

**ANNEXE E**

**COURBES D'ÉMISSION ACOUSTIQUE DES ÉOLIENNES**

**CONSIDÉRÉES**

## Guaranteed Values of the Sound Power Level for the E-82 with 2000 kW rated power

$V_{Wind}$ in 10m height \ Hub height	78 m	85 m	98 m	108 m	138 m
4 m/s					
5 m/s	96.3 dB(A)	96.6 dB(A)	97.2 dB(A)	97.5 dB(A)	98.2 dB(A)
6 m/s	100.7 dB(A)	101.0 dB(A)	101.6 dB(A)	101.9 dB(A)	102.6 dB(A)
7 m/s	103.3 dB(A)	103.5 dB(A)	103.6 dB(A)	103.6 dB(A)	103.8 dB(A)
8 m/s	104.0 dB(A)	104.0 dB(A)	104.0 dB(A)	104.0 dB(A)	104.0 dB(A)
9 m/s	104.0 dB(A)	104.0 dB(A)	104.0 dB(A)	104.0 dB(A)	104.0 dB(A)
10 m/s	104.0 dB(A)	104.0 dB(A)	104.0 dB(A)	104.0 dB(A)	104.0 dB(A)
<b>95% rated power</b>	104.0 dB(A)	104.0 dB(A)	104.0 dB(A)	104.0 dB(A)	104.0 dB(A)

Measured value at  
95% rated power

103.4 dB(A)  
MBBM M65 333/1

103.8 dB(A)  
KCE 207041-01.01

1. A tonality value  $K_{TN}$  of 0-1 dB is guaranteed over the whole operational range (valid in the near vicinity of the turbine according to IEC).
2. An impulsivity value  $K_{IN}$  of 0 dB is guaranteed over the whole operational range (valid in the near vicinity of the turbine according to IEC).
3. The sound power values given in the table are valid for the **Operational Mode I** (defined through the rotational speed range of 6 – 19 rpm). The respective power curve is the Calculated Power Curve E-82 dated January 2005 (Rev. 1.x).
4. The guarantee is based on official and internal measurements of the sound power level. The official measured values are given in this document as a reference. The extracts of the official measurements are available and are valid in combination with this guarantee document. The measurements are being carried out according to the recommended national and international standards and norms (mentioned on the respective extracts).
5. In order to account for the uncertainties of measurement and sound prediction calculations, to increase the acceptance at the authorities and to avoid eventual verification measurements ENERCON recommends a safety factor of 1 dB(A) on the guaranteed values when carrying out sound propagation calculations. In countries where safety factors are already mandatory due to local regulations, the ENERCON recommendation is not applicable.  
  
Should this recommendation be neglected for any reasons, it is hereby explicitly referred to 6.
6. Due to the measurement uncertainties of sound measurements the verification of the guaranteed values is successful, if the measurement result of a measurement that has been carried out according to the accepted standards is in the range of +/- 1dB(A) of the guaranteed values [guarantee fulfilled when measurement result = guaranteed value +/- 1dB(A)].
7. For noise-sensitive sites it is possible to operate the E-82 with reduced rotational speed and reduced rated power during the night. The reduced sound power levels are given in a separate document.

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# NORDEX N90/2500 LS Noise levels

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## Noise Emission Nordex N90/2500 LS


Warranty levels  
according to IEC 61400-11:2002

Hub height:  $\leq 80$  m

Standardised wind speed (at 10 m height)	Apparent sound power level	Tonal audibility
$V_s$ [m/s]	$L_{WA}$ [dB(A)]	$\Delta L_a$ [dB]
3	94.0	$\leq 4$
4	98.0	$\leq 4$
5	101.0	$\leq 4$
6	103.0	$\leq 4$
7	104.0	$\leq 4$
8	104.5	$\leq 4$
9	104.8	$\leq 4$
10	105.0	$\leq 4$
11	105.0	$\leq 4$
12	105.0	$\leq 4$

The calculation of the standardised wind speed at 10 m height according to IEC 61400-11:2002 is based on a terrain roughness length  $z_0 = 0,05$  m.

Measurements have to be performed according to the preferred method set out in IEC-61400-11:2002 by an independent measurement institut which is accredited according to ISO/IEC 17025 to conduct measurements of wind turbine noise emissions.

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## Noise Emission Nordex N90/2500 LS

**Warranty levels**  
according to IEC 61400-11:2002

**Hub height: 90 m - 105 m**

Standardised wind speed (at 10 m height)	Apparent sound power level	Tonal audibility
$V_s$ [m/s]	$L_{WA}$ [dB(A)]	$\Delta L_a$ [dB]
3	95.5	$\leq 4$
4	99.0	$\leq 4$
5	101.5	$\leq 4$
6	103.0	$\leq 4$
7	104.0	$\leq 4$
8	104.5	$\leq 4$
9	104.8	$\leq 4$
10	105.0	$\leq 4$
11	105.0	$\leq 4$
12	105.0	$\leq 4$

The calculation of the standardised wind speed at 10 m height according to IEC 61400-11:2002 is based on a terrain roughness length  $z_0 = 0,05$  m.

Measurements have to be performed according to the preferred method set out in IEC-61400-11:2002 by an independent measurement institut which is accredited according to ISO/IEC 17025 to conduct measurements of wind turbine noise emissions.