MEASNET experience in Anemometer Calibration Interlaboratory Comparisons

The first intercomparisons between MEASNET members in anemometer calibration were organized back in 1994 in the framework of the “European Wind Turbines Standards” project funded by EU under Joule Program. Since then, anemometer calibration intercomparisons (or Round Robins, as are most often called) are regularly run among MEASNET members.

The importance of MEASNET Round Robins in anemometer calibration is double:

- Document the interchangeability of MEASNET members calibration results
- Support the application of new methods and development of new procedures

All Round Robins run until today, verify the interchangeability of anemometer calibration results by MEASNET members within the uncertainty limits set by the reference standards. The joint work done by MEASNET members in applying a common internationally accepted anemometer calibration procedure has greatly contributed in increasing reliability and interchangeability of anemometer calibration results. Verifying the trust of wind energy industry, the anemometer calibration procedure developed and used by MEASNET was incorporated as an Annex into the 2005 edition of IEC 61400-12-1 international standard.

On the same time, some weak points in the anemometer calibration procedure like accurate estimation of blockage effects for non-aerodynamic objects like cup anemometers, or interferences with test section boundaries have been identified. These weaknesses are considered as the main factors prohibiting the reduction in the uncertainty margins for anemometer calibration, which in the current version of IEC-61400-12-1:2005 are set at 1% of measured wind speed.

Today, where wind energy enters as a major player in to the highly competitive energy market, accuracy in the estimation of energy out put from wind energy power

plants becomes more crucial, and the need for further reducing all related uncertainty components is increasing.

To this end, MEASNET is initiating an internal research project aiming in dealing with open issues in anemometer calibration like blockage effect, special requirements for other types of anemometers like Ultrasonic, classification of anemometers etc.

One of the targets set for this project, is the reduction of calibration uncertainty from 1% to 0.5 % of reference wind speed. The combined infrastructure of MEASNET members will be utilized, while support from other stakeholders (industry, EU, national authorities) is to be seeking.

On behalf of MEASNET
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