



FA LK – Resolution on the
Technical Guideline
TG 2 Rev. 18

FGW e.V.

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FGW Expert Committee Power Curve FA LK Resolution of 07.05.2024

The Expert Committee Power Curve (FA LK) has decided to supplement TG 2 “Determination of power curves and standardized energy yields” Revision 18 in Chapter 2.

The page with the modification is attached to this letter.

On behalf of FA LK

Bente Klose

2 Implementation and evaluation of measurements

The power performance and the annual energy yield are determined in accordance with IEC 61400-12-1 Ed. 3 [1]. [IEC 61400-50-3:2022 must also be taken into account for the use of nacelle mounted lidar systems.](#)¹

1. The manufacturer must provide a complete description of the wind turbine and a manufacturer's certificate containing the WT type-specific data. The signed manufacturer's certificate forms part of the measurement report. The technical data of the wind turbine are confirmed. The geographic coordinates of the measured WT are also given in the excerpt from the test report, as described in Annex A.
2. The wind turbine must be operated at one setting for the duration of measurements, i.e. no alterations may be made that may influence the results of the measurements. This includes cleaning the blades. If any alterations are made, the measuring period must begin again.
3. The measuring range for power measurements should cover a maximum of 200 % of the rated power. Transformers and converters must be designed to completely record both the power maxima and minima. The power signal must be checked by means of reference measurements or verified by way of the calibration logs of the individual devices.
4. A reference air density of 1,225 kg/m³ is to be used to correct the air density effects of the measured values of the power curve.
5. In order to guarantee the quality of the anemometer calibration, the anemometers used must be calibrated in accordance with MEASNET, Cup anemometer calibration procedure, Version 3 [2] by a testing laboratory recognised for anemometer calibration by MEASNET.
6. A turbulence normalisation must be carried in accordance with [1] Annex M. The reference turbulence intensity should be set at 10 % for all wind speeds.
7. In addition to turbulence normalisation a filter for extreme values must be used. Data records with turbulence intensities smaller than 3 % and bigger than 24 % must be excluded from the point onwards when the cut-in wind speed is reached. The cut-in wind speed needs to be specified by the manufacturer.
8. If the measurement setup allows for the determination of the rotor equivalent wind speed v_{eq} according to [1], the rotor equivalent wind speed must be used for the evaluation of the power curve. In doing so the wind veer must be included in the calculations of the rotor equivalent wind speed according to Chapter 9.1.4 in [1] or Annex Q in [1], if the measurement setup contains the necessary wind direction measurements at different heights in accordance with [1].

Only if the determination of the rotor equivalent wind speed v_{eq} is not possible, the wind speed measured at hub height can be used for the evaluation of the power curve.

9. One of the following criteria of completeness for the wind speed range according to Chapter 8.5 in [1] must be fulfilled:

¹ [IEC 61400-50-3: 2022: Wind energy generation systems - Part 50-3: Use of nacelle-mounted lidars for wind measurements, Ed. 1.](#)