

Bilaga 2. Ljudberäkningar

Project:

Offshore Bottenhavet/Bottenviken

Licensed user:

Karlstad Modern Energy AB

Lantvärnsgatan 8

SE-65221 Karlstad

+46 702185064

Niklas Sondell / niklas.sondell@modernenergy.se

Calculated:

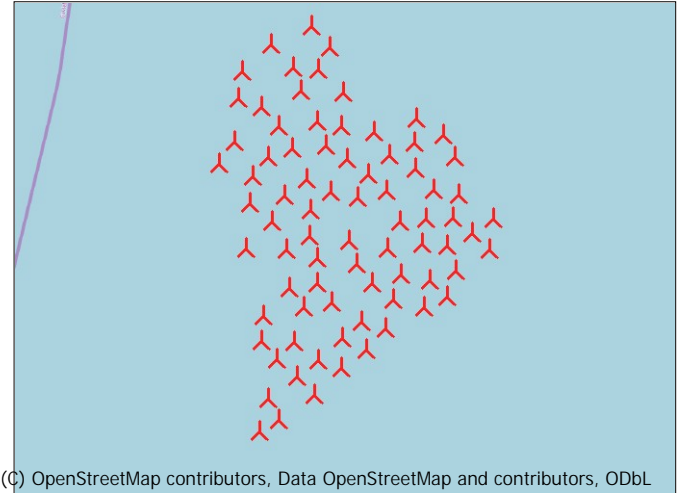
2022-10-12 18:22/3.5.552

NORD2000 - Main Result

Calculation: Lambda

Assumptions

| | |
|---------------------------------------------------------------------------------------------|--------------------------|
| Weather stability | |
| Relative humidity | 70.0 % |
| Air temperature | 10.0 °C |
| Height for air temperature | 2.0 m |
| Stability parameters | Night: Clear sky |
| Inverse Monin Obukhov length | 0.0100 |
| Temperature scale T* | 0.0500 |
| Terrain | |
| Flat area with fixed elevation | 0.0 m above sea level |
| Uniform roughness length | 0.0010 m |
| Uniform roughness class | 0.3 |
| Uniform terrain type | G |
| Wind speed criteria | |
| Uniform wind speed at 10 m agl. | |
| Wind speed | 8.0 m/s |
| Wind direction | 0.0 ° - 330.0 ° - 30.0 ° |
| Height above ground level for receiver | 1.5 m |
| Wind speed has been extrapolated to calculation height using IEC profile shear (z0 = 0.05m) | |
| No stability correction | |
| Version | 6.005 |



(C) OpenStreetMap contributors, Data OpenStreetMap and contributors, ODbL

Scale 1:500 000

New WTG

All coordinates are in Swedish UTM 33-SWREF99 (SE)

WTGs

| Row | Easting | Northing | Z [m] | Row data/Description | WTG type | | Type-generator | Power, rated [kW] | Rotor diameter [m] | Hub height [m] | Noise data | | Wind speed [m/s] | LwA,ref [dB(A)] |
|-----|---------|-----------|-------|----------------------|----------|--------------|-----------------|-------------------|--------------------|----------------|------------|-----------|------------------|-----------------|
| | | | | | Valid | Manufact. | | | | | Creator | Name | | |
| 1 | 671 943 | 6 820 128 | -56.1 | MODERNENERGY ME2... | Yes | MODERNENERGY | ME263-20-20 000 | 20 000 | 263.0 | 160.0 | USER | 115.2 dBa | 12.2 | 115.2 |
| 2 | 673 244 | 6 821 044 | -54.9 | MODERNENERGY ME2... | Yes | MODERNENERGY | ME263-20-20 000 | 20 000 | 263.0 | 160.0 | USER | 115.2 dBa | 12.2 | 115.2 |
| 3 | 672 435 | 6 822 402 | -43.2 | MODERNENERGY ME2... | Yes | MODERNENERGY | ME263-20-20 000 | 20 000 | 263.0 | 160.0 | USER | 115.2 dBa | 12.2 | 115.2 |
| 4 | 675 526 | 6 822 813 | -51.0 | MODERNENERGY ME2... | Yes | MODERNENERGY | ME263-20-20 000 | 20 000 | 263.0 | 160.0 | USER | 115.2 dBa | 12.2 | 115.2 |
| 5 | 674 360 | 6 823 970 | -47.5 | MODERNENERGY ME2... | Yes | MODERNENERGY | ME263-20-20 000 | 20 000 | 263.0 | 160.0 | USER | 115.2 dBa | 12.2 | 115.2 |
| 6 | 677 245 | 6 824 637 | -52.0 | MODERNENERGY ME2... | Yes | MODERNENERGY | ME263-20-20 000 | 20 000 | 263.0 | 160.0 | USER | 115.2 dBa | 12.2 | 115.2 |
| 7 | 677 208 | 6 826 617 | -54.1 | MODERNENERGY ME2... | Yes | MODERNENERGY | ME263-20-20 000 | 20 000 | 263.0 | 160.0 | USER | 115.2 dBa | 12.2 | 115.2 |
| 8 | 678 417 | 6 827 820 | -47.7 | MODERNENERGY ME2... | Yes | MODERNENERGY | ME263-20-20 000 | 20 000 | 263.0 | 160.0 | USER | 115.2 dBa | 12.2 | 115.2 |
| 9 | 680 035 | 6 827 475 | -51.5 | MODERNENERGY ME2... | Yes | MODERNENERGY | ME263-20-20 000 | 20 000 | 263.0 | 160.0 | USER | 115.2 dBa | 12.2 | 115.2 |
| 10 | 678 859 | 6 825 999 | -56.3 | MODERNENERGY ME2... | Yes | MODERNENERGY | ME263-20-20 000 | 20 000 | 263.0 | 160.0 | USER | 115.2 dBa | 12.2 | 115.2 |
| 11 | 675 686 | 6 825 069 | -59.4 | MODERNENERGY ME2... | Yes | MODERNENERGY | ME263-20-20 000 | 20 000 | 263.0 | 160.0 | USER | 115.2 dBa | 12.2 | 115.2 |
| 12 | 674 009 | 6 826 236 | -51.7 | MODERNENERGY ME2... | Yes | MODERNENERGY | ME263-20-20 000 | 20 000 | 263.0 | 160.0 | USER | 115.2 dBa | 12.2 | 115.2 |
| 13 | 671 786 | 6 826 244 | -55.1 | MODERNENERGY ME2... | Yes | MODERNENERGY | ME263-20-20 000 | 20 000 | 263.0 | 160.0 | USER | 115.2 dBa | 12.2 | 115.2 |
| 14 | 672 899 | 6 825 030 | -56.8 | MODERNENERGY ME2... | Yes | MODERNENERGY | ME263-20-20 000 | 20 000 | 263.0 | 160.0 | USER | 115.2 dBa | 12.2 | 115.2 |
| 15 | 674 543 | 6 828 517 | -50.0 | MODERNENERGY ME2... | Yes | MODERNENERGY | ME263-20-20 000 | 20 000 | 263.0 | 160.0 | USER | 115.2 dBa | 12.2 | 115.2 |
| 16 | 673 574 | 6 829 809 | -54.8 | MODERNENERGY ME2... | Yes | MODERNENERGY | ME263-20-20 000 | 20 000 | 263.0 | 160.0 | USER | 115.2 dBa | 12.2 | 115.2 |
| 17 | 676 347 | 6 828 992 | -50.1 | MODERNENERGY ME2... | Yes | MODERNENERGY | ME263-20-20 000 | 20 000 | 263.0 | 160.0 | USER | 115.2 dBa | 12.2 | 115.2 |
| 18 | 675 327 | 6 830 190 | -49.3 | MODERNENERGY ME2... | Yes | MODERNENERGY | ME263-20-20 000 | 20 000 | 263.0 | 160.0 | USER | 115.2 dBa | 12.2 | 115.2 |
| 19 | 675 233 | 6 831 853 | -50.2 | MODERNENERGY ME2... | Yes | MODERNENERGY | ME263-20-20 000 | 20 000 | 263.0 | 160.0 | USER | 115.2 dBa | 12.2 | 115.2 |
| 20 | 674 711 | 6 833 331 | -47.1 | MODERNENERGY ME2... | Yes | MODERNENERGY | ME263-20-20 000 | 20 000 | 263.0 | 160.0 | USER | 115.2 dBa | 12.2 | 115.2 |
| 21 | 678 990 | 6 830 359 | -45.5 | MODERNENERGY ME2... | Yes | MODERNENERGY | ME263-20-20 000 | 20 000 | 263.0 | 160.0 | USER | 115.2 dBa | 12.2 | 115.2 |
| 22 | 677 927 | 6 831 663 | -47.6 | MODERNENERGY ME2... | Yes | MODERNENERGY | ME263-20-20 000 | 20 000 | 263.0 | 160.0 | USER | 115.2 dBa | 12.2 | 115.2 |
| 23 | 677 347 | 6 833 173 | -51.1 | MODERNENERGY ME2... | Yes | MODERNENERGY | ME263-20-20 000 | 20 000 | 263.0 | 160.0 | USER | 115.2 dBa | 12.2 | 115.2 |
| 24 | 680 441 | 6 829 330 | -57.6 | MODERNENERGY ME2... | Yes | MODERNENERGY | ME263-20-20 000 | 20 000 | 263.0 | 160.0 | USER | 115.2 dBa | 12.2 | 115.2 |
| 25 | 679 925 | 6 832 760 | -51.5 | MODERNENERGY ME2... | Yes | MODERNENERGY | ME263-20-20 000 | 20 000 | 263.0 | 160.0 | USER | 115.2 dBa | 12.2 | 115.2 |
| 26 | 680 583 | 6 834 546 | -34.9 | MODERNENERGY ME2... | Yes | MODERNENERGY | ME263-20-20 000 | 20 000 | 263.0 | 160.0 | USER | 115.2 dBa | 12.2 | 115.2 |
| 27 | 679 602 | 6 836 514 | -45.4 | MODERNENERGY ME2... | Yes | MODERNENERGY | ME263-20-20 000 | 20 000 | 263.0 | 160.0 | USER | 115.2 dBa | 12.2 | 115.2 |
| 28 | 680 826 | 6 831 065 | -47.9 | MODERNENERGY ME2... | Yes | MODERNENERGY | ME263-20-20 000 | 20 000 | 263.0 | 160.0 | USER | 115.2 dBa | 12.2 | 115.2 |
| 29 | 682 804 | 6 830 814 | -41.9 | MODERNENERGY ME2... | Yes | MODERNENERGY | ME263-20-20 000 | 20 000 | 263.0 | 160.0 | USER | 115.2 dBa | 12.2 | 115.2 |
| 30 | 684 003 | 6 829 737 | -43.0 | MODERNENERGY ME2... | Yes | MODERNENERGY | ME263-20-20 000 | 20 000 | 263.0 | 160.0 | USER | 115.2 dBa | 12.2 | 115.2 |
| 31 | 682 130 | 6 833 203 | -55.2 | MODERNENERGY ME2... | Yes | MODERNENERGY | ME263-20-20 000 | 20 000 | 263.0 | 160.0 | USER | 115.2 dBa | 12.2 | 115.2 |
| 32 | 682 306 | 6 834 880 | -52.4 | MODERNENERGY ME2... | Yes | MODERNENERGY | ME263-20-20 000 | 20 000 | 263.0 | 160.0 | USER | 115.2 dBa | 12.2 | 115.2 |
| 33 | 683 789 | 6 833 081 | -42.1 | MODERNENERGY ME2... | Yes | MODERNENERGY | ME263-20-20 000 | 20 000 | 263.0 | 160.0 | USER | 115.2 dBa | 12.2 | 115.2 |
| 34 | 684 518 | 6 831 561 | -50.4 | MODERNENERGY ME2... | Yes | MODERNENERGY | ME263-20-20 000 | 20 000 | 263.0 | 160.0 | USER | 115.2 dBa | 12.2 | 115.2 |
| 35 | 686 696 | 6 833 018 | -45.7 | MODERNENERGY ME2... | Yes | MODERNENERGY | ME263-20-20 000 | 20 000 | 263.0 | 160.0 | USER | 115.2 dBa | 12.2 | 115.2 |
| 36 | 686 792 | 6 835 129 | -52.0 | MODERNENERGY ME2... | Yes | MODERNENERGY | ME263-20-20 000 | 20 000 | 263.0 | 160.0 | USER | 115.2 dBa | 12.2 | 115.2 |
| 37 | 685 471 | 6 834 082 | -48.0 | MODERNENERGY ME2... | Yes | MODERNENERGY | ME263-20-20 000 | 20 000 | 263.0 | 160.0 | USER | 115.2 dBa | 12.2 | 115.2 |
| 38 | 684 080 | 6 835 001 | -50.9 | MODERNENERGY ME2... | Yes | MODERNENERGY | ME263-20-20 000 | 20 000 | 263.0 | 160.0 | USER | 115.2 dBa | 12.2 | 115.2 |
| 39 | 681 446 | 6 838 075 | -39.0 | MODERNENERGY ME2... | Yes | MODERNENERGY | ME263-20-20 000 | 20 000 | 263.0 | 160.0 | USER | 115.2 dBa | 12.2 | 115.2 |
| 40 | 683 170 | 6 840 468 | -38.7 | MODERNENERGY ME2... | Yes | MODERNENERGY | ME263-20-20 000 | 20 000 | 263.0 | 160.0 | USER | 115.2 dBa | 12.2 | 115.2 |
| 41 | 684 445 | 6 836 559 | -49.7 | MODERNENERGY ME2... | Yes | MODERNENERGY | ME263-20-20 000 | 20 000 | 263.0 | 160.0 | USER | 115.2 dBa | 12.2 | 115.2 |
| 42 | 683 975 | 6 839 055 | -56.2 | MODERNENERGY ME2... | Yes | MODERNENERGY | ME263-20-20 000 | 20 000 | 263.0 | 160.0 | USER | 115.2 dBa | 12.2 | 115.2 |
| 43 | 682 775 | 6 836 761 | -57.1 | MODERNENERGY ME2... | Yes | MODERNENERGY | ME263-20-20 000 | 20 000 | 263.0 | 160.0 | USER | 115.2 dBa | 12.2 | 115.2 |
| 44 | 681 317 | 6 841 424 | -54.2 | MODERNENERGY ME2... | Yes | MODERNENERGY | ME263-20-20 000 | 20 000 | 263.0 | 160.0 | USER | 115.2 dBa | 12.2 | 115.2 |

To be continued on next page...

NORD2000 - Main Result

Calculation: Lambda

...continued from previous page

| | Easting | Northing | Z | Row data/Description | WTG type | | Type-generator | Power, rated [kW] | Rotor diameter [m] | Hub height [m] | Noise data | | Wind speed [m/s] | LwA,ref [dB(A)] |
|----|---------|-----------|-------|----------------------|----------|--------------|-----------------|-------------------------|--------------------------|----------------------|------------|-----------|------------------------|--------------------|
| | | | | | Valid | Manufact. | | | | | Creator | Name | | |
| 45 | 681 267 | 6 839 793 | -54.7 | MODERNENERGY ME2... | Yes | MODERNENERGY | ME263-20-20 000 | 20 000 | 263.0 | 160.0 | USER | 115.2 dBa | 12.2 | 115.2 |
| 46 | 678 585 | 6 840 389 | -45.0 | MODERNENERGY ME2... | Yes | MODERNENERGY | ME263-20-20 000 | 20 000 | 263.0 | 160.0 | USER | 115.2 dBa | 12.2 | 115.2 |
| 47 | 679 692 | 6 838 909 | -47.6 | MODERNENERGY ME2... | Yes | MODERNENERGY | ME263-20-20 000 | 20 000 | 263.0 | 160.0 | USER | 115.2 dBa | 12.2 | 115.2 |
| 48 | 678 330 | 6 837 591 | -42.2 | MODERNENERGY ME2... | Yes | MODERNENERGY | ME263-20-20 000 | 20 000 | 263.0 | 160.0 | USER | 115.2 dBa | 12.2 | 115.2 |
| 49 | 677 730 | 6 835 985 | -43.5 | MODERNENERGY ME2... | Yes | MODERNENERGY | ME263-20-20 000 | 20 000 | 263.0 | 160.0 | USER | 115.2 dBa | 12.2 | 115.2 |
| 50 | 675 936 | 6 836 302 | -47.5 | MODERNENERGY ME2... | Yes | MODERNENERGY | ME263-20-20 000 | 20 000 | 263.0 | 160.0 | USER | 115.2 dBa | 12.2 | 115.2 |
| 51 | 674 632 | 6 835 052 | -52.4 | MODERNENERGY ME2... | Yes | MODERNENERGY | ME263-20-20 000 | 20 000 | 263.0 | 160.0 | USER | 115.2 dBa | 12.2 | 115.2 |
| 52 | 676 927 | 6 838 510 | -49.9 | MODERNENERGY ME2... | Yes | MODERNENERGY | ME263-20-20 000 | 20 000 | 263.0 | 160.0 | USER | 115.2 dBa | 12.2 | 115.2 |
| 53 | 676 444 | 6 840 640 | -50.1 | MODERNENERGY ME2... | Yes | MODERNENERGY | ME263-20-20 000 | 20 000 | 263.0 | 160.0 | USER | 115.2 dBa | 12.2 | 115.2 |
| 54 | 675 501 | 6 839 328 | -50.8 | MODERNENERGY ME2... | Yes | MODERNENERGY | ME263-20-20 000 | 20 000 | 263.0 | 160.0 | USER | 115.2 dBa | 12.2 | 115.2 |
| 55 | 674 831 | 6 840 864 | -45.1 | MODERNENERGY ME2... | Yes | MODERNENERGY | ME263-20-20 000 | 20 000 | 263.0 | 160.0 | USER | 115.2 dBa | 12.2 | 115.2 |
| 56 | 672 275 | 6 840 453 | -48.5 | MODERNENERGY ME2... | Yes | MODERNENERGY | ME263-20-20 000 | 20 000 | 263.0 | 160.0 | USER | 115.2 dBa | 12.2 | 115.2 |
| 57 | 673 229 | 6 839 054 | -59.3 | MODERNENERGY ME2... | Yes | MODERNENERGY | ME263-20-20 000 | 20 000 | 263.0 | 160.0 | USER | 115.2 dBa | 12.2 | 115.2 |
| 58 | 674 303 | 6 837 097 | -57.9 | MODERNENERGY ME2... | Yes | MODERNENERGY | ME263-20-20 000 | 20 000 | 263.0 | 160.0 | USER | 115.2 dBa | 12.2 | 115.2 |
| 59 | 671 641 | 6 838 392 | -56.7 | MODERNENERGY ME2... | Yes | MODERNENERGY | ME263-20-20 000 | 20 000 | 263.0 | 160.0 | USER | 115.2 dBa | 12.2 | 115.2 |
| 60 | 670 658 | 6 835 258 | -47.6 | MODERNENERGY ME2... | Yes | MODERNENERGY | ME263-20-20 000 | 20 000 | 263.0 | 160.0 | USER | 115.2 dBa | 12.2 | 115.2 |
| 61 | 670 689 | 6 837 016 | -55.7 | MODERNENERGY ME2... | Yes | MODERNENERGY | ME263-20-20 000 | 20 000 | 263.0 | 160.0 | USER | 115.2 dBa | 12.2 | 115.2 |
| 62 | 672 852 | 6 835 894 | -55.7 | MODERNENERGY ME2... | Yes | MODERNENERGY | ME263-20-20 000 | 20 000 | 263.0 | 160.0 | USER | 115.2 dBa | 12.2 | 115.2 |
| 63 | 672 165 | 6 834 120 | -58.8 | MODERNENERGY ME2... | Yes | MODERNENERGY | ME263-20-20 000 | 20 000 | 263.0 | 160.0 | USER | 115.2 dBa | 12.2 | 115.2 |
| 64 | 670 496 | 6 832 279 | -50.4 | MODERNENERGY ME2... | Yes | MODERNENERGY | ME263-20-20 000 | 20 000 | 263.0 | 160.0 | USER | 115.2 dBa | 12.2 | 115.2 |
| 65 | 668 466 | 6 837 779 | -56.2 | MODERNENERGY ME2... | Yes | MODERNENERGY | ME263-20-20 000 | 20 000 | 263.0 | 160.0 | USER | 115.2 dBa | 12.2 | 115.2 |
| 66 | 673 213 | 6 832 359 | -55.2 | MODERNENERGY ME2... | Yes | MODERNENERGY | ME263-20-20 000 | 20 000 | 263.0 | 160.0 | USER | 115.2 dBa | 12.2 | 115.2 |
| 67 | 671 858 | 6 827 850 | -57.1 | MODERNENERGY ME2... | Yes | MODERNENERGY | ME263-20-20 000 | 20 000 | 263.0 | 160.0 | USER | 115.2 dBa | 12.2 | 115.2 |
| 68 | 674 684 | 6 844 339 | -55.3 | MODERNENERGY ME2... | Yes | MODERNENERGY | ME263-20-20 000 | 20 000 | 263.0 | 160.0 | USER | 115.2 dBa | 12.2 | 115.2 |
| 69 | 676 485 | 6 842 902 | -58.1 | MODERNENERGY ME2... | Yes | MODERNENERGY | ME263-20-20 000 | 20 000 | 263.0 | 160.0 | USER | 115.2 dBa | 12.2 | 115.2 |
| 70 | 673 585 | 6 842 854 | -54.7 | MODERNENERGY ME2... | Yes | MODERNENERGY | ME263-20-20 000 | 20 000 | 263.0 | 160.0 | USER | 115.2 dBa | 12.2 | 115.2 |
| 71 | 673 063 | 6 844 380 | -58.1 | MODERNENERGY ME2... | Yes | MODERNENERGY | ME263-20-20 000 | 20 000 | 263.0 | 160.0 | USER | 115.2 dBa | 12.2 | 115.2 |
| 72 | 669 509 | 6 842 122 | -50.3 | MODERNENERGY ME2... | Yes | MODERNENERGY | ME263-20-20 000 | 20 000 | 263.0 | 160.0 | USER | 115.2 dBa | 12.2 | 115.2 |
| 73 | 671 072 | 6 841 627 | -59.0 | MODERNENERGY ME2... | Yes | MODERNENERGY | ME263-20-20 000 | 20 000 | 263.0 | 160.0 | USER | 115.2 dBa | 12.2 | 115.2 |
| 74 | 669 683 | 6 843 943 | -59.5 | MODERNENERGY ME2... | Yes | MODERNENERGY | ME263-20-20 000 | 20 000 | 263.0 | 160.0 | USER | 115.2 dBa | 12.2 | 115.2 |
| 75 | 675 389 | 6 845 825 | -59.0 | MODERNENERGY ME2... | Yes | MODERNENERGY | ME263-20-20 000 | 20 000 | 263.0 | 160.0 | USER | 115.2 dBa | 12.2 | 115.2 |
| 76 | 682 471 | 6 828 980 | -55.3 | MODERNENERGY ME2... | Yes | MODERNENERGY | ME263-20-20 000 | 20 000 | 263.0 | 160.0 | USER | 115.2 dBa | 12.2 | 115.2 |
| 77 | 671 474 | 6 845 780 | -54.4 | MODERNENERGY ME2... | Yes | MODERNENERGY | ME263-20-20 000 | 20 000 | 263.0 | 160.0 | USER | 115.2 dBa | 12.2 | 115.2 |
| 78 | 674 107 | 6 847 137 | -55.9 | MODERNENERGY ME2... | Yes | MODERNENERGY | ME263-20-20 000 | 20 000 | 263.0 | 160.0 | USER | 115.2 dBa | 12.2 | 115.2 |
| 79 | 669 432 | 6 839 281 | -57.8 | MODERNENERGY ME2... | Yes | MODERNENERGY | ME263-20-20 000 | 20 000 | 263.0 | 160.0 | USER | 115.2 dBa | 12.2 | 115.2 |

Calculation Results

Project:

Offshore Bottenhavet/Bottenviken

Licensed user:

Karlstad Modern Energy AB

Lantvårngatan 8

SE-65221 Karlstad

+46 702185064

Niklas Sondell / niklas.sondell@modernenergy.se

Calculated:

2022-10-12 18:22/3.5.552

NORD2000 - Assumptions for NORD2000 calculation

Calculation: Lambda

Assumptions

| | |
|---------------------------------------------------------------------------------------------|--------------------------|
| Weather stability | |
| Relative humidity | 70.0 % |
| Air temperature | 10.0 °C |
| Height for air temperature | 2.0 m |
| Stability parameters | Night; Clear sky |
| Inverse Monin Obukhov length | 0.0100 |
| Temperature scale T* | 0.0500 |
| Terrain | |
| Flat area with fixed elevation | 0.0 m above sea level |
| Uniform roughness length | 0.0010 m |
| Uniform roughness class | 0.3 |
| Uniform terrain type | G |
| Wind speed criteria | |
| Uniform wind speed at 10 m agl. | |
| Wind speed | 8.0 m/s |
| Wind direction | 0.0 ° - 330.0 ° - 30.0 ° |
| Height above ground level for receiver | 1.5 m |
| Wind speed has been extrapolated to calculation height using IEC profile shear (z0 = 0.05m) | |
| No stability correction | |
| Version | 6.005 |

All coordinates are in
Swedish UTM 33-SWREF99 (SE)

WTG: MODERNENERGY ME263-20 20000 263.0 !O!

Noise: 115.2 dBa

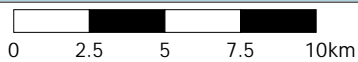
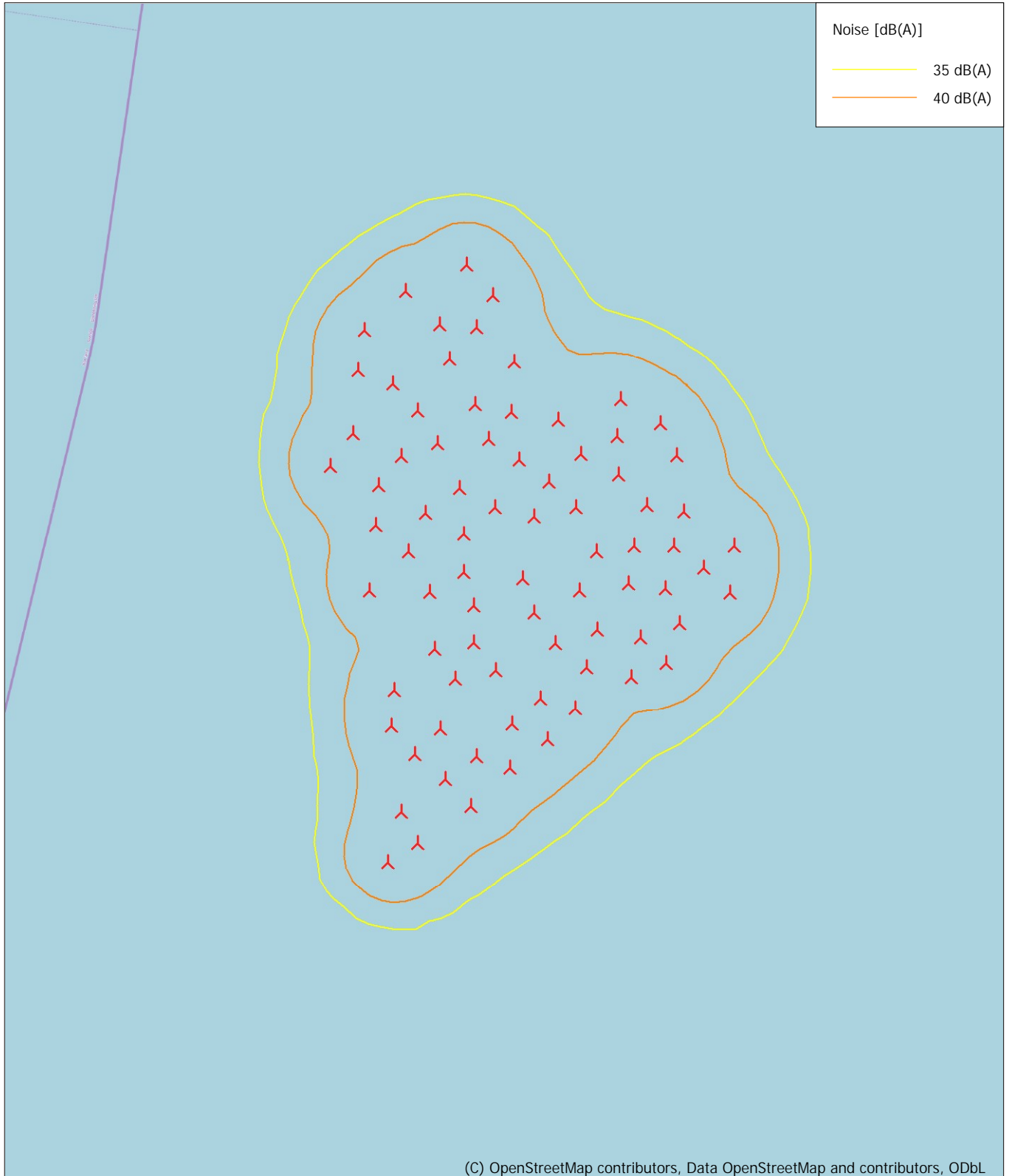
| | | | |
|--------|-------------|---------|------------------|
| Source | Source/Date | Creator | Edited |
| | 2021-09-13 | USER | 2021-11-10 15:14 |

Octave data

| Wind speed [m/s] | LwA,ref [dB(A)] | 63 [dB(A)] | 125 [dB(A)] | 250 [dB(A)] | 500 [dB(A)] | 1000 [dB(A)] | 2000 [dB(A)] | 4000 [dB(A)] | 8000 [dB(A)] |
|---------------------|--------------------|---------------|----------------|----------------|----------------|-----------------|-----------------|-----------------|-----------------|
| 10.0 | 115.2 | 93.6 | 102.3 | 107.9 | 110.3 | 109.7 | 105.9 | 99.1 | 89.1 |
| 11.0 | 115.2 | 93.6 | 102.3 | 107.9 | 110.3 | 109.7 | 105.9 | 99.1 | 89.1 |
| 12.0 | 115.2 | 93.6 | 102.3 | 107.9 | 110.3 | 109.7 | 105.9 | 99.1 | 89.1 |

NORD2000 - 8.0 m/s

Calculation: Lambda



Map: EMD OpenStreetMap , Print scale 1:250 000, Map center Swedish UTM 33-SWREF99 (SE) East: 677 629 North: 6 833 633

🚧 New WTG

DECIBEL - Main Result

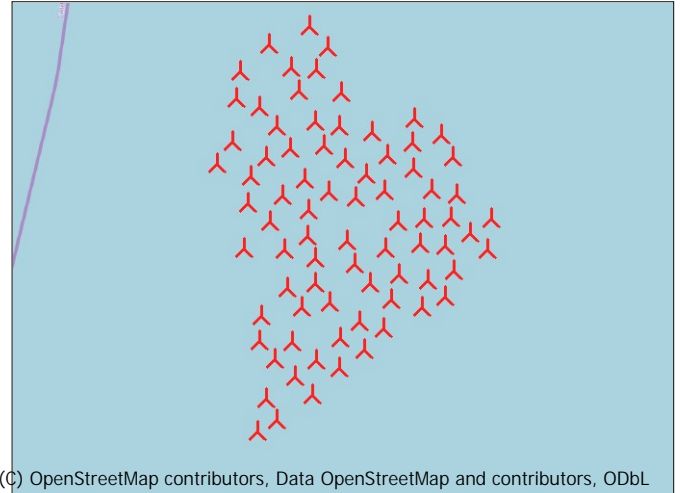
Calculation: Lambda

Noise calculation model:

Danish 199

The calculation is based on "BEK nr 135 af 07/02/2019" from the Danish Environmental Agency.
For wind turbines classified as offshore wind turbines multiple reflections (Lm) are applied.

All coordinates are in
Swedish UTM 33-SWREF99 (SE)



(C) OpenStreetMap contributors, Data OpenStreetMap and contributors, ODbL

Scale 1:500 000

▲ New WTG

WTGs

| | Easting | Northing | Z | Row data/Description | WTG type | | | Power, rated | Rotor diameter | Hub height | Noise data | | | | | |
|----|---------|-----------|-------|-----------------------------|--------------|-----------------|----------------|--------------|----------------|------------|------------|-----------|---------|------------------|---------|-----------------|
| | | | | | Valid | Manufact. | Type-generator | | | | Offshore | Creator | Name | First wind speed | LwaRef | Last wind speed |
| | [m] | | | | | | [kW] | [m] | [m] | | | [m/s] | [dB(A)] | [m/s] | [dB(A)] | |
| 1 | 671 943 | 6 820 128 | -56.1 | MODERNENERGY ME263-20...Yes | MODERNENERGY | ME263-20-20 000 | 20 000 | 263.0 | 160.0 | Yes | USER | 115.2 dBa | 6.0 | 115.2 | 8.0 | 115.2 |
| 2 | 673 244 | 6 821 044 | -54.9 | MODERNENERGY ME263-20...Yes | MODERNENERGY | ME263-20-20 000 | 20 000 | 263.0 | 160.0 | Yes | USER | 115.2 dBa | 6.0 | 115.2 | 8.0 | 115.2 |
| 3 | 672 435 | 6 822 402 | -43.2 | MODERNENERGY ME263-20...Yes | MODERNENERGY | ME263-20-20 000 | 20 000 | 263.0 | 160.0 | Yes | USER | 115.2 dBa | 6.0 | 115.2 | 8.0 | 115.2 |
| 4 | 675 526 | 6 822 813 | -51.0 | MODERNENERGY ME263-20...Yes | MODERNENERGY | ME263-20-20 000 | 20 000 | 263.0 | 160.0 | Yes | USER | 115.2 dBa | 6.0 | 115.2 | 8.0 | 115.2 |
| 5 | 674 360 | 6 823 970 | -47.5 | MODERNENERGY ME263-20...Yes | MODERNENERGY | ME263-20-20 000 | 20 000 | 263.0 | 160.0 | Yes | USER | 115.2 dBa | 6.0 | 115.2 | 8.0 | 115.2 |
| 6 | 677 245 | 6 824 637 | -52.0 | MODERNENERGY ME263-20...Yes | MODERNENERGY | ME263-20-20 000 | 20 000 | 263.0 | 160.0 | Yes | USER | 115.2 dBa | 6.0 | 115.2 | 8.0 | 115.2 |
| 7 | 677 208 | 6 826 617 | -54.1 | MODERNENERGY ME263-20...Yes | MODERNENERGY | ME263-20-20 000 | 20 000 | 263.0 | 160.0 | Yes | USER | 115.2 dBa | 6.0 | 115.2 | 8.0 | 115.2 |
| 8 | 678 417 | 6 827 820 | -47.7 | MODERNENERGY ME263-20...Yes | MODERNENERGY | ME263-20-20 000 | 20 000 | 263.0 | 160.0 | Yes | USER | 115.2 dBa | 6.0 | 115.2 | 8.0 | 115.2 |
| 9 | 680 035 | 6 827 475 | -51.5 | MODERNENERGY ME263-20...Yes | MODERNENERGY | ME263-20-20 000 | 20 000 | 263.0 | 160.0 | Yes | USER | 115.2 dBa | 6.0 | 115.2 | 8.0 | 115.2 |
| 10 | 678 859 | 6 825 999 | -56.3 | MODERNENERGY ME263-20...Yes | MODERNENERGY | ME263-20-20 000 | 20 000 | 263.0 | 160.0 | Yes | USER | 115.2 dBa | 6.0 | 115.2 | 8.0 | 115.2 |
| 11 | 675 686 | 6 825 069 | -59.4 | MODERNENERGY ME263-20...Yes | MODERNENERGY | ME263-20-20 000 | 20 000 | 263.0 | 160.0 | Yes | USER | 115.2 dBa | 6.0 | 115.2 | 8.0 | 115.2 |
| 12 | 674 009 | 6 826 236 | -51.7 | MODERNENERGY ME263-20...Yes | MODERNENERGY | ME263-20-20 000 | 20 000 | 263.0 | 160.0 | Yes | USER | 115.2 dBa | 6.0 | 115.2 | 8.0 | 115.2 |
| 13 | 671 786 | 6 826 244 | -55.1 | MODERNENERGY ME263-20...Yes | MODERNENERGY | ME263-20-20 000 | 20 000 | 263.0 | 160.0 | Yes | USER | 115.2 dBa | 6.0 | 115.2 | 8.0 | 115.2 |
| 14 | 672 899 | 6 825 030 | -56.8 | MODERNENERGY ME263-20...Yes | MODERNENERGY | ME263-20-20 000 | 20 000 | 263.0 | 160.0 | Yes | USER | 115.2 dBa | 6.0 | 115.2 | 8.0 | 115.2 |
| 15 | 674 543 | 6 828 517 | -50.0 | MODERNENERGY ME263-20...Yes | MODERNENERGY | ME263-20-20 000 | 20 000 | 263.0 | 160.0 | Yes | USER | 115.2 dBa | 6.0 | 115.2 | 8.0 | 115.2 |
| 16 | 673 574 | 6 829 809 | -54.8 | MODERNENERGY ME263-20...Yes | MODERNENERGY | ME263-20-20 000 | 20 000 | 263.0 | 160.0 | Yes | USER | 115.2 dBa | 6.0 | 115.2 | 8.0 | 115.2 |
| 17 | 676 347 | 6 828 992 | -50.1 | MODERNENERGY ME263-20...Yes | MODERNENERGY | ME263-20-20 000 | 20 000 | 263.0 | 160.0 | Yes | USER | 115.2 dBa | 6.0 | 115.2 | 8.0 | 115.2 |
| 18 | 675 327 | 6 830 190 | -49.3 | MODERNENERGY ME263-20...Yes | MODERNENERGY | ME263-20-20 000 | 20 000 | 263.0 | 160.0 | Yes | USER | 115.2 dBa | 6.0 | 115.2 | 8.0 | 115.2 |
| 19 | 675 233 | 6 831 853 | -50.2 | MODERNENERGY ME263-20...Yes | MODERNENERGY | ME263-20-20 000 | 20 000 | 263.0 | 160.0 | Yes | USER | 115.2 dBa | 6.0 | 115.2 | 8.0 | 115.2 |
| 20 | 674 711 | 6 833 331 | -47.1 | MODERNENERGY ME263-20...Yes | MODERNENERGY | ME263-20-20 000 | 20 000 | 263.0 | 160.0 | Yes | USER | 115.2 dBa | 6.0 | 115.2 | 8.0 | 115.2 |
| 21 | 678 990 | 6 830 359 | -45.5 | MODERNENERGY ME263-20...Yes | MODERNENERGY | ME263-20-20 000 | 20 000 | 263.0 | 160.0 | Yes | USER | 115.2 dBa | 6.0 | 115.2 | 8.0 | 115.2 |
| 22 | 677 927 | 6 831 663 | -47.6 | MODERNENERGY ME263-20...Yes | MODERNENERGY | ME263-20-20 000 | 20 000 | 263.0 | 160.0 | Yes | USER | 115.2 dBa | 6.0 | 115.2 | 8.0 | 115.2 |
| 23 | 677 347 | 6 833 173 | -51.1 | MODERNENERGY ME263-20...Yes | MODERNENERGY | ME263-20-20 000 | 20 000 | 263.0 | 160.0 | Yes | USER | 115.2 dBa | 6.0 | 115.2 | 8.0 | 115.2 |
| 24 | 680 441 | 6 829 330 | -57.6 | MODERNENERGY ME263-20...Yes | MODERNENERGY | ME263-20-20 000 | 20 000 | 263.0 | 160.0 | Yes | USER | 115.2 dBa | 6.0 | 115.2 | 8.0 | 115.2 |
| 25 | 679 925 | 6 832 760 | -51.5 | MODERNENERGY ME263-20...Yes | MODERNENERGY | ME263-20-20 000 | 20 000 | 263.0 | 160.0 | Yes | USER | 115.2 dBa | 6.0 | 115.2 | 8.0 | 115.2 |
| 26 | 680 583 | 6 834 546 | -34.9 | MODERNENERGY ME263-20...Yes | MODERNENERGY | ME263-20-20 000 | 20 000 | 263.0 | 160.0 | Yes | USER | 115.2 dBa | 6.0 | 115.2 | 8.0 | 115.2 |
| 27 | 679 602 | 6 836 514 | -45.4 | MODERNENERGY ME263-20...Yes | MODERNENERGY | ME263-20-20 000 | 20 000 | 263.0 | 160.0 | Yes | USER | 115.2 dBa | 6.0 | 115.2 | 8.0 | 115.2 |
| 28 | 680 826 | 6 831 065 | -47.9 | MODERNENERGY ME263-20...Yes | MODERNENERGY | ME263-20-20 000 | 20 000 | 263.0 | 160.0 | Yes | USER | 115.2 dBa | 6.0 | 115.2 | 8.0 | 115.2 |
| 29 | 682 804 | 6 830 814 | -41.9 | MODERNENERGY ME263-20...Yes | MODERNENERGY | ME263-20-20 000 | 20 000 | 263.0 | 160.0 | Yes | USER | 115.2 dBa | 6.0 | 115.2 | 8.0 | 115.2 |
| 30 | 684 003 | 6 829 737 | -43.0 | MODERNENERGY ME263-20...Yes | MODERNENERGY | ME263-20-20 000 | 20 000 | 263.0 | 160.0 | Yes | USER | 115.2 dBa | 6.0 | 115.2 | 8.0 | 115.2 |
| 31 | 682 130 | 6 833 203 | -55.2 | MODERNENERGY ME263-20...Yes | MODERNENERGY | ME263-20-20 000 | 20 000 | 263.0 | 160.0 | Yes | USER | 115.2 dBa | 6.0 | 115.2 | 8.0 | 115.2 |
| 32 | 682 306 | 6 834 880 | -52.4 | MODERNENERGY ME263-20...Yes | MODERNENERGY | ME263-20-20 000 | 20 000 | 263.0 | 160.0 | Yes | USER | 115.2 dBa | 6.0 | 115.2 | 8.0 | 115.2 |
| 33 | 683 789 | 6 833 081 | -42.1 | MODERNENERGY ME263-20...Yes | MODERNENERGY | ME263-20-20 000 | 20 000 | 263.0 | 160.0 | Yes | USER | 115.2 dBa | 6.0 | 115.2 | 8.0 | 115.2 |
| 34 | 684 518 | 6 831 561 | -50.4 | MODERNENERGY ME263-20...Yes | MODERNENERGY | ME263-20-20 000 | 20 000 | 263.0 | 160.0 | Yes | USER | 115.2 dBa | 6.0 | 115.2 | 8.0 | 115.2 |
| 35 | 686 696 | 6 833 018 | -45.7 | MODERNENERGY ME263-20...Yes | MODERNENERGY | ME263-20-20 000 | 20 000 | 263.0 | 160.0 | Yes | USER | 115.2 dBa | 6.0 | 115.2 | 8.0 | 115.2 |
| 36 | 686 792 | 6 835 129 | -52.0 | MODERNENERGY ME263-20...Yes | MODERNENERGY | ME263-20-20 000 | 20 000 | 263.0 | 160.0 | Yes | USER | 115.2 dBa | 6.0 | 115.2 | 8.0 | 115.2 |
| 37 | 685 471 | 6 834 082 | -48.0 | MODERNENERGY ME263-20...Yes | MODERNENERGY | ME263-20-20 000 | 20 000 | 263.0 | 160.0 | Yes | USER | 115.2 dBa | 6.0 | 115.2 | 8.0 | 115.2 |
| 38 | 684 080 | 6 835 001 | -50.9 | MODERNENERGY ME263-20...Yes | MODERNENERGY | ME263-20-20 000 | 20 000 | 263.0 | 160.0 | Yes | USER | 115.2 dBa | 6.0 | 115.2 | 8.0 | 115.2 |
| 39 | 681 446 | 6 838 075 | -39.0 | MODERNENERGY ME263-20...Yes | MODERNENERGY | ME263-20-20 000 | 20 000 | 263.0 | 160.0 | Yes | USER | 115.2 dBa | 6.0 | 115.2 | 8.0 | 115.2 |
| 40 | 683 170 | 6 840 468 | -38.7 | MODERNENERGY ME263-20...Yes | MODERNENERGY | ME263-20-20 000 | 20 000 | 263.0 | 160.0 | Yes | USER | 115.2 dBa | 6.0 | 115.2 | 8.0 | 115.2 |
| 41 | 684 445 | 6 836 559 | -49.7 | MODERNENERGY ME263-20...Yes | MODERNENERGY | ME263-20-20 000 | 20 000 | 263.0 | 160.0 | Yes | USER | 115.2 dBa | 6.0 | 115.2 | 8.0 | 115.2 |
| 42 | 683 975 | 6 839 055 | -56.2 | MODERNENERGY ME263-20...Yes | MODERNENERGY | ME263-20-20 000 | 20 000 | 263.0 | 160.0 | Yes | USER | 115.2 dBa | 6.0 | 115.2 | 8.0 | 115.2 |
| 43 | 682 775 | 6 836 761 | -57.1 | MODERNENERGY ME263-20...Yes | MODERNENERGY | ME263-20-20 000 | 20 000 | 263.0 | 160.0 | Yes | USER | 115.2 dBa | 6.0 | 115.2 | 8.0 | 115.2 |
| 44 | 681 317 | 6 841 424 | -54.2 | MODERNENERGY ME263-20...Yes | MODERNENERGY | ME263-20-20 000 | 20 000 | 263.0 | 160.0 | Yes | USER | 115.2 dBa | 6.0 | 115.2 | 8.0 | 115.2 |
| 45 | 681 267 | 6 839 793 | -54.7 | MODERNENERGY ME263-20...Yes | MODERNENERGY | ME263-20-20 000 | 20 000 | 263.0 | 160.0 | Yes | USER | 115.2 dBa | 6.0 | 115.2 | 8.0 | 115.2 |
| 46 | 678 585 | 6 840 389 | -45.0 | MODERNENERGY ME263-20...Yes | MODERNENERGY | ME263-20-20 000 | 20 000 | 263.0 | 160.0 | Yes | USER | 115.2 dBa | 6.0 | 115.2 | 8.0 | 115.2 |
| 47 | 679 692 | 6 838 909 | -47.6 | MODERNENERGY ME263-20...Yes | MODERNENERGY | ME263-20-20 000 | 20 000 | 263.0 | 160.0 | Yes | USER | 115.2 dBa | 6.0 | 115.2 | 8.0 | 115.2 |
| 48 | 678 330 | 6 837 591 | -42.2 | MODERNENERGY ME263-20...Yes | MODERNENERGY | ME263-20-20 000 | 20 000 | 263.0 | 160.0 | Yes | USER | 115.2 dBa | 6.0 | 115.2 | 8.0 | 115.2 |
| 49 | 677 730 | 6 835 985 | -43.5 | MODERNENERGY ME263-20...Yes | MODERNENERGY | ME263-20-20 000 | 20 000 | 263.0 | 160.0 | Yes | USER | 115.2 dBa | 6.0 | 115.2 | 8.0 | 115.2 |
| 50 | 675 936 | 6 836 302 | -47.5 | MODERNENERGY ME263-20...Yes | MODERNENERGY | ME263-20-20 000 | 20 000 | 263.0 | 160.0 | Yes | USER | 115.2 dBa | 6.0 | 115.2 | 8.0 | 115.2 |
| 51 | 674 632 | 6 835 052 | -52.4 | MODERNENERGY ME263-20...Yes | MODERNENERGY | ME263-20-20 000 | 20 000 | 263.0 | 160.0 | Yes | USER | 115.2 dBa | 6.0 | 115.2 | 8.0 | 115.2 |
| 52 | 676 927 | 6 838 510 | -49.9 | MODERNENERGY ME263-20...Yes | MODERNENERGY | ME263-20-20 000 | 20 000 | 263.0 | 160.0 | Yes | USER | 115.2 dBa | 6.0 | 115.2 | 8.0 | 115.2 |
| 53 | 676 444 | 6 840 640 | -50.1 | MODERNENERGY ME263-20...Yes | MODERNENERGY | ME263-20-20 000 | 20 000 | 263.0 | 160.0 | Yes | USER | 115.2 dBa | 6.0 | 115.2 | 8.0 | 115.2 |

To be continued on next page...

Project:

Offshore Bottenhavet/Bottenviken

Licensed user:

Karlstad Modern Energy AB

Lantvårngatan 8

SE-65221 Karlstad

+46 702185064

Niklas Sondell / niklas.sondell@modernenergy.se

Calculated:

2022-10-12 19:14/3.5.552

DECIBEL - Main Result

Calculation: Lambda

...continued from previous page

| Easting | Northing | Z | Row data/Description | WTG type | | Type-generator | Power, rated | Rotor diameter | Hub height | Noise data | | | | | |
|---------|----------|-----------|-----------------------------------|--------------|-----------------|----------------|--------------|----------------|------------|------------|-----------|------|------------------------|----------------|-----------------------|
| | | | | Valid | Manufact. | | | | | Offshore | Creator | Name | First wind speed [m/s] | LwaRef [dB(A)] | Last wind speed [m/s] |
| 54 | 675 501 | 6 839 328 | -50.8 MODERNENERGY ME263-20...Yes | MODERNENERGY | ME263-20-20 000 | 20 000 | 263.0 | 160.0 | Yes | USER | 115.2 dBa | 6.0 | 115.2 | 8.0 | 115.2 |
| 55 | 674 831 | 6 840 864 | -45.1 MODERNENERGY ME263-20...Yes | MODERNENERGY | ME263-20-20 000 | 20 000 | 263.0 | 160.0 | Yes | USER | 115.2 dBa | 6.0 | 115.2 | 8.0 | 115.2 |
| 56 | 672 275 | 6 840 453 | -48.5 MODERNENERGY ME263-20...Yes | MODERNENERGY | ME263-20-20 000 | 20 000 | 263.0 | 160.0 | Yes | USER | 115.2 dBa | 6.0 | 115.2 | 8.0 | 115.2 |
| 57 | 673 229 | 6 839 054 | -59.3 MODERNENERGY ME263-20...Yes | MODERNENERGY | ME263-20-20 000 | 20 000 | 263.0 | 160.0 | Yes | USER | 115.2 dBa | 6.0 | 115.2 | 8.0 | 115.2 |
| 58 | 674 303 | 6 837 097 | -57.9 MODERNENERGY ME263-20...Yes | MODERNENERGY | ME263-20-20 000 | 20 000 | 263.0 | 160.0 | Yes | USER | 115.2 dBa | 6.0 | 115.2 | 8.0 | 115.2 |
| 59 | 671 641 | 6 838 392 | -56.7 MODERNENERGY ME263-20...Yes | MODERNENERGY | ME263-20-20 000 | 20 000 | 263.0 | 160.0 | Yes | USER | 115.2 dBa | 6.0 | 115.2 | 8.0 | 115.2 |
| 60 | 670 658 | 6 835 258 | -47.6 MODERNENERGY ME263-20...Yes | MODERNENERGY | ME263-20-20 000 | 20 000 | 263.0 | 160.0 | Yes | USER | 115.2 dBa | 6.0 | 115.2 | 8.0 | 115.2 |
| 61 | 670 689 | 6 837 016 | -55.7 MODERNENERGY ME263-20...Yes | MODERNENERGY | ME263-20-20 000 | 20 000 | 263.0 | 160.0 | Yes | USER | 115.2 dBa | 6.0 | 115.2 | 8.0 | 115.2 |
| 62 | 672 852 | 6 835 894 | -55.7 MODERNENERGY ME263-20...Yes | MODERNENERGY | ME263-20-20 000 | 20 000 | 263.0 | 160.0 | Yes | USER | 115.2 dBa | 6.0 | 115.2 | 8.0 | 115.2 |
| 63 | 672 165 | 6 834 120 | -58.8 MODERNENERGY ME263-20...Yes | MODERNENERGY | ME263-20-20 000 | 20 000 | 263.0 | 160.0 | Yes | USER | 115.2 dBa | 6.0 | 115.2 | 8.0 | 115.2 |
| 64 | 670 496 | 6 832 279 | -50.4 MODERNENERGY ME263-20...Yes | MODERNENERGY | ME263-20-20 000 | 20 000 | 263.0 | 160.0 | Yes | USER | 115.2 dBa | 6.0 | 115.2 | 8.0 | 115.2 |
| 65 | 668 466 | 6 837 779 | -56.2 MODERNENERGY ME263-20...Yes | MODERNENERGY | ME263-20-20 000 | 20 000 | 263.0 | 160.0 | Yes | USER | 115.2 dBa | 6.0 | 115.2 | 8.0 | 115.2 |
| 66 | 673 213 | 6 832 359 | -55.2 MODERNENERGY ME263-20...Yes | MODERNENERGY | ME263-20-20 000 | 20 000 | 263.0 | 160.0 | Yes | USER | 115.2 dBa | 6.0 | 115.2 | 8.0 | 115.2 |
| 67 | 671 858 | 6 827 850 | -57.1 MODERNENERGY ME263-20...Yes | MODERNENERGY | ME263-20-20 000 | 20 000 | 263.0 | 160.0 | Yes | USER | 115.2 dBa | 6.0 | 115.2 | 8.0 | 115.2 |
| 68 | 674 684 | 6 844 339 | -55.3 MODERNENERGY ME263-20...Yes | MODERNENERGY | ME263-20-20 000 | 20 000 | 263.0 | 160.0 | Yes | USER | 115.2 dBa | 6.0 | 115.2 | 8.0 | 115.2 |
| 69 | 676 485 | 6 842 902 | -58.1 MODERNENERGY ME263-20...Yes | MODERNENERGY | ME263-20-20 000 | 20 000 | 263.0 | 160.0 | Yes | USER | 115.2 dBa | 6.0 | 115.2 | 8.0 | 115.2 |
| 70 | 673 585 | 6 842 854 | -54.7 MODERNENERGY ME263-20...Yes | MODERNENERGY | ME263-20-20 000 | 20 000 | 263.0 | 160.0 | Yes | USER | 115.2 dBa | 6.0 | 115.2 | 8.0 | 115.2 |
| 71 | 673 063 | 6 844 380 | -58.1 MODERNENERGY ME263-20...Yes | MODERNENERGY | ME263-20-20 000 | 20 000 | 263.0 | 160.0 | Yes | USER | 115.2 dBa | 6.0 | 115.2 | 8.0 | 115.2 |
| 72 | 669 509 | 6 842 122 | -50.3 MODERNENERGY ME263-20...Yes | MODERNENERGY | ME263-20-20 000 | 20 000 | 263.0 | 160.0 | Yes | USER | 115.2 dBa | 6.0 | 115.2 | 8.0 | 115.2 |
| 73 | 671 072 | 6 841 627 | -59.0 MODERNENERGY ME263-20...Yes | MODERNENERGY | ME263-20-20 000 | 20 000 | 263.0 | 160.0 | Yes | USER | 115.2 dBa | 6.0 | 115.2 | 8.0 | 115.2 |
| 74 | 669 683 | 6 843 943 | -59.5 MODERNENERGY ME263-20...Yes | MODERNENERGY | ME263-20-20 000 | 20 000 | 263.0 | 160.0 | Yes | USER | 115.2 dBa | 6.0 | 115.2 | 8.0 | 115.2 |
| 75 | 675 389 | 6 845 825 | -59.0 MODERNENERGY ME263-20...Yes | MODERNENERGY | ME263-20-20 000 | 20 000 | 263.0 | 160.0 | Yes | USER | 115.2 dBa | 6.0 | 115.2 | 8.0 | 115.2 |
| 76 | 682 471 | 6 828 980 | -55.3 MODERNENERGY ME263-20...Yes | MODERNENERGY | ME263-20-20 000 | 20 000 | 263.0 | 160.0 | Yes | USER | 115.2 dBa | 6.0 | 115.2 | 8.0 | 115.2 |
| 77 | 671 474 | 6 845 780 | -54.4 MODERNENERGY ME263-20...Yes | MODERNENERGY | ME263-20-20 000 | 20 000 | 263.0 | 160.0 | Yes | USER | 115.2 dBa | 6.0 | 115.2 | 8.0 | 115.2 |
| 78 | 674 107 | 6 847 137 | -55.9 MODERNENERGY ME263-20...Yes | MODERNENERGY | ME263-20-20 000 | 20 000 | 263.0 | 160.0 | Yes | USER | 115.2 dBa | 6.0 | 115.2 | 8.0 | 115.2 |
| 79 | 669 432 | 6 839 281 | -57.8 MODERNENERGY ME263-20...Yes | MODERNENERGY | ME263-20-20 000 | 20 000 | 263.0 | 160.0 | Yes | USER | 115.2 dBa | 6.0 | 115.2 | 8.0 | 115.2 |

DECIBEL - Assumptions for noise calculation

Calculation: Lambda

Noise calculation model:

Danish 2019

Wind speed (in 10 m height):

6.0 m/s - 8.0 m/s, step 2.0 m/s

Terrain reduction:

-1.5 dB(A) Onshore

-3 dB(A) Offshore

Meteorological coefficient, CO:

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:

Pure tones penalty is added to total noise impact at receptors

Noise sensitive area

Height above ground level, when no value in NSA object:

1.5 m; Don't allow override of model height with height from NSA object

Uncertainty margin:

0.0 dB; Uncertainty margin in NSA has priority

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] | [dB/km] | [dB/km] |
| 0.11 | 0.38 | 1.02 | 2.00 | 3.60 | 8.80 | 29.00 | 104.50 |

For wind turbines classified as offshore wind turbines multiple reflections (Lm) are applied.

Area object used for water areas: Area object (Roughness): REGIONS_Offshore_Bottenhavet_V2_1.w2r (3): 0,0000m(cl.0,0) Water bodies

All coordinates are in

Swedish UTM 33-SWREF99 (SE)

WTG: MODERNENERGY ME263-20 20000 263.0 !O!

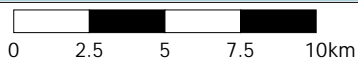
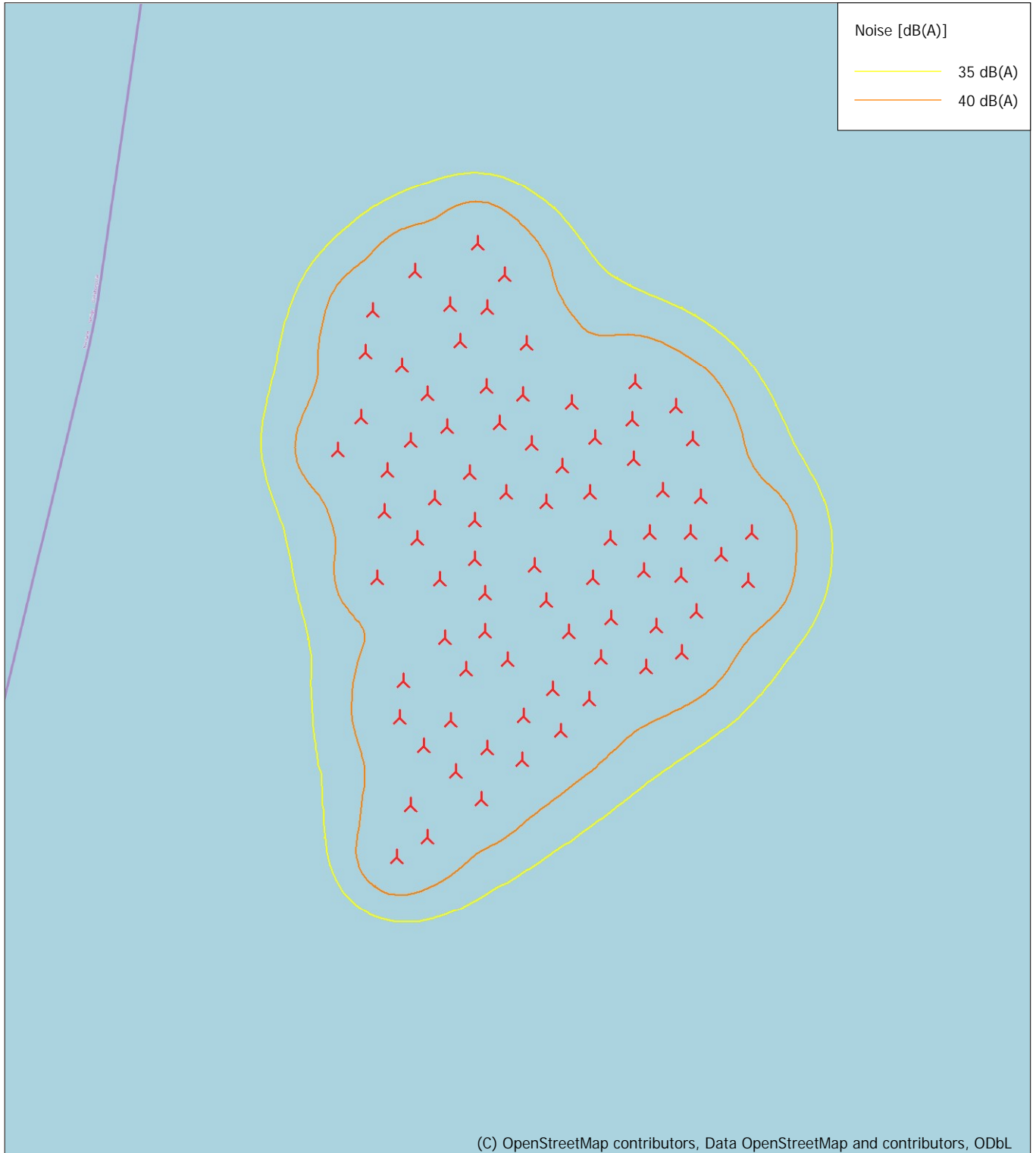
Noise: 115.2 dBa

| Source | Source/Date | Creator | Edited |
|--------|-------------|---------|------------------|
| | 2021-09-13 | USER | 2021-11-10 15:14 |

| Status | Hub height [m] | Wind speed [m/s] | LwA,ref [dB(A)] | Pure tones | Octave data | | | | | | | |
|--------------|-------------------|---------------------|--------------------|------------|-------------|-------------|-------------|-------------|--------------|--------------|--------------|--------------|
| | | | | | 63 [dB] | 125 [dB] | 250 [dB] | 500 [dB] | 1000 [dB] | 2000 [dB] | 4000 [dB] | 8000 [dB] |
| From Windcat | 160.0 | 6.0 | 115.2 | No | 93.6 | 102.3 | 107.9 | 110.3 | 109.7 | 105.9 | 99.1 | 89.1 |
| From Windcat | 160.0 | 8.0 | 115.2 | No | 93.6 | 102.3 | 107.9 | 110.3 | 109.7 | 105.9 | 99.1 | 89.1 |

DECIBEL - Map 8.0 m/s

Calculation: Lambda



Map: EMD OpenStreetMap , Print scale 1:250 000, Map center Swedish UTM 33-SWREF99 (SE) East: 677 629 North: 6 833 633
New WTG

Noise calculation model: Danish 2019. Wind speed: 8.0 m/s
Height above sea level from active line object