

## Sales Document

# Noise levels

## Nordex N100/2500

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### Revision index

| Revision | Modification (Section)                                     | AST  |
|----------|--|------|
| 04       | Changing of the statement regarding the sound power levels | 6162 |
| 03       | Extended by hub heights 80 m and 140 m                     | 5456 |
| 02       | Revision Expiry Date                                       | 2854 |
| 01       | Complete revision  | 2854 |
| 00       | First Edition (as K0801_011694_DE_R00)                     | 2854 |

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## Noise Emission Nordex N100/2500

Noise levels  
according to IEC 61400-11: 2002 [1]  
**Hub height: 80 m**

| Standardised<br>wind speed<br>(at 10 m height) | Apparent sound<br>power level |
|--|-------------------------------|
| $V_s$ [m/s]                                    | $L_{WA}$ [dB(A)]              |
| 3  | 96.8                          |
| 4  | 98.8                          |
| 5  | 101.1                         |
| 6  | 104.4                         |
| 7  | 105.8                         |
| 8  | 106.0                         |
| 9  | 106.0                         |
| 10   | 106.0                         |
| 11   | 106.0                         |
| 12   | 106.0                         |

The calculation of the standardised wind speed at 10 m height according to IEC 61400-11:2002 [1] is based on a terrain roughness length  $z_0 = 0.05$  m. The actual wind speed at 10 m height can be different to the standardised wind speed depending on the actual terrain roughness length.

The noise can be tonal in the vicinity of wind turbines. The specified sound power levels include potential tonal penalties  $K_{TN}$  according to „Technische Richtlinien für Windenergieanlagen“ [2], without taking account any tonality  $K_{TN} \leq 2$  dB.

The specified sound power levels are expected values in terms of statistics. Results of single measurements will be within the confidence interval according to IEC 61400-14 [4].

Measurements are to be carried out by a measuring institute accredited for noise emission measurements at wind turbines according to ISO/IEC 17025 [3] at the reference position as defined in IEC 61400-11 [1]. The data analysis must be carried out according to the preferred method 1 of IEC 61400-11 [1]. The tonal penalties in the vicinity of wind turbines  $K_{TN}$  based on these measurements are to be determined according to „Technische Richtlinien für Windenergieanlagen“ [2].

- [1] IEC 61400-11 ed. 2: Wind Turbine Generator Systems – Part 11: Acoustic Noise Measurement Techniques; 2002-12
- [2] Technische Richtlinie für Windenergieanlagen – Teil 1: Bestimmung der Schallemissionswerte, Revision 18; FGW 2008-02
- [3] ISO/IEC 17025: General requirements for the competence of testing and calibration laboratories; 2005-08
- [4] IEC 61400-14, Wind turbines – Part 14: Declaration of apparent sound power level and tonality values, first edition, 2005-03

## Noise Emission Nordex N100/2500

Noise levels  
according to IEC 61400-11: 2002 [1]  
**Hub height: 100 m**

| Standardised<br>wind speed<br>(at 10 m height) | Apparent sound<br>power level |
|--|-------------------------------|
| $V_s$ [m/s]                                    | $L_{WA}$ [dB(A)]              |
| 3  | 97.0                          |
| 4  | 99.0                          |
| 5  | 101.5                         |
| 6  | 105.0                         |
| 7  | 106.0                         |
| 8  | 106.0                         |
| 9  | 106.0                         |
| 10   | 106.0                         |
| 11   | 106.0                         |
| 12   | 106.0                         |

The calculation of the standardised wind speed at 10 m height according to IEC 61400-11:2002 [1] is based on a terrain roughness length  $z_0 = 0.05$  m. The actual wind speed at 10 m height can be different to the standardised wind speed depending on the actual terrain roughness length.

The noise can be tonal in the vicinity of wind turbines. The specified sound power levels include potential tonal penalties  $K_{TN}$  according to „Technische Richtlinien für Windenergieanlagen“ [2], without taking account any tonality  $K_{TN} \leq 2$  dB.

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- [1] IEC 61400-11 ed. 2: Wind Turbine Generator Systems – Part 11: Acoustic Noise Measurement Techniques; 2002-12
- [2] Technische Richtlinie für Windenergieanlagen – Teil 1: Bestimmung der Schallemissionswerte, Revision 18; FGW 2008-02
- [3] ISO/IEC 17025: General requirements for the competence of testing and calibration laboratories; 2005-08
- [4] IEC 61400-14, Wind turbines – Part 14: Declaration of apparent sound power level and tonality values, first edition, 2005-03

## Noise Emission Nordex N100/2500

Noise levels  
according to IEC 61400-11: 2002 [1]  
**Hub height: 140 m**

| Standardised<br>wind speed<br>(at 10 m height) | Apparent sound<br>power level |
|--|-------------------------------|
| $V_s$ [m/s]                                    | $L_{WA}$ [dB(A)]              |
| 3  | 97.3                          |
| 4  | 99.4                          |
| 5  | 102.3                         |
| 6  | 105.3                         |
| 7  | 106.0                         |
| 8  | 106.0                         |
| 9  | 106.0                         |
| 10   | 106.0                         |
| 11   | 106.0                         |
| 12   | 106.0                         |

The calculation of the standardised wind speed at 10 m height according to IEC 61400-11:2002 [1] is based on a terrain roughness length  $z_0 = 0.05$  m. The actual wind speed at 10 m height can be different to the standardised wind speed depending on the actual terrain roughness length.

The noise can be tonal in the vicinity of wind turbines. The specified sound power levels include potential tonal penalties  $K_{TN}$  according to „Technische Richtlinien für Windenergieanlagen“ [2], without taking account any tonality  $K_{TN} \leq 2$  dB.

The specified sound power levels are expected values in terms of statistics. Results of single measurements will be within the confidence interval according to IEC 61400-14 [4].

Measurements are to be carried out by a measuring institute accredited for noise emission measurements at wind turbines according to ISO/IEC 17025 [3] at the reference position as defined in IEC 61400-11 [1]. The data analysis must be carried out according to the preferred method 1 of IEC 61400-11 [1]. The tonal penalties in the vicinity of wind turbines  $K_{TN}$  based on these measurements are to be determined according to „Technische Richtlinien für Windenergieanlagen“ [2].

- [1] IEC 61400-11 ed. 2: Wind Turbine Generator Systems – Part 11: Acoustic Noise Measurement Techniques; 2002-12
- [2] Technische Richtlinie für Windenergieanlagen – Teil 1: Bestimmung der Schallemissionswerte, Revision 18; FGW 2008-02
- [3] ISO/IEC 17025: General requirements for the competence of testing and calibration laboratories; 2005-08
- [4] IEC 61400-14, Wind turbines – Part 14: Declaration of apparent sound power level and tonality values, first edition, 2005-03