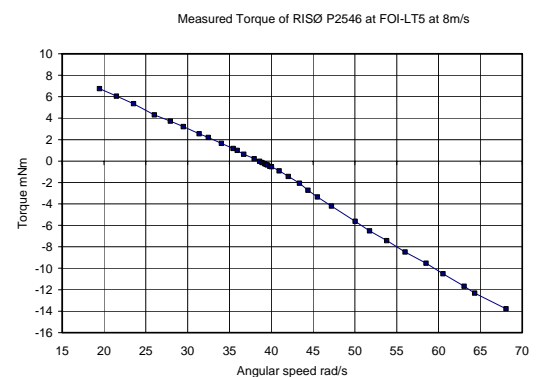
Friction Characteristics

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