

IEC-NEWS: Power Performance and Acoustic Noise

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Power Performance 61400 –12

The revision of the IEC 61400-12 Power Performance Measurement standard is almost finished. The Final Draft International Standard **FDIS 61400-121** Power Performance Measurements of Electricity Producing Wind Turbines will be circulated in the near future for voting of the National Committees.

The major changes are:

- **Revision of the definition of complex terrain**
The revision will take into account the large hub heights so that the complexity is defined in relation to the hub height of the turbine.
- **Site Calibration**
The sectors (10° instead of 30°) and the data requirements were adopted to MEASNET procedures and the results of an European Project (SMT: JOR3-CT98-0257).
- **Calibration of Anemometers**
Anemometer calibration procedure is given in an annex according to IEA and MEASNET recommendations
- **Classification of Anemometers**
A classification procedure is given in order to get reliable and reproducible power performance results needed by manufacturers, developers and financiers.
- **Cut-out Hysteresis**
Two power curves will be reported: One with status signal 'grid connection' and one with status signal 'availability' including the cut-out hysteresis at high wind speed.

The IEC Power Performance MT 12 is now focusing on the documents

- 61400-122 Power Performance Verification
- 61400-123 Wind Farm Performance Testing

The document -122 will describe alternative methods for power performance testing of individual wind turbines like nacelle anemometry, use of SODAR systems, extrapolation of wind speeds from a certain height to hub height, numerical site calibrations etc.

In the document -123 the wind farm will be treated as a single power plant and a method is proposed for testing the performance of a complete wind farm in relation to a reference point (location of a met mast).

Acoustic Noise Standard 61400-11 and TS 61400-14

The revised standard 61400-11 ed. 2 was issued end of 2002. The revision allows for the determination of the sound power level and an objective reproducible tonal assessment in the wind speed range 6 to 10 m/s at 10m height. Right now an amendment to this document is circulated for comments as a CDV (Committee Draft for Voting). This amendment to 61400-11 ed. 2 addresses special cases where 95 % of rated power is reached below 10 m/s at 10 m height and for sites where wind speeds of 10 m/s at 10 m height are very rare. Furthermore a clarification on regression analysis and frequency weighting is included.

The Technical Specification TS 61400-14 Declaration of apparent sound power level and tonality values of wind turbines will be issued in March 2005. The intention of this document is to determine declared noise emission values from a sample of turbines of the same type. The declaration will increase the reliability of wind farm planning and shall facilitate the comparison of sound power levels and tonality values of different types of wind turbines.