# Noise Guidelines for Wind Farms – Summary Tables

These tables are for use with the Ontario Ministry of the Environment and Climate Change’s [Noise Guidelines for Wind Farms document](http://www.ontario.ca/page/noise-guidelines-wind-farms), published May 2016.

## Table : Wind Turbine Acoustic Emissions Summary[[1]](#footnote-1)

**Make and Model:**

**Electrical Rating:**

**Hub Height (m):**

**Wind shear coefficient, as per Section 6.2.3:**

|  | **Octave Band Sound Power Level (dB)** |
| --- | --- |
| **Manufacturer’s Emission Levels** | **Adjusted Emission Levels** |
| **Wind Speed[[2]](#footnote-2) (m/s)** | **6** | **7** | **8** | **9** | **10** | **6** | **7** | **8** | **9** | **10** |
| **Frequency[[3]](#footnote-3) (Hz)** |  |  |  |  |  |  |  |  |  |  |
| **31.5** |  |  |  |  |  |  |  |  |  |  |
| **63** |  |  |  |  |  |  |  |  |  |  |
| **125** |  |  |  |  |  |  |  |  |  |  |
| **250** |  |  |  |  |  |  |  |  |  |  |
| **500** |  |  |  |  |  |  |  |  |  |  |
| **1,000** |  |  |  |  |  |  |  |  |  |  |
| **2,000** |  |  |  |  |  |  |  |  |  |  |
| **4,000** |  |  |  |  |  |  |  |  |  |  |
| **8,000** |  |  |  |  |  |  |  |  |  |  |
| **Overall A-weighted (dBA)** |  |  |  |  |  |  |  |  |  |  |

## Table : Wind Turbine Acoustic Emissions at the Wind Turbine Hub Height[[4]](#footnote-4)

**Make and Model:**

**Electrical Rating:**

**Hub Height (m):**

|  | **Octave Band Sound Power Level (dB)** |
| --- | --- |
| **Manufacturer’s Emission Levels at bin centre wind speeds at hub height[[5]](#footnote-5)** | **(A)****Manufacturer’s Worst Case Spectrum[[6]](#footnote-6)(dB)** | **(B)****Positive Overall Uncertainty, Uc[[7]](#footnote-7) / Fixed Value**[as per subsection 1(6.1) of Ontario Regulation 359/09]**(dB)** | **(A+B)****Maximum Sound Power Level(dB)** |
| **Wind Speeds at hub height (m/s)** | ... | 6 | 6.5 | 7 | … |
| **Frequency[[8]](#footnote-8) (Hz)** |  |  |  |  |  |  |  |  |
| **31.5** |  |  |  |  |  |  |  |  |
| **63** |  |  |  |  |  |  |  |
| **125** |  |  |  |  |  |  |  |
| **250** |  |  |  |  |  |  |  |
| **500** |  |  |  |  |  |  |  |
| **1,000** |  |  |  |  |  |  |  |
| **2,000** |  |  |  |  |  |  |  |
| **4,000** |  |  |  |  |  |  |  |
| **8,000** |  |  |  |  |  |  |  |
| **Overall A‑weighted (dBA)** |  |  |  |  |  |  |  |  |
| **Overall Uncertainty, Uc (dB)** |  |  |  |  |  |  |  |  |

## Table 5: Wind Turbine Locations

**Project Name:**

| **Identifier** | **Equipment Make & Model** | **UTM Coordinates** | **Remarks** |
| --- | --- | --- | --- |
| **X** | **Y** |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |

Changes in ID or location in revised submissions must be clearly identified under the “Remarks” column.

## Table 6: Point of Reception Locations

**Project Name:**

| **Point of Reception ID** | **Description** | **UTM Coordinates** |
| --- | --- | --- |
| **X** | **Y** |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |

## Table 7: Participating Receptor Locations

**Project Name:**

| **Receptor ID** | **Description** | **UTM Coordinates** |
| --- | --- | --- |
| **X** | **Y** |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |

## Table 8: Combined (including Transformer Substation(s)) Noise Impact Summary – Points of Reception

| **Point of Reception ID** | **Description** | **Height(m)** | **Distance to Nearest Turbine(m)** | **Nearest Turbine ID** | **Maximum Calculated Sound Level(dBA)** | **Sound Level Limit(dBA)** | **Compliance(Yes/No)** |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |

## Table 9: Combined (including Transformer Substation(s)) Noise Impact Summary – Participating Receptors

| **Participating Receptor ID** | **Description** | **Height(m)** | **Distance to Nearest Turbine(m)** | **Nearest Turbine ID** | **Maximum Calculated Sound Level(dBA)** |
| --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |

## Table : Wind Turbine Noise Impact Summary – Points of Reception (Optional)

| **Point of Reception ID** | **Description** | **Height(m)** | **Distance to Nearest Turbine(m)** | **Nearest Turbine ID** | **Maximum Calculated Sound Level (dBA)** | **Sound Level Limit(dBA)** | **Compliance(Yes/No)** |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |

## Table : Wind Turbine Noise Impact Summary – Participating Receptors (Optional)

| **Participating Receptor ID** | **Description** | **Height(m)** | **Distance to Nearest Turbine(m)** | **Nearest Turbine ID** | **Maximum Calculated Sound Level(dBA)** |
| --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |

## Table : Sample Concordance Table for Shared Receptors – for two Wind Facility Projects, Project A and Project B

| **Receptor UTM Coordinates** | **Point of Reception ID** | **Distance to Nearest Noise Source(m)** | **Nearest Noise Source ID** | **Noise Level(dBA)** | **Total Combined Sound Level(dBA)** |
| --- | --- | --- | --- | --- | --- |
| Project A | Project B | Difference (m) | Project A | Project B | Project A | Project B | Project A | Project B | Project A | Project B |
| X | Y | X | Y |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |

## Table : Transformer Substation Noise Impact Summary – Points of Reception (Optional)

| **Point of Reception ID** | **Description** | **Distance to Transformer Substation(m)** | **Calculated Sound Level(dBA)** | **Sound Level Limit(dBA)** | **Compliance(Yes/No)** |
| --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |

## Table : Transformer Substation Noise Impact Summary – Participating Receptors (Optional)

| **Participating Receptor ID** | **Description** | **Distance to Transformer Substation(m)** | **Calculated Sound Level(dBA)** |
| --- | --- | --- | --- |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |

1. See Section 6.2.4 for details on when to complete Table 3. [↑](#footnote-ref-1)
2. At 10 m reference height. [↑](#footnote-ref-2)
3. Octave Band Frequency. For projects that are subject to the CAN/CSA-C61400-11-07 standard inclusion of the 31.5 Hz data is optional. [↑](#footnote-ref-3)
4. See Section 6.2.4 for details on when to complete Table 4. [↑](#footnote-ref-4)
5. Number of columns should be sufficient to cover the wind speed range related to the specific proposed wind turbine. As a minimum the wind speed range is defined as the hub height wind speed from 0.8 to 1.3 times the wind speed at 85% of maximum power rounded to wind speed bin centres. Wind speed bin is defined as thewind speed interval, 0.5 m/s wide, centred around integer and half-integer wind speeds open at the low end, and closed at the high end wind speed interval. [↑](#footnote-ref-5)
6. Octave Band Spectra having maximum sound power level that results in the highest noise impact at a receptor at a height of 4.5 m and a distance of 1,500 m. [↑](#footnote-ref-6)
7. Uc must be calculated as per Section 9 and Annex C of CAN/CSA- IEC 61400-11:13 standard, Reference [4]. Overall positive uncertainty is related to the selected manufacturer’s worst case spectrum. Upon request a detailed calculation of Uc may be required. [↑](#footnote-ref-7)
8. Octave Band Frequency. [↑](#footnote-ref-8)