Licensed user:

Hochschule Flensburg, University of Applied Sciences Darf nur für Zwecke der Lehre verwendet werden

_

student / weti-lab-vt10@hs-flensburg.de calculated: 1/16/2025 4:30 PM/4.0.547

DECIBEL - Main Result

Calculation: Noice_enercon
ISO 9613-2 German (Interimsverfahren)

The calculation is based on the international norm "ISO 9613-2 Acoustics - Attenuation of sound during propagation outdoors"

Meteorological correction factor, C0: 0.0 dB

Die Immissionsrichtwerte entsprechend TA Lärm sind (Nacht / Tag):

Industriegebiet: 70 / 70 dB(A)

Kerngebiet, Dorf- und Mischgebiet: 45 / 60 dB(A)

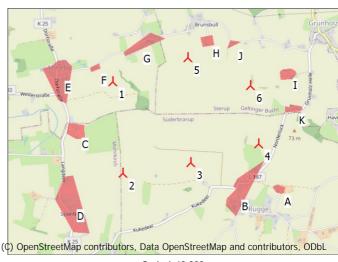
Reines Wohngebiet: 35 / 50 dB(A) Gewerbegebiet: 50 / 65 dB(A)

Allgemeines Wohngebiet, Kleinsiedlungsgebiet: 40 / 55 dB(A)

Kurgebiet, Krankenhaus, Pflegeanstalt: 35 / 45 dB(A)

All coordinates are in

UTM (north)-ETRS89 Zone: 32



New WTG

Scale 1:40,000
Noise sensitive area

WTGs

| | | | | WTG | type | | | | | Noise o | lata | | | |
|-----------|-----------|------|------------------------|------|---------|--------------------|--------|----------|--------|---------|----------------------------|-------|---------|-------------|
| Easting | Northing | Z | Row data/Description | | | Type-generator | Power, | Rotor | Hub | Creator | | Wind | LwA,ref | Uncertainty |
| | Ū | | | | | , | rated | diameter | height | | | speed | | • |
| | | [m] | | | | | [kW] | [m] | [m] | | | [m/s] | [dB(A)] | [dB(A)] |
| 1 547,702 | 6,061,711 | 60.0 | 01_ENERCON E-147 EP5 E | . No | ENERCON | E-147 EP5 E2-5,000 | 5,000 | 147.0 | 126.0 | USER | Mode 03 - OM 103.3 dB(A) | 13.0 | 103.3 | 0.0 |
| 2 547,819 | 6,060,747 | 60.0 | 02_ENERCON E-147 EP5 E | . No | ENERCON | E-147 EP5 E2-5,000 | 5,000 | 147.0 | 126.0 | USER | Mode 00 - OM 0 s - 5000 kW | 12.5 | 106.4 | 0.0 |
| 3 548,537 | 6,060,868 | 60.0 | 03_ENERCON E-147 EP5 E | . No | ENERCON | E-147 EP5 E2-5,000 | 5,000 | 147.0 | 126.0 | USER | Mode 00 - OM 0 s - 5000 kW | 12.5 | 106.4 | 0.0 |
| 4 549,253 | 6,061,072 | 60.0 | E04_NERCON E-147 EP5 E | . No | ENERCON | E-147 EP5 E2-5,000 | 5,000 | 147.0 | 126.0 | USER | Mode 03 - OM 103.3 dB(A) | 13.0 | 103.3 | 0.0 |
| 5 548,497 | 6,061,973 | 60.0 | 05_ENERCON E-147 EP5 E | . No | ENERCON | E-147 EP5 E2-5,000 | 5,000 | 147.0 | 126.0 | USER | Mode 03 - OM 103.3 dB(A) | 13.0 | 103.3 | 0.0 |
| 6 549 164 | 6.061.683 | 60.0 | 06 ENERCON F-147 FP5 F | Nο | ENERCON | F-147 FP5 F2-5 000 | 5 000 | 147 0 | 126.0 | LISER | Mode 03 - OM 103 3 dB(A) | 13.0 | 103.3 | 0.0 |

Calculation Results

Sound level

| Noi | se sensitive area | | | | | Demands | Sound I | level | Demands fulfilled? |
|-----|---|---------|-----------|------|-----------|---------|---------|----------|--------------------|
| No. | Name | Easting | Northing | Z | Immission | Noise | From | Distance | Noise |
| | | 3 | 3 | | height | | WTGs | to noise | |
| | | | | | - | | | demand | |
| | | | | [m] | [m] | [dB(A)] | [dB(A)] | [m] | |
| Α | Noise sensitive area: German TA Lärm - Rural villages, Mixed areas (1) | 549,421 | 6,060,629 | 53.8 | 5.0 | 45.0 | 41.7 | 180 | Yes |
| В | Noise sensitive area: German TA Lärm - Rural villages, Mixed areas (2) | 549,311 | 6,060,896 | 60.0 | 5.0 | 45.0 | 48.0 | -110 | No |
| С | Noise sensitive area: German TA Lärm - Rural villages, Mixed areas (3) | 547,408 | 6,061,109 | 60.0 | 5.0 | 45.0 | 42.9 | 140 | Yes |
| D | Noise sensitive area: German TA Lärm - Rural villages, Mixed areas (4) | 547,317 | 6,060,618 | 70.0 | 5.0 | 45.0 | 42.5 | 132 | Yes |
| Ε | Noise sensitive area: German TA Lärm - Rural villages, Mixed areas (5) | 547,249 | 6,061,747 | 60.0 | 5.0 | 45.0 | 41.4 | 176 | Yes |
| F | Noise sensitive area: German TA Lärm - Rural villages, Mixed areas (6) | 547,568 | 6,061,853 | 60.0 | 5.0 | 45.0 | 47.4 | -80 | No |
| G | Noise sensitive area: German TA Lärm - Rural villages, Mixed areas (7) | 547,830 | 6,061,989 | 60.0 | 5.0 | 45.0 | 44.7 | 13 | Yes |
| Н | Noise sensitive area: German TA Lärm - Rural villages, Mixed areas (8) | 548,649 | 6,062,095 | 60.0 | 5.0 | 45.0 | 47.6 | -99 | No |
| 1 | Noise sensitive area: German TA Lärm - Rural villages, Mixed areas (9) | 549,481 | 6,061,756 | 51.1 | 5.0 | 45.0 | 44.1 | 39 | Yes |
| J | Noise sensitive area: German TA Lärm - Rural villages, Mixed areas (10) | 548,910 | 6,062,081 | 60.0 | 5.0 | 45.0 | 43.8 | 101 | Yes |
| K | Noise sensitive area: German TA Lärm - Rural villages, Mixed areas (12) | 549.532 | 6.061.410 | 60.0 | 5.0 | 45.0 | 43.7 | 88 | Yes |

Distances (m)

| | WTG | | | | | | |
|-----|------|------|------|------|------|------|--|
| NSA | 1 | 2 | 3 | 4 | 5 | 6 | |
| Α | 2032 | 1599 | 913 | 474 | 1631 | 1080 | |
| В | 1669 | 1131 | 515 | 186 | 1348 | 800 | |
| С | 553 | 548 | 1154 | 1846 | 1315 | 1817 | |
| D | 1080 | 518 | 1240 | 1985 | 1746 | 2111 | |
| E | 453 | 954 | 1461 | 2083 | 1234 | 1906 | |
| F | 195 | 1124 | 1381 | 1857 | 937 | 1605 | |
| G | 306 | 1242 | 1312 | 1492 | 321 | 1040 | |
| Н | 1022 | 1583 | 1232 | 1147 | 195 | 584 | |
| I | 1771 | 1944 | 1296 | 721 | 982 | 326 | |
| J | 1264 | 1724 | 1269 | 1065 | 427 | 469 | |
| K | 1843 | 1837 | 1133 | 438 | 1147 | 422 | |
| | | | | | | | |



Hochschule Flensburg, University of Applied Sciences Darf nur für Zwecke der Lehre verwendet werden

student / weti-lab-vt10@hs-flensburg.de 1/16/2025 4:30 PM/4.0.547

DECIBEL - Detailed results

Calculation: Noice_enercon Noise calculation model: ISO 9613-2 German (Interimsverfahren) 10.0 m/s **Assumptions**

Calculated L(DW) = LWA,ref + K + Dc - (Adiv + Aatm + Agr + Abar + Amisc) - Cmet (when calculated with ground attenuation, then Dc = Domega)

Sound pressure level at WTG LWA,ref:

K: Pure tone

Dc: Directivity correction

Adiv: the attenuation due to geometrical divergence the attenuation due to atmospheric absorption Aatm:

the attenuation due to ground effect Agr: the attenuation due to a barrier Abar:

Amisc: the attenuation due to miscellaneous other effects

Cmet: Meteorological correction

Calculation Results

Noise sensitive area: A Noise sensitive area: German TA Lärm - Rural villages, Mixed areas (1) Highest noise value

| \ A / | T |
|-------|-----|
| VV | IСэ |
| | |

| No. | Distance | Sound distance | From WTGsW | TG+Uncertainty margi | n LwA,ref | Dc | Adiv | Aatm | Agr | Abar | Amisc | Α |
|-----|----------|----------------|------------|----------------------|-----------|------|-------|------|-------|------|-------|-------|
| | [m] | [m] | [dB(A)] | [dB] | [dB(A)] | [dB] | [dB] | [dB] | [dB] | [dB] | [dB] | [dB] |
| 1 | 2,032 | 2,036 | 23.39 | 23.39 | 103.3 | 0.00 | 77.18 | 5.77 | -3.00 | 0.00 | 0.00 | 79.94 |
| 2 | 1,607 | 1,612 | 29.23 | 29.23 | 106.4 | 0.00 | 75.14 | 5.07 | -3.00 | 0.00 | 0.00 | 77.22 |
| 3 | 917 | 925 | 35.62 | 35.62 | 106.4 | 0.00 | 70.33 | 3.49 | -3.00 | 0.00 | 0.00 | 70.82 |
| 4 | 475 | 491 | 39.32 | 39.32 | 103.3 | 0.00 | 64.82 | 2.19 | -3.00 | 0.00 | 0.00 | 64.01 |
| 5 | 1,631 | 1,636 | 26.05 | 26.05 | 103.3 | 0.00 | 75.28 | 5.01 | -3.00 | 0.00 | 0.00 | 77.28 |
| 6 | 1,085 | 1,092 | 30.74 | 30.74 | 103.3 | 0.00 | 71.77 | 3.83 | -3.00 | 0.00 | 0.00 | 72.60 |
| Sum | | | | 41.72 | | | | | | | | |

Noise sensitive area: B Noise sensitive area: German TA Lärm - Rural villages, Mixed areas (2) Highest noise value

| _ | , |
|---|----|
| W | ΓG |

| No. | Distance | Sound distance | From WTGsW | TG+Uncertainty margi | n LwA,ref | Dc | Adiv | Aatm | Agr | Abar | Amisc | Α |
|-----|----------|----------------|------------|----------------------|-----------|------|-------|------|-------|------|-------|-------|
| | [m] | [m] | [dB(A)] | [dB] | [dB(A)] | [dB] | [dB] | [dB] | [dB] | [dB] | [dB] | [dB] |
| 1 | 1,804 | 1,808 | 24.85 | 24.85 | 103.3 | 0.00 | 76.14 | 5.34 | -3.00 | 0.00 | 0.00 | 78.49 |
| 2 | 1,499 | 1,504 | 30.05 | 30.05 | 106.4 | 0.00 | 74.54 | 4.85 | -3.00 | 0.00 | 0.00 | 76.39 |
| 3 | 775 | 784 | 37.44 | 37.44 | 106.4 | 0.00 | 68.89 | 3.11 | -3.00 | 0.00 | 0.00 | 69.00 |
| 4 | 186 | 222 | 47.21 | 47.21 | 103.3 | 0.00 | 57.91 | 1.21 | -3.00 | 0.00 | 0.00 | 56.12 |
| 5 | 1,349 | 1,355 | 28.27 | 28.27 | 103.3 | 0.00 | 73.64 | 4.42 | -3.00 | 0.00 | 0.00 | 75.06 |
| 6 | 800 | 809 | 34.06 | 34.06 | 103.3 | 0.00 | 69.16 | 3.12 | -3.00 | 0.00 | 0.00 | 69.28 |
| Sum | | | | 47.97 | | | | | | | | |

Noise sensitive area: C Noise sensitive area: German TA Lärm - Rural villages, Mixed areas (3) Highest noise value

WTG

| No. | Distance | Sound distance | From WTGsW7 | ΓG+Uncertainty marg | in LwA,ref | Dc | Adiv | Aatm | Agr | Abar | Amisc | Α | |
|-----|----------|----------------|-------------|---------------------|------------|------|-------|------|-------|------|-------|-------|--|
| | [m] | [m] | [dB(A)] | [dB] | [dB(A)] | [dB] | [dB] | [dB] | [dB] | [dB] | [dB] | [dB] | |
| 1 | 670 | 681 | 35.90 | 35.90 | 103.3 | 0.00 | 67.67 | 2.76 | -3.00 | 0.00 | 0.00 | 67.43 | |
| 2 | 548 | 561 | 41.00 | 41.00 | 106.4 | 0.00 | 65.98 | 2.46 | -3.00 | 0.00 | 0.00 | 65.44 | |
| 3 | 1,154 | 1,160 | 33.07 | 33.07 | 106.4 | 0.00 | 72.29 | 4.07 | -3.00 | 0.00 | 0.00 | 73.37 | |
| 4 | 1,846 | 1,850 | 24.57 | 24.57 | 103.3 | 0.00 | 76.34 | 5.42 | -3.00 | 0.00 | 0.00 | 78.76 | |
| 5 | 1,390 | 1,396 | 27.93 | 27.93 | 103.3 | 0.00 | 73.90 | 4.51 | -3.00 | 0.00 | 0.00 | 75.41 | |
| 6 | 1,847 | 1,851 | 24.56 | 24.56 | 103.3 | 0.00 | 76.35 | 5.43 | -3.00 | 0.00 | 0.00 | 78.77 | |
| Sum | | | | 42.94 | | | | | | | | | |

Noise sensitive area: D Noise sensitive area: German TA Lärm - Rural villages, Mixed areas (4) Highest noise value

WTG

| No. | Distance | Sound distance | From WTGsW | TG+Uncertainty margir | n LwA,ref | Dc | Adiv | Aatm | Agr | Abar | Amisc | Α |
|-----|----------|----------------|------------|-----------------------|-----------|------|-------|------|-------|------|-------|-------|
| | [m] | [m] | [dB(A)] | [dB] | [dB(A)] | [dB] | [dB] | [dB] | [dB] | [dB] | [dB] | [dB] |
| 1 | 1,159 | 1,165 | 30.01 | 30.01 | 103.3 | 0.00 | 72.32 | 4.00 | -3.00 | 0.00 | 0.00 | 73.32 |
| 2 | 519 | 532 | 41.56 | 41.56 | 106.4 | 0.00 | 65.51 | 2.37 | -3.00 | 0.00 | 0.00 | 64.88 |
| 3 | 1,245 | 1,251 | 32.21 | 32.21 | 106.4 | 0.00 | 72.94 | 4.29 | -3.00 | 0.00 | 0.00 | 74.23 |
| 4 | 1.989 | 1.992 | 23.66 | 23.66 | 103.3 | 0.00 | 76 99 | 5 69 | -3.00 | 0.00 | 0.00 | 79 67 |

To be continued on next page...



Hochschule Flensburg, University of Applied Sciences Darf nur für Zwecke der Lehre verwendet werden

student / weti-lab-vt10@hs-flensburg.de 1/16/2025 4:30 PM/4.0.547

DECIBEL - Detailed results

Calculation: Noice_enercon Noise calculation model: ISO 9613-2 German (Interimsverfahren) 10.0 m/s ...continued from previous page

| \ A / | $\Gamma \cap$ |
|-------|---------------|
| WW | 1 (7 |

| No. | Distance | Sound distance | From WTGsW | TG+Uncertainty margir | ו LwA,ref | Dc | Adiv | Aatm | Agr | Abar | Amisc | Α | |
|-----|----------|----------------|------------|-----------------------|-----------|------|-------|------|-------|------|-------|-------|--|
| | [m] | [m] | [dB(A)] | [dB] | [dB(A)] | [dB] | [dB] | [dB] | [dB] | [dB] | [dB] | [dB] | |
| 5 | 1,797 | 1,801 | 24.90 | 24.90 | 103.3 | 0.00 | 76.11 | 5.33 | -3.00 | 0.00 | 0.00 | 78.44 | |
| 6 | 2,132 | 2,135 | 22.80 | 22.80 | 103.3 | 0.00 | 77.59 | 5.94 | -3.00 | 0.00 | 0.00 | 80.53 | |
| Sum | | | | 42 49 | | | | | | | | | |

Noise sensitive area: E Noise sensitive area: German TA Lärm - Rural villages, Mixed areas (5)

WTG

| No. | Distance | Sound distance | From WTGsW7 | ΓG+Uncertainty margi | n LwA,ref | Dc | Adiv | Aatm | Agr | Abar | Amisc | Α |
|-----|----------|----------------|-------------|----------------------|-----------|------|-------|------|-------|------|-------|-------|
| | [m] | [m] | [dB(A)] | [dB] | [dB(A)] | [dB] | [dB] | [dB] | [dB] | [dB] | [dB] | [dB] |
| 1 | 454 | 470 | 39.78 | 39.78 | 103.3 | 0.00 | 64.44 | 2.12 | -3.00 | 0.00 | 0.00 | 63.56 |
| 2 | 1,151 | 1,157 | 33.10 | 33.10 | 106.4 | 0.00 | 72.27 | 4.07 | -3.00 | 0.00 | 0.00 | 73.34 |
| 3 | 1,559 | 1,563 | 29.59 | 29.59 | 106.4 | 0.00 | 74.88 | 4.97 | -3.00 | 0.00 | 0.00 | 76.85 |
| 4 | 2,114 | 2,118 | 22.90 | 22.90 | 103.3 | 0.00 | 77.52 | 5.91 | -3.00 | 0.00 | 0.00 | 80.43 |
| 5 | 1,269 | 1,274 | 28.98 | 28.98 | 103.3 | 0.00 | 73.11 | 4.25 | -3.00 | 0.00 | 0.00 | 74.35 |
| 6 | 1,916 | 1,920 | 24.12 | 24.12 | 103.3 | 0.00 | 76.66 | 5.55 | -3.00 | 0.00 | 0.00 | 79.22 |
| Sum | | | | 41.37 | | | | | | | | |

Noise sensitive area: F Noise sensitive area: German TA Lärm - Rural villages, Mixed areas (6) Highest noise value

WTG

| No. | Distance | Sound distance | From WTGsW | ΓG+Uncertainty margi | n LwA,ref | Dc | Adiv | Aatm | Agr | Abar | Amisc | Α |
|-----|----------|----------------|------------|----------------------|-----------|------|-------|------|-------|------|-------|-------|
| | [m] | [m] | [dB(A)] | [dB] | [dB(A)] | [dB] | [dB] | [dB] | [dB] | [dB] | [dB] | [dB] |
| 1 | 195 | 229 | 46.89 | 46.89 | 103.3 | 0.00 | 58.20 | 1.24 | -3.00 | 0.00 | 0.00 | 56.44 |
| 2 | 1,134 | 1,141 | 33.27 | 33.27 | 106.4 | 0.00 | 72.14 | 4.03 | -3.00 | 0.00 | 0.00 | 73.17 |
| 3 | 1,381 | 1,387 | 31.01 | 31.01 | 106.4 | 0.00 | 73.84 | 4.59 | -3.00 | 0.00 | 0.00 | 75.43 |
| 4 | 1,857 | 1,861 | 24.50 | 24.50 | 103.3 | 0.00 | 76.39 | 5.44 | -3.00 | 0.00 | 0.00 | 78.84 |
| 5 | 937 | 945 | 32.36 | 32.36 | 103.3 | 0.00 | 70.51 | 3.47 | -3.00 | 0.00 | 0.00 | 70.97 |
| 6 | 1,605 | 1,609 | 26.25 | 26.25 | 103.3 | 0.00 | 75.13 | 4.95 | -3.00 | 0.00 | 0.00 | 77.09 |
| Sum | | | | 47.38 | | | | | | | | |

Noise sensitive area: G Noise sensitive area: German TA Lärm - Rural villages, Mixed areas (7)

WTG

| No. | Distance | Sound distance | From WTGsW | 'TG+Uncertainty margi | n LwA,ref | Dc | Adiv | Aatm | Agr | Abar | Amisc | Α |
|-----|----------|----------------|------------|-----------------------|-----------|------|-------|------|-------|------|-------|-------|
| | [m] | [m] | [dB(A)] | [dB] | [dB(A)] | [dB] | [dB] | [dB] | [dB] | [dB] | [dB] | [dB] |
| 1 | 306 | 329 | 43.37 | 43.37 | 103.3 | 0.00 | 61.34 | 1.63 | -3.00 | 0.00 | 0.00 | 59.97 |
| 2 | 1,242 | 1,248 | 32.24 | 32.24 | 106.4 | 0.00 | 72.92 | 4.28 | -3.00 | 0.00 | 0.00 | 74.20 |
| 3 | 1,325 | 1,330 | 31.50 | 31.50 | 106.4 | 0.00 | 73.48 | 4.47 | -3.00 | 0.00 | 0.00 | 74.95 |
| 4 | 1,693 | 1,697 | 25.61 | 25.61 | 103.3 | 0.00 | 75.59 | 5.13 | -3.00 | 0.00 | 0.00 | 77.72 |
| 5 | 667 | 678 | 35.95 | 35.95 | 103.3 | 0.00 | 67.63 | 2.76 | -3.00 | 0.00 | 0.00 | 67.38 |
| 6 | 1,368 | 1,374 | 28.11 | 28.11 | 103.3 | 0.00 | 73.76 | 4.46 | -3.00 | 0.00 | 0.00 | 75.22 |
| Sum | | | | 44.73 | | | | | | | | |

Noise sensitive area: H Noise sensitive area: German TA Lärm - Rural villages, Mixed areas (8) Highest noise value

WTG

| No. | Distance | Sound distance | From WTGsW | TG+Uncertainty margi | n LwA,ref | Dc | Adiv | Aatm | Agr | Abar | Amisc | Α |
|-----|----------|----------------|------------|----------------------|-----------|------|-------|------|-------|------|-------|-------|
| | [m] | [m] | [dB(A)] | [dB] | [dB(A)] | [dB] | [dB] | [dB] | [dB] | [dB] | [dB] | [dB] |
| 1 | 1,022 | 1,029 | 31.41 | 31.41 | 103.3 | 0.00 | 71.25 | 3.68 | -3.00 | 0.00 | 0.00 | 71.93 |
| 2 | 1,583 | 1,588 | 29.40 | 29.40 | 106.4 | 0.00 | 75.02 | 5.02 | -3.00 | 0.00 | 0.00 | 77.04 |
| 3 | 1,232 | 1,238 | 32.33 | 32.33 | 106.4 | 0.00 | 72.85 | 4.26 | -3.00 | 0.00 | 0.00 | 74.11 |
| 4 | 1,188 | 1,194 | 29.73 | 29.73 | 103.3 | 0.00 | 72.54 | 4.07 | -3.00 | 0.00 | 0.00 | 73.60 |
| 5 | 195 | 229 | 46.89 | 46.89 | 103.3 | 0.00 | 58.20 | 1.24 | -3.00 | 0.00 | 0.00 | 56.45 |
| 6 | 659 | 670 | 36.07 | 36.07 | 103.3 | 0.00 | 67.53 | 2.73 | -3.00 | 0.00 | 0.00 | 67.26 |
| Sum | | | | 47.62 | | | | | | | | |

Noise sensitive area: I Noise sensitive area: German TA Lärm - Rural villages, Mixed areas (9) Highest noise value

WTG

| No. | Distance | Sound distance | From WTGsW7 | ΓG+Uncertainty marg | in LwA,ref | Dc | Adiv | Aatm | Agr | Abar | Amisc | Α |
|-----|----------|----------------|-------------|---------------------|------------|------|-------|------|-------|------|-------|-------|
| | [m] | [m] | [dB(A)] | [dB] | [dB(A)] | [dB] | [dB] | [dB] | [dB] | [dB] | [dB] | [dB] |
| 1 | 1,780 | 1,784 | 25.01 | 25.01 | 103.3 | 0.00 | 76.03 | 5.30 | -3.00 | 0.00 | 0.00 | 78.33 |
| 2 | 1,944 | 1,949 | 26.91 | 26.91 | 106.4 | 0.00 | 76.79 | 5.74 | -3.00 | 0.00 | 0.00 | 79.53 |

To be continued on next page...



Hochschule Flensburg, University of Applied Sciences Darf nur für Zwecke der Lehre verwendet werden

student / weti-lab-vt10@hs-flensburg.de 1/16/2025 4:30 PM/4.0.547

DECIBEL - Detailed results

Calculation: Noice_enercon Noise calculation model: ISO 9613-2 German (Interimsverfahren) 10.0 m/s ...continued from previous page

| \ \ / \ | $\Gamma \cap$ |
|---------|---------------|
| VV | I (7 |

| No. | Distance | Sound distance | From WTGsW7 | ΓG+Uncertainty margi | n LwA,ref | Dc | Adiv | Aatm | Agr | Abar | Amisc | Α |
|-----|----------|----------------|-------------|----------------------|-----------|------|-------|------|-------|------|-------|-------|
| | [m] | [m] | [dB(A)] | [dB] | [dB(A)] | [dB] | [dB] | [dB] | [dB] | [dB] | [dB] | [dB] |
| 3 | 1,296 | 1,303 | 31.74 | 31.74 | 106.4 | 0.00 | 73.30 | 4.40 | -3.00 | 0.00 | 0.00 | 74.70 |
| 4 | 721 | 732 | 35.14 | 35.14 | 103.3 | 0.00 | 68.29 | 2.91 | -3.00 | 0.00 | 0.00 | 68.20 |
| 5 | 1,007 | 1,015 | 31.56 | 31.56 | 103.3 | 0.00 | 71.13 | 3.64 | -3.00 | 0.00 | 0.00 | 71.78 |
| 6 | 326 | 350 | 42.75 | 42.75 | 103.3 | 0.00 | 61.88 | 1.71 | -3.00 | 0.00 | 0.00 | 60.59 |
| Sum | | | | 44.12 | | | | | | | | |

Noise sensitive area: J Noise sensitive area: German TA Lärm - Rural villages, Mixed areas (10) Highest noise value

WTG

| No. | Distance | Sound distance | From WTGsW | TG+Uncertainty margi | n LwA,ref | Dc | Adiv | Aatm | Agr | Abar | Amisc | Α |
|-----|----------|----------------|------------|----------------------|-----------|------|-------|------|-------|------|-------|-------|
| | [m] | [m] | [dB(A)] | [dB] | [dB(A)] | [dB] | [dB] | [dB] | [dB] | [dB] | [dB] | [dB] |
| 1 | 1,264 | 1,270 | 29.02 | 29.02 | 103.3 | 0.00 | 73.08 | 4.24 | -3.00 | 0.00 | 0.00 | 74.31 |
| 2 | 1,724 | 1,728 | 28.38 | 28.38 | 106.4 | 0.00 | 75.75 | 5.31 | -3.00 | 0.00 | 0.00 | 78.06 |
| 3 | 1,269 | 1,275 | 31.99 | 31.99 | 106.4 | 0.00 | 73.11 | 4.34 | -3.00 | 0.00 | 0.00 | 74.45 |
| 4 | 1,065 | 1,072 | 30.95 | 30.95 | 103.3 | 0.00 | 71.60 | 3.78 | -3.00 | 0.00 | 0.00 | 72.39 |
| 5 | 427 | 444 | 40.35 | 40.35 | 103.3 | 0.00 | 63.95 | 2.04 | -3.00 | 0.00 | 0.00 | 62.98 |
| 6 | 472 | 487 | 39.40 | 39.40 | 103.3 | 0.00 | 64.76 | 2.18 | -3.00 | 0.00 | 0.00 | 63.94 |
| Sum | | | | 43.78 | | | | | | | | |

Noise sensitive area: K Noise sensitive area: German TA Lärm - Rural villages, Mixed areas (12) Highest noise value

WTG

| No. | Distance | Sound distance | From WTGsW7 | ΓG+Uncertainty marg | in LwA,ref | Dc | Adiv | Aatm | Agr | Abar | Amisc | Α |
|-----|----------|----------------|-------------|---------------------|------------|------|-------|------|-------|------|-------|-------|
| | [m] | [m] | [dB(A)] | [dB] | [dB(A)] | [dB] | [dB] | [dB] | [dB] | [dB] | [dB] | [dB] |
| 1 | 1,855 | 1,858 | 24.51 | 24.51 | 103.3 | 0.00 | 76.38 | 5.44 | -3.00 | 0.00 | 0.00 | 78.82 |
| 2 | 1,837 | 1,840 | 27.61 | 27.61 | 106.4 | 0.00 | 76.30 | 5.53 | -3.00 | 0.00 | 0.00 | 78.83 |
| 3 | 1,133 | 1,139 | 33.28 | 33.28 | 106.4 | 0.00 | 72.13 | 4.02 | -3.00 | 0.00 | 0.00 | 73.16 |
| 4 | 438 | 453 | 40.14 | 40.14 | 103.3 | 0.00 | 64.13 | 2.07 | -3.00 | 0.00 | 0.00 | 63.20 |
| 5 | 1,178 | 1,183 | 29.83 | 29.83 | 103.3 | 0.00 | 72.46 | 4.04 | -3.00 | 0.00 | 0.00 | 73.50 |
| 6 | 458 | 473 | 39.72 | 39.72 | 103.3 | 0.00 | 64.49 | 2.13 | -3.00 | 0.00 | 0.00 | 63.62 |
| Sum | | | | 43.74 | | | | | | | | |



Licensed user:

Hochschule Flensburg, University of Applied Sciences Darf nur für Zwecke der Lehre verwendet werden

_

student / weti-lab-vt10@hs-flensburg.de calculated: 1/16/2025 4:30 PM/4.0.547

DECIBEL - Assumptions for noise calculation

Calculation: Noice_enercon

Noise calculation model:

ISO 9613-2 German (Interimsverfahren)

Wind speed (at hubheight):

Highest noise value Ground attenuation:

Fixed values, Agr: -3.0, Dc: 0.0 Meteorological coefficient, CO: Selected option: Fixed value: 0.0 dB Type of demand in calculation:

1: WTG noise is compared to demand (DK, DE, SE, NL etc.)

Noise values in calculation:

All noise values are mean values (Lwa) (Normal)

Pure tones:

Fixed penalty added to source noise of WTGs with pure tones

WTG catalogue

Height above ground level, when no value in NSA object: 5.0 m; Allow override of model height with height from NSA object

Uncertainty margin:

Uncertainty added to source noise level of the WTGs in the calculation

Deviation from "official" noise demands. Negative is more restrictive, positive is less restrictive.:

0.0 dB(A)

Octave data required

Frequency dependent air absorption

63 125 250 500 1,000 2,000 4,000 8.000 [dB/km] [dB/km] [dB/km] [dB/km] [dB/km] [dB/km]0.10 0.40 1.00 1.90 3.70 9.70 32.80

All coordinates are in

UTM (north)-ETRS89 Zone: 32

WTG: ENERCON E-147 EP5 E2 5000 147.0 !O!

Noise: Mode 03 - OM 103.3 dB(A)

Source Source/Date Creator Edited

ENERCON GmbH 2/10/2020 USER 2/10/2020 10:06 AM

The sound power levels do not include uncertainties.

According to manufacturer specification document (D0842288-1/D0841792-0)

ENERCON GmbH reserves the right to change the above specifications without prior notice.

Octave data

 Status
 Wind speed (hh)
 LwA,ref Pure tones
 63
 125
 250
 500
 1000
 2000
 4000
 8000

 [m/s]
 [dB(A)]
 [dB]
 <t

WTG: ENERCON E-147 EP5 E2 5000 147.0 !O!

Noise: Mode 00 - OM 0 s - 5000 kW

Source Source/Date Creator Edited

ENERCON GmbH 2/10/2020 USER 2/10/2020 10:05 AM

The sound power levels do not include uncertainties.

According to manufacturer specification document (D0802432-3/D0820251-1).

ENERCON GmbH reserves the right to change the above specifications without prior notice.

Octave data

Status Wind speed (hh) LwA,ref Pure tones 63 125 250 500 1000 2000 4000 8000 [dB(A)] [dB] [dB] [dB] [dB] [dB] [dB] [dB] [dB] [m/s] From Windcat 12.5 Nο 86 0 92 4 96 6 100 1 101 2 99 7 95.8 89.0 106.4

Noise sensitive area: A Noise sensitive area: German TA Lärm - Rural villages, Mixed areas (1)

Predefined calculation standard: Rural villages, Mixed areas Immission height(a.g.l.): Use standard value from calculation model

Uncertainty margin: Use default value from calculation model

No temporal binning Noise demand: 45.0 dB(A) No distance demand



Hochschule Flensburg, University of Applied Sciences Darf nur für Zwecke der Lehre verwendet werden

student / weti-lab-vt10@hs-flensburg.de 1/16/2025 4:30 PM/4.0.547

DECIBEL - Assumptions for noise calculation

Calculation: Noice_enercon

Noise sensitive area: B Noise sensitive area: German TA Lärm - Rural villages, Mixed areas (2)

Predefined calculation standard: Rural villages, Mixed areas Immission height(a.g.l.): Use standard value from calculation model Uncertainty margin: Use default value from calculation model

No temporal binning Noise demand: 45.0 dB(A) No distance demand

Noise sensitive area: C Noise sensitive area: German TA Lärm - Rural villages, Mixed areas (3)

Predefined calculation standard: Rural villages, Mixed areas Immission height(a.g.l.): Use standard value from calculation model Uncertainty margin: Use default value from calculation model No temporal binning

Noise demand: 45.0 dB(A) No distance demand

Noise sensitive area: D Noise sensitive area: German TA Lärm - Rural villages, Mixed areas (4)

Predefined calculation standard: Rural villages, Mixed areas Immission height(a.g.l.): Use standard value from calculation model Uncertainty margin: Use default value from calculation model No temporal binning

Noise demand: 45.0 dB(A) No distance demand

Noise sensitive area: E Noise sensitive area: German TA Lärm - Rural villages, Mixed areas (5)

Predefined calculation standard: Rural villages, Mixed areas Immission height(a.g.l.): Use standard value from calculation model Uncertainty margin: Use default value from calculation model

No temporal binning Noise demand: 45.0 dB(A) No distance demand

Noise sensitive area: F Noise sensitive area: German TA Lärm - Rural villages, Mixed areas (6)

Predefined calculation standard: Rural villages, Mixed areas Immission height(a.g.l.): Use standard value from calculation model Uncertainty margin: Use default value from calculation model No temporal binning Noise demand: 45.0 dB(A)

No distance demand

Noise sensitive area: G Noise sensitive area: German TA Lärm - Rural villages, Mixed areas (7)

Predefined calculation standard: Rural villages, Mixed areas Immission height(a.g.l.): Use standard value from calculation model Uncertainty margin: Use default value from calculation model No temporal binning Noise demand: 45.0 dB(A) No distance demand

Noise sensitive area: H Noise sensitive area: German TA Lärm - Rural villages, Mixed areas (8)

Predefined calculation standard: Rural villages, Mixed areas Immission height(a.g.l.): Use standard value from calculation model Uncertainty margin: Use default value from calculation model No temporal binning

Noise demand: 45.0 dB(A) No distance demand

Noise sensitive area: I Noise sensitive area: German TA Lärm - Rural villages, Mixed areas (9)

Predefined calculation standard: Rural villages, Mixed areas Immission height(a.g.l.): Use standard value from calculation model Uncertainty margin: Use default value from calculation model No temporal binning

Noise demand: 45.0 dB(A) No distance demand

Noise sensitive area: J Noise sensitive area: German TA Lärm - Rural villages, Mixed areas (10)

Predefined calculation standard: Rural villages, Mixed areas Immission height(a.g.l.): Use standard value from calculation model Uncertainty margin: Use default value from calculation model No temporal binning



Hochschule Flensburg, University of Applied Sciences Darf nur für Zwecke der Lehre verwendet werden

student / weti-lab-vt10@hs-flensburg.de 1/16/2025 4:30 PM/4.0.547

DECIBEL - Assumptions for noise calculation

Calculation: Noice_enercon Noise demand: 45.0 dB(A) No distance demand

Noise sensitive area: K Noise sensitive area: German TA Lärm - Rural villages, Mixed areas (12)

Predefined calculation standard: Rural villages, Mixed areas Immission height(a.g.l.): Use standard value from calculation model Uncertainty margin: Use default value from calculation model No temporal binning

Noise demand: 45.0 dB(A) No distance demand

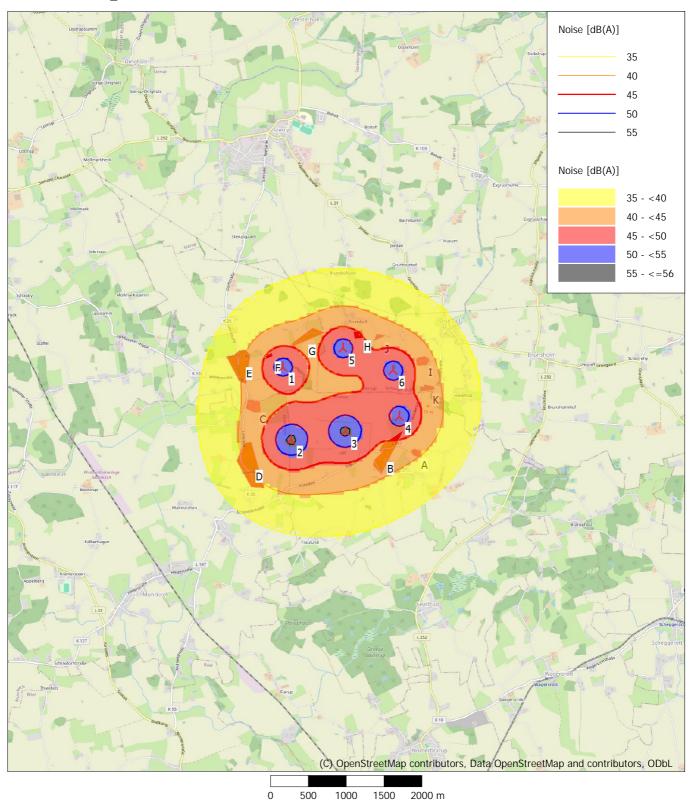


Hochschule Flensburg, University of Applied Sciences Darf nur für Zwecke der Lehre verwendet werden

student / weti-lab-vt10@hs-flensburg.de 1/16/2025 4:30 PM/4.0.547

DECIBEL - Map Highest noise value

Calculation: Noice_enercon



Map: EMD OpenStreetMap , Print scale 1:50,000, Map center UTM (north)-ETRS89 Zone: 32 East: 548,477 North: 6,061,360 Noise sensitive area New WTG

Noise calculation model: ISO 9613-2 German (Interimsverfahren). Wind speed: Highest noise value Height above sea level from active line object

