

REPORT ID: **16227.00.T35.RP1**

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## Niagara Region Wind Farm – Turbine T35 IEC 61400-11 Edition 3.0 Measurement Report

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Prepared for:

**1021702 B.C. Ltd**

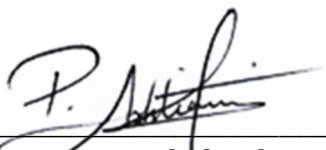
as general partner for and on behalf of FWRN LP

Prepared by:

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03 November 2017 – Revision #1



## Revision History

| Revision Number | Description                    | Date       |
|-----------------|--------------------------------|------------|
| 1               | Issued Edition 3.0 test report | 03.11.2017 |

**This report in its entirety, including appendices contains 74 pages.**

## Statement Qualifications and Limitations

This report was prepared by Aeroustics Engineering Limited in accordance with International Standard IEC 61400-11 (Edition 3.0, released 2012-11), “Wind turbine generator systems – Part 11: Acoustic noise measurement techniques”. This report is specific only to the Wind Turbine identified in this report.

Aeroustics Engineering Limited shall not be responsible for any events or circumstances that may have occurred since the date on which the Wind Turbine was tested and/or this report was prepared, or for any inaccuracies contained in information that was provided to Aeroustics Engineering Limited. Further, Aeroustics Engineering Limited agrees that this report represents test data analysed as per the above described standard for the specific Wind Turbine described in this report, but Aeroustics Engineering Limited makes no other representations with respect to this report or any part thereof.

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This Statement of Qualifications and Limitations is attached to and forms part of this report.

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## 1 Introduction

Aercoustics Engineering Limited (Aercoustics) was retained by 1021702 B.C. Ltd as a general partner for and behalf of Niagara Region Wind Farm (“FWRN”) to conduct an acoustic measurement of turbine T35 at the Niagara Region Wind Farm. The purpose of the measurement was to provide verification of the maximum noise emission of the turbine. The measurement was carried out in accordance with International Standard IEC 61400-11 (Edition 3.0, released 2012-11), “Wind turbine generator systems – Part 11: Acoustic noise measurement techniques”. This report is specific only to Turbine T35.

## 2 Wind Turbine Information

### 2.1 Wind turbine equipment specific information

Wind turbine specific equipment information for turbine T35 was provided by FWRN and is summarized in Tables 1 – 5.

Table 1 - Wind Turbine Details

| Wind Turbine Details |         |
|----------------------|---------|
| Manufacturer         | Enercon |
| Model Number         | E-101   |
| Turbine ID           | 1011189 |

Table 2 - Operating Details

| Operating Details                                        |                                                              |
|----------------------------------------------------------|--------------------------------------------------------------|
| Vertical or Horizontal axis wind turbine                 | Horizontal Axis                                              |
| Upwind or downwind rotor                                 | Upwind                                                       |
| Hub height                                               | 124 M                                                        |
| Horizontal distance from rotor centre to tower axis      | 6 M                                                          |
| Diameter of rotor                                        | 101 M                                                        |
| Tower type (lattice or tube)                             | Tube                                                         |
| Passive stall, active stall, or pitch controlled turbine | Enercon single blade pitch system                            |
| Constant or variable speed                               | Variable speed                                               |
| Power curve                                              | See Figure B.01                                              |
| Rotational speed at each integer standardised wind speed | See Figure B.02 from measurement data                        |
| Rated power output                                       | 3000 kW                                                      |
| Control software version                                 | Main control board version 5.20. Pitch software version 5.87 |



Table 3 - Rotor Details

| Rotor Details                                                        |                                       |
|----------------------------------------------------------------------|---------------------------------------|
| Rotor control devices                                                | Electric pitch                        |
| Presence of vortex generators, stall strips, serrated trailing edges | Tip bows (90-degree curve blade tips) |
| Blade type                                                           | Composite (Epoxy resin, Balsa)        |
| Serial number                                                        | N/A                                   |
| Number of blades                                                     | 3                                     |

Table 4 - Gearbox Details

| Gearbox Details |     |
|-----------------|-----|
| Manufacturer    | N/A |
| Model number    | N/A |
| Serial number   | N/A |

Table 5 - Generator Details

| Generator Details |                      |
|-------------------|----------------------|
| Manufacturer      | Enercon              |
| Model number      | G4 annular generator |
| Serial number     | N/A                  |

## 2.2 Wind Turbine Location

The Niagara Wind Farm is located in the Townships of West Lincoln and Wainfleet and the Town of Lincoln within the Niagara Region and within Haldimand County in Southern Ontario. The coordinates of Turbine T35 are 17T 627164 Easting and 4764483 Northing. The area surrounding T35 is flat and consists primarily of farmland.

A general layout of the area in which the turbine is located is provided in the site plan (Figure A.01).

### 3 Measurement Details

#### 3.1 Measurement Equipment

##### 3.1.1 Acoustic Measurement Equipment

A summary of acoustic equipment utilized by Aercoustics for the measurement of turbine T35 is summarized in Table 6.

Table 6 - Acoustic Measurement Equipment

| Equipment                        | Manufacturer Name & Model | Serial Number |
|----------------------------------|---------------------------|---------------|
| Acoustic Data acquisition system | LMS SCADA Mobile          | 22163146      |
| Microphone                       | B&K 4189                  | 2625417       |
| Pre-amplifier                    | B&K 2671                  | 2614900       |
| Acoustic calibrator              | B&K 4231                  | 3012380       |

Calibration of the measurement setup was carried out before and after Aercoustics set of measurements.

##### 3.1.2 Meteorological Equipment

Wind speed for Turbine ON was derived from the power curve (as per procedures outlined in IEC 61400-11). Wind direction for turbine ON measurements was utilized from the yaw angle output provided from the turbine system from turbine T35. Data for background measurements was obtained from a 10m high anemometer, which was placed as per guidelines outlined in IEC-61400-11.

The meteorological equipment is summarized in Table 7

Table 7 – Meteorological Measurement Equipment

| Equipment                  | Manufacturer Name & Model | Serial Number |
|----------------------------|---------------------------|---------------|
| Anemometer                 | VAISALA WXT520            | G4420002      |
| Serial to Analog Converter | NOKEVAL 7470              | A159784       |

#### 3.2 Measurement Setup

##### 3.2.1 Microphone Placement

The measurement microphone was setup 147m from the base of the turbine in 'Position 1', (i.e. downwind of the turbine, as per IEC 61400-11) at an elevation of 0m relative to the base of T35. The microphone was placed in the centre of a circular, acoustically reflective board.

During the measurement period only, data points for which the microphone was within 15 degrees of downwind from the turbine were used. The microphone position relative to downwind of the turbine was monitored via the yaw angle output provided from the turbine

system (discussed further in Section 3.5). During placement of the microphone the turbine was parked and the reference yaw angle for that measurement logged.

When measurements of T35 were taken, the surrounding land was cleared farmland. There were no nearby reflecting surfaces (houses, barns etc.); as such the influence from reflecting surfaces was considered to be negligible.

Photos of the measurement setup are provided in Figure A.02, Appendix A.

### 3.2.2 Double Windscreen Setup

A double windscreen setup was not utilized.

### 3.3 Measurement Schedule

Table 8 provides a summary of the test date and times. Data was logged in 10 second intervals for post-processing (as per the measurement standard).

Table 8 - Measurement Schedule Summary

| Date             | Test Type  | Start Time | Finish time |
|------------------|------------|------------|-------------|
| October 19, 2017 | Turbine ON | 2:36pm     | 3:20pm      |
|                  | Background | 3:24pm     | 3:54pm      |
|                  | Turbine ON | 4:21pm     | 4:51pm      |
|                  | Background | 4:55pm     | 5:23pm      |
|                  | Background | 5:33pm     | 6:01pm      |

### 3.4 Meteorological Conditions

Detailed meteorological data relevant to the measurement is provided in Appendix E.

As previously mentioned, wind speed for Turbine ON was derived from T35's power curve (as per the standard), while wind direction was provided by T35's yaw position. Background data was obtained from an anemometer located 10m above ground level near T35.

Temperature and pressure readings during the measurement period were provided by the 10m anemometer, located near turbine T35 for the duration of Aeroustics measurements.

### 3.5 Turbine operational information

Output data from the turbine (Power, yaw, RPM, pitch angle, and nacelle wind speed) were obtained as analog output signals that were simultaneously acquired with the acoustic and anemometer measurement data using Aeroustics data acquisition system.

## 4 Measurement Results

### 4.1 Deviations from IEC-61400-11 Edition 3.0

Due to Electromagnetic Interference affecting microphone signal in the test cabling at 1/3 octave frequency bands at 8 kHz and above, the analysis excludes these affected frequency bands. As wind turbines do not generate sound of notable levels at high frequencies, this has a negligible impact on the conclusions of the analysis.

### 4.2 Special Notes & Considerations

There were no other turbines in the immediate vicinity of T35.

### 4.3 Analysis Details

The following section outlines analysis of the measurement data acquired for T35. The data presented is exclusive of transient events such as vehicle traffic, wildlife, air traffic etc. The site has been assessed to have a roughness length of 0.05m, representative of farmland with some vegetation.

#### 4.3.1 Double Windscreen Adjustment

As previously mentioned, no double wind screen was used, as such the measurement data did not require adjustment.

#### 4.3.2 Wind Speed Correction

The wind speed for each measurement data point for Turbine ON was derived through the power curve (as per Section 8.2.1.1 of IEC-61400-11). For data points during Turbine ON that were outside the allowed range of the power curve, the wind speed was derived from the nacelle anemometer wind speed (as specified in Section 8.2.1.2 of IEC-61400-11).

Background wind speed was derived utilizing data acquired with the 10m anemometer and normalizing the wind speed (as per Section 8.2.2 of IEC-61400-11).

### 4.4 Type B uncertainties

Type B uncertainties were obtained through interpretation of information provided in Annex C of IEC-61400-11, and instrument uncertainties obtained from the calibration certificate. A summary of Type B uncertainties is provided in Table 9, while detailed information (including data in 1/3 octave) is provided in Appendix C.

Table 9 - Summary of Type B uncertainties

| Component                   | Typical (dB) | Used (dB) |
|-----------------------------|--------------|-----------|
| Calibration                 | 0.2          | 0.2       |
| Board                       | 0.3          | 0.3       |
| Distance & direction        | 0.1          | 0.1       |
| Air absorption              | 0            | 0         |
| Weather conditions          | 0.5          | 0.5       |
| Wind speed measured         | 0.7          | 0.7       |
| Wind speed derived          | 0.2          | 0.2       |
| Wind speed from power curve | 0.2          | 0.2       |

#### 4.5 Sound Pressure Level Measurements

Sound pressure level measurements are summarized in Table 10. Detailed 1/3 Octave band spectrum data, respective uncertainties, and analysis plots are provided in Appendix C. A copy of the measurement data used for analysis is provided in Appendix E and includes meteorological and turbine operational data.

Table 10 - Summary of Sound Pressure Level Measurements

| Wind Speed (m/s) | Turbine ON       |               | Background       |               | Turbine ON, Background adjusted $L_{eq}$ , (dBA) |
|------------------|------------------|---------------|------------------|---------------|--------------------------------------------------|
|                  | $L_{eq}$ , (dBA) | # of data pts | $L_{eq}$ , (dBA) | # of data pts |                                                  |
| 8.5              | 51.1             | 10            | 40.9             | 41            | 50.7                                             |
| 9                | 51.2             | 10            | 41.7             | 50            | 50.7                                             |
| 9.5              | 52.1             | 10            | 42.2             | 31            | 51.6                                             |
| 10               | 52.7             | 20            | 43.3             | 41            | 52.2                                             |
| 10.5             | 53.0             | 10            | 43.9             | 28            | 52.5                                             |
| 11               | 53.8             | 16            | 45.3             | 36            | 53.2                                             |
| 11.5             | 54.0             | 10            | 46.8             | 31            | 53.2                                             |
| 12               | 55.0             | 35            | 46.4             | 27            | 54.4                                             |
| 12.5             | 54.7             | 21            | 46.9             | 24            | 53.9                                             |
| 13               | 54.7             | 25            | 47.9             | 12            | 53.7                                             |
| 13.5             | 55.1             | 28            | 47.8             | 10            | 54.2                                             |

#### 4.6 Sound Power Level of Turbine

The calculated sound power level of the turbine T35 (as per IEC 61400-11) is summarized in Table 11 (hub height) and Table 12 (10m height). Detailed 1/3 Octave band spectrum data and respective uncertainties are provided in Appendix C.

Table 11 -  $L_{WA, K}$  at each integer wind speed

| Wind Speed (m/s) | Apparent $L_{WA}$ , (dBA) | Uncertainty (dB) |
|------------------|---------------------------|------------------|
| 8.5              | 101.6                     | 1.2              |
| 9                | 101.5                     | 1.0              |
| 9.5              | 102.5                     | 1.0              |
| 10               | 103.1                     | 0.9              |
| 10.5             | 103.3                     | 0.9              |
| 11               | 104.1                     | 0.8              |
| 11.5             | 104.0                     | 1.0              |
| 12               | 105.3                     | 0.9              |
| 12.5             | 104.8                     | 0.9              |
| 13               | 104.6                     | 0.9              |
| 13.5             | 105.1                     | 1.0              |

Table 12 -  $L_{WA, 10m, K}$  at each integer wind speed

| Wind Speed (m/s) | Apparent $L_{WA}$ , (dBA) | Uncertainty (dB) |
|------------------|---------------------------|------------------|
| 6                | 101.6                     | 0.9              |
| 7                | 103.3                     | 0.9              |
| 8                | 104.8                     | 0.8              |
| 9                | 105.0                     | 0.9              |

#### 4.7 Tonality Analysis

The tonality analysis for Turbine T35 is summarized in Table 13, while plots of narrow band spectra at each wind speed are provided in Appendix D. The  $\Delta L_{tn}$  and  $\Delta L_a$  values reported represent the energy average of all data points with an identified tone that falls within the same frequency origin (as specified in Section 9.5.8 in IEC-61400-11).

The narrow band spectra provided in the plots represents an energy average of all data points in the given wind speed bin for both Turbine ON and Background.

Table 13 - Tonality Assessment Summary

| Wind Speed<br>(m/s) | Frequency<br>(Hz) | Tonality,<br>$\Delta L_{tn}$ (dB) | Tonal audibility,<br>$\Delta L_a$ (dB) | FFT's<br>with tones | Total #<br>of FFT's | Presence<br>(%) |
|---------------------|-------------------|-----------------------------------|----------------------------------------|---------------------|---------------------|-----------------|
| 10.5                | 116               | -4.9                              | -2.9                                   | 10                  | 10                  | 100%            |
| 11                  | 116               | -4.4                              | -2.4                                   | 16                  | 16                  | 100%            |
| 11.5                | 116               | -5.0                              | -3.0                                   | 10                  | 10                  | 100%            |

## 5 Closure

Measurements and analysis were carried on Turbine T35 of the Niagara Region Wind Farm as per International IEC 61400-11 (Edition 3.0, released 2012-11), “Wind turbine generator systems – Part 11: Acoustic noise measurement techniques”.

Should you have any questions or comments please do not hesitate to contact the authors of this report.

## 6 References

1. International Standard IEC 61400-11 (Edition 3.0, released 2012-11), “Wind turbine generator systems – Part 11: Acoustic noise measurement techniques”.

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## Appendix A Site Details

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16227.00.T35.RP1

Scale: NTS  
 Drawn by: AM  
 Reviewed by: PA  
 Date: Oct 30, 2017  
 Revision: 1

**Project Name**

Niagara Region Wind Farm - Turbine T35 - IEC61400-11 Edition 3.0

**Figure Title**

Site Photos

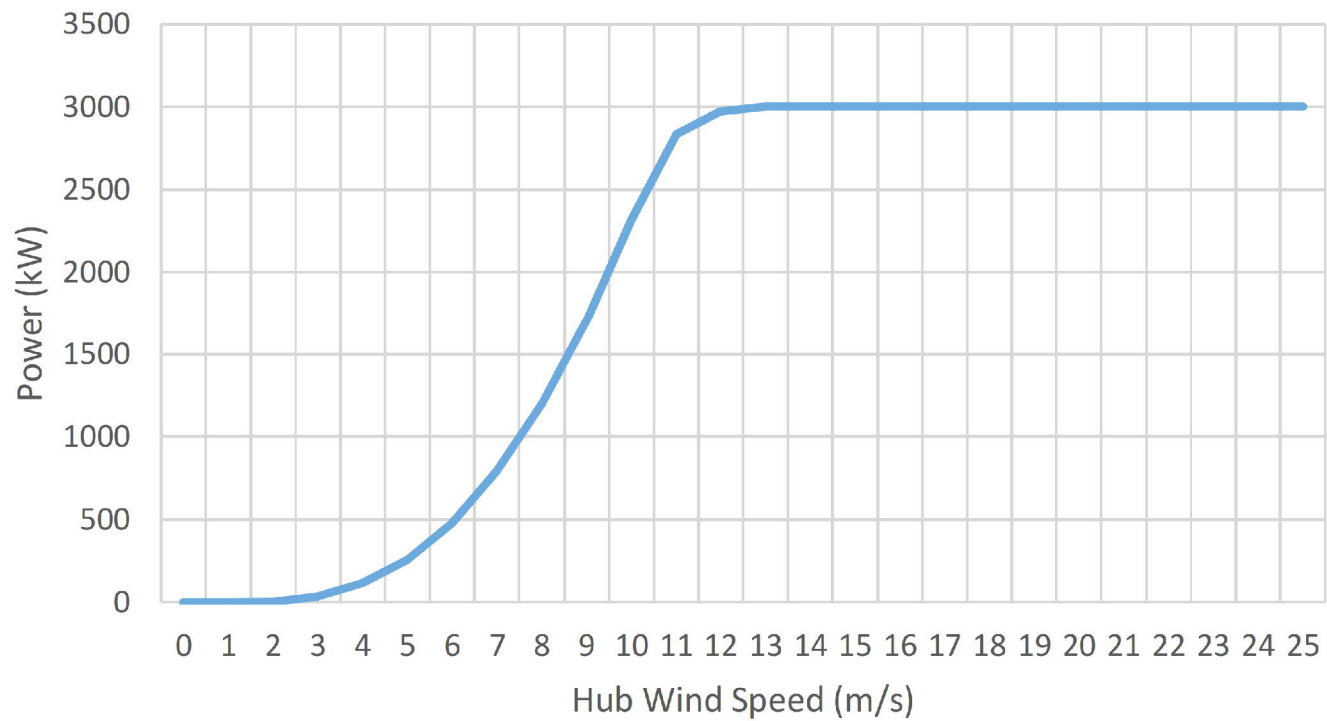
**Figure A.02**

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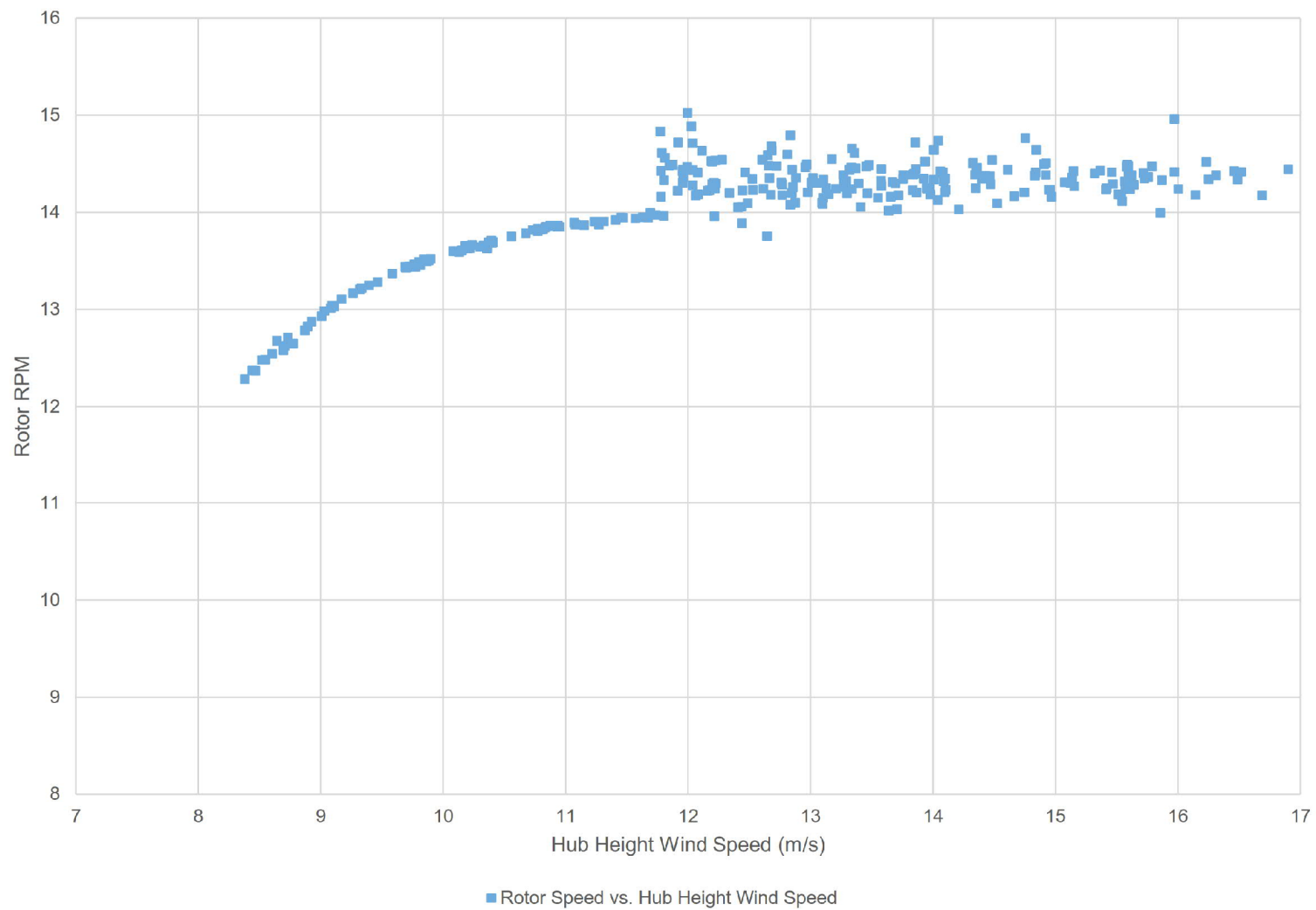
## **Appendix B**

### **Turbine Information**

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| Power Curve          |            |
|----------------------|------------|
| Hub Wind Speed (m/s) | Power [kW] |
| 0                    | 0          |
| 1                    | 0          |
| 2                    | 3          |
| 3                    | 37         |
| 4                    | 118        |
| 5                    | 258        |
| 6                    | 479        |
| 7                    | 790        |
| 8                    | 1200       |
| 9                    | 1710       |
| 10                   | 2320       |
| 11                   | 2830       |
| 12                   | 2975       |
| 13                   | 3000       |
| 14                   | 3000       |
| 15                   | 3000       |
| 16                   | 3000       |
| 17                   | 3000       |
| 18                   | 3000       |
| 19                   | 3000       |
| 20                   | 3000       |
| 21                   | 3000       |
| 22                   | 3000       |
| 23                   | 3000       |
| 24                   | 3000       |
| 25                   | 3000       |



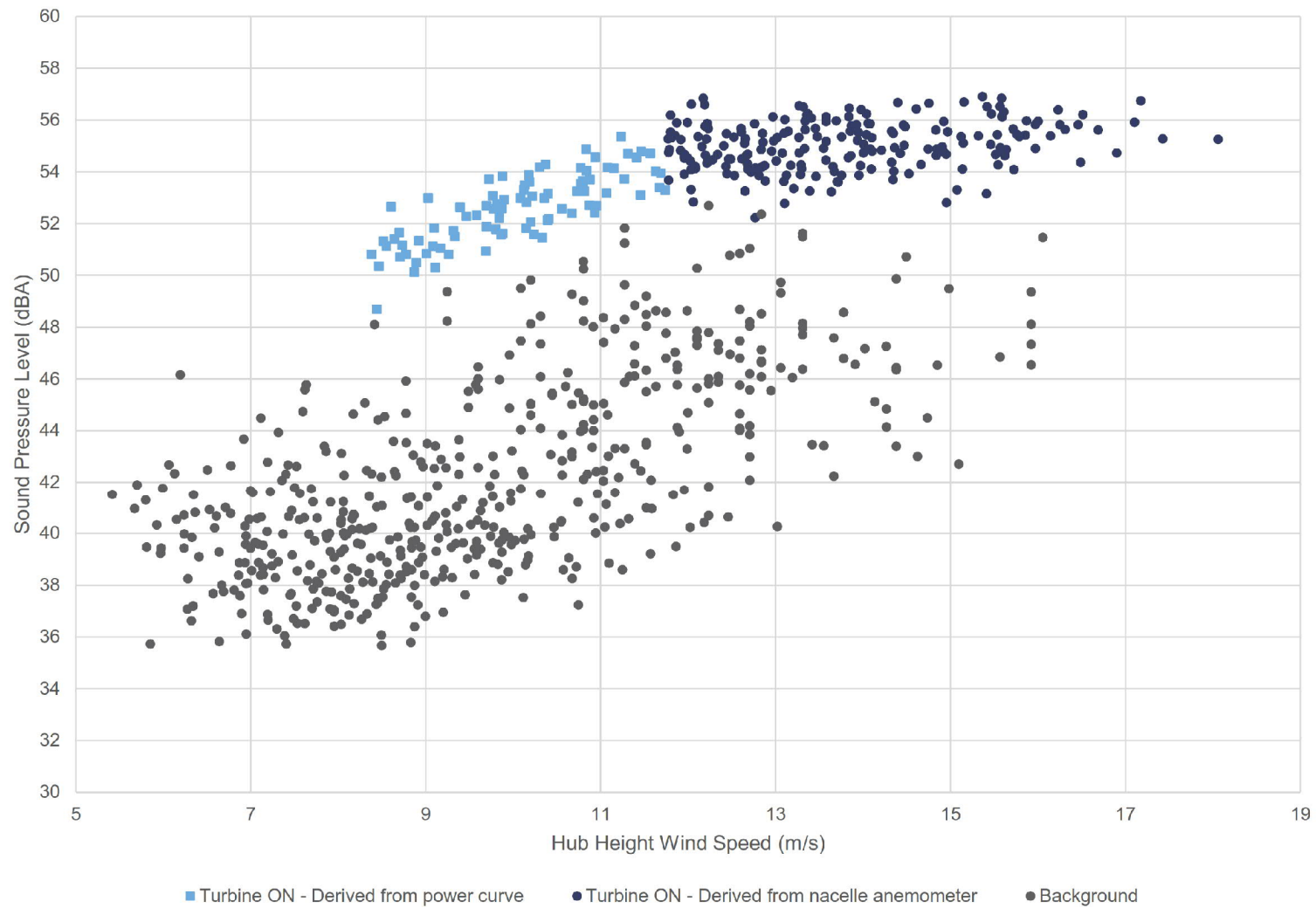
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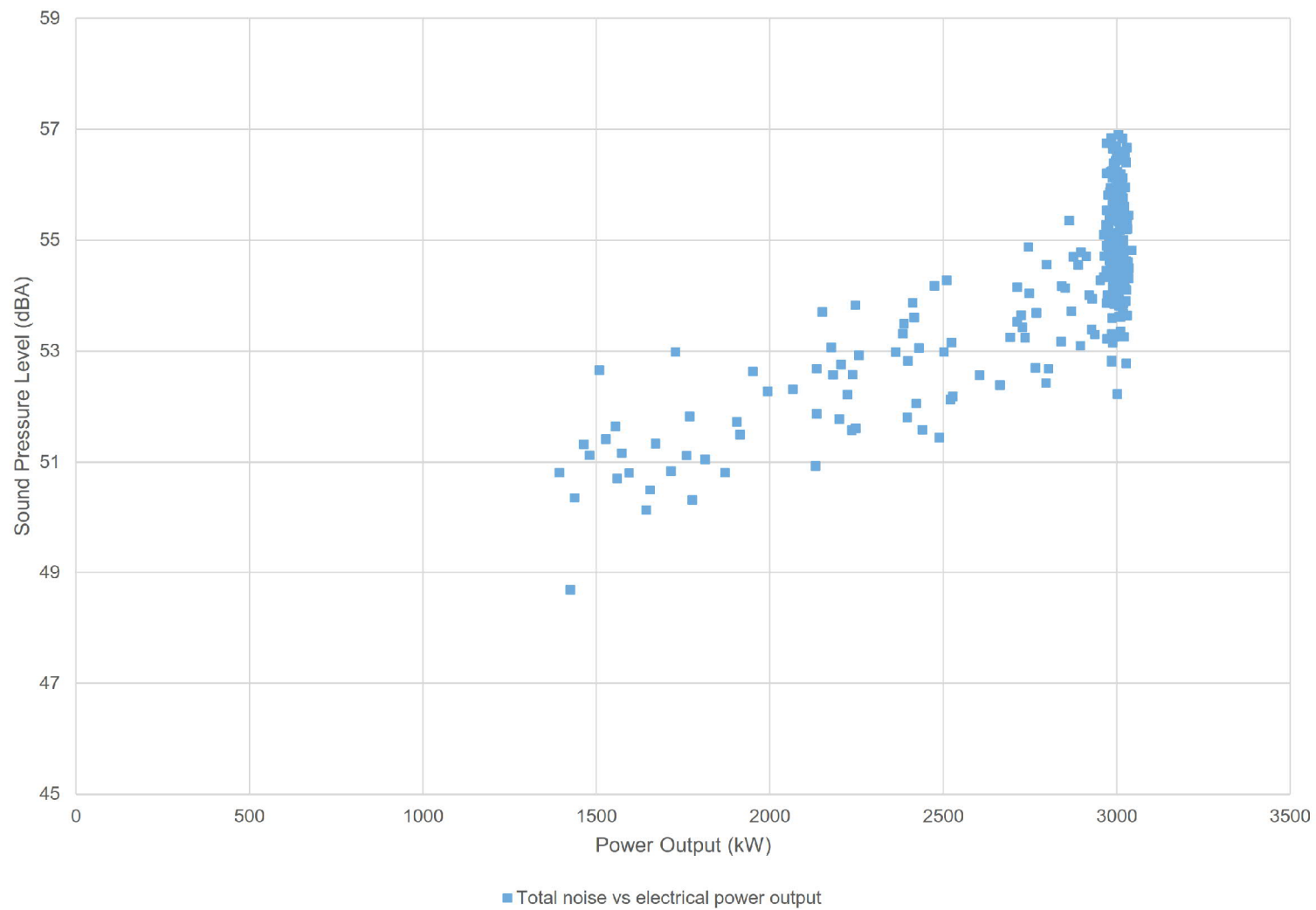
## **Appendix C**

### **Apparent Sound Power Level**

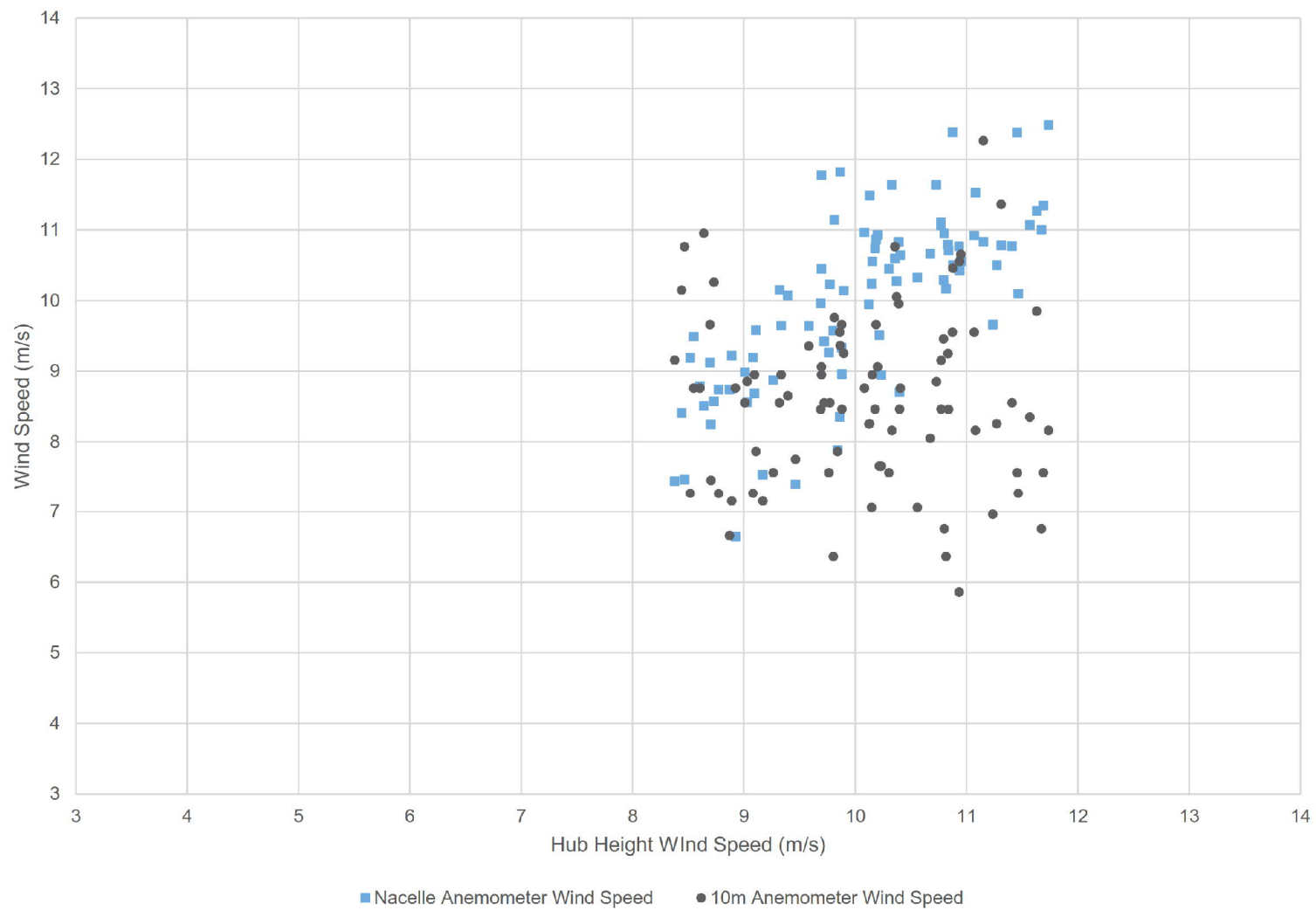
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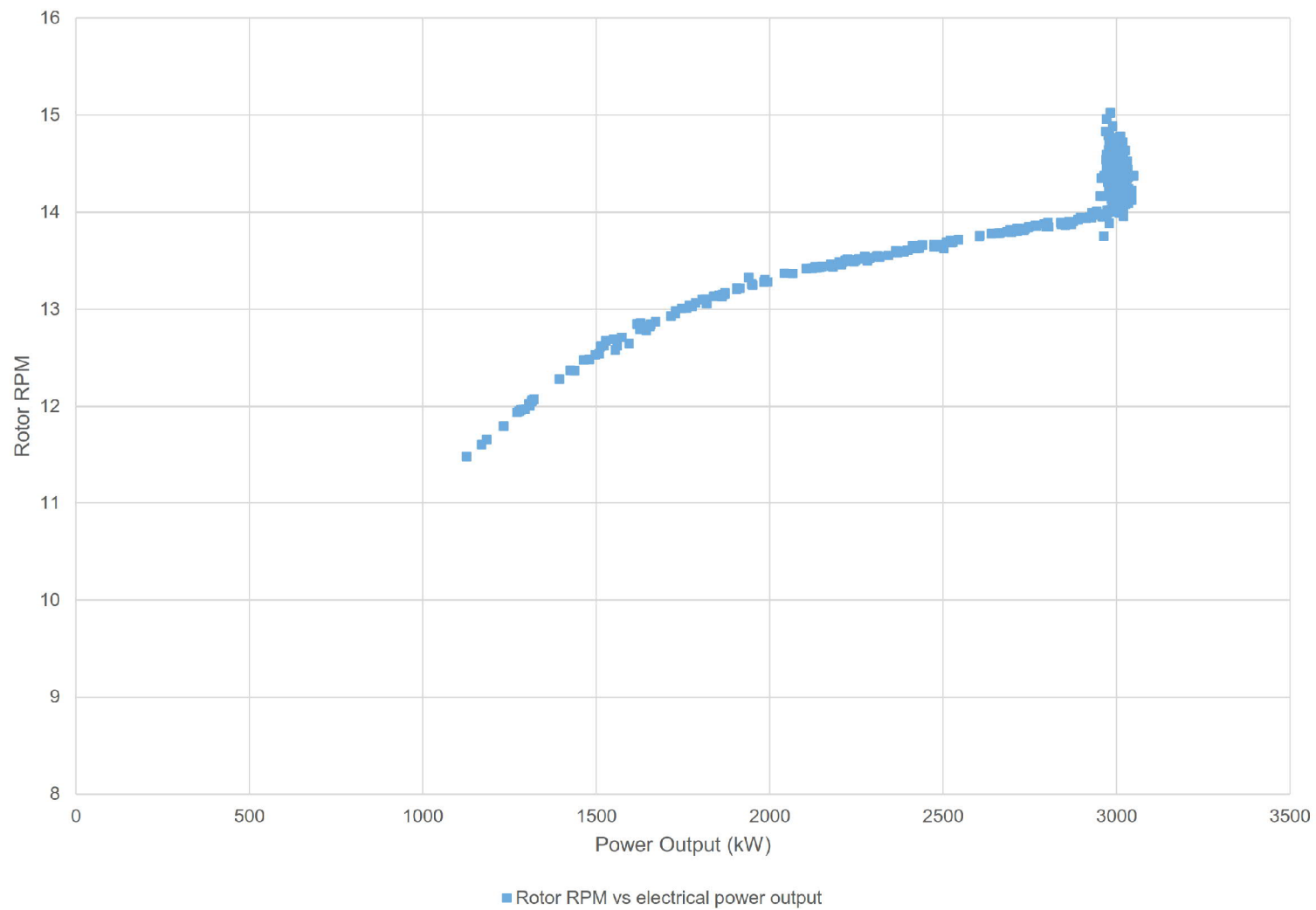


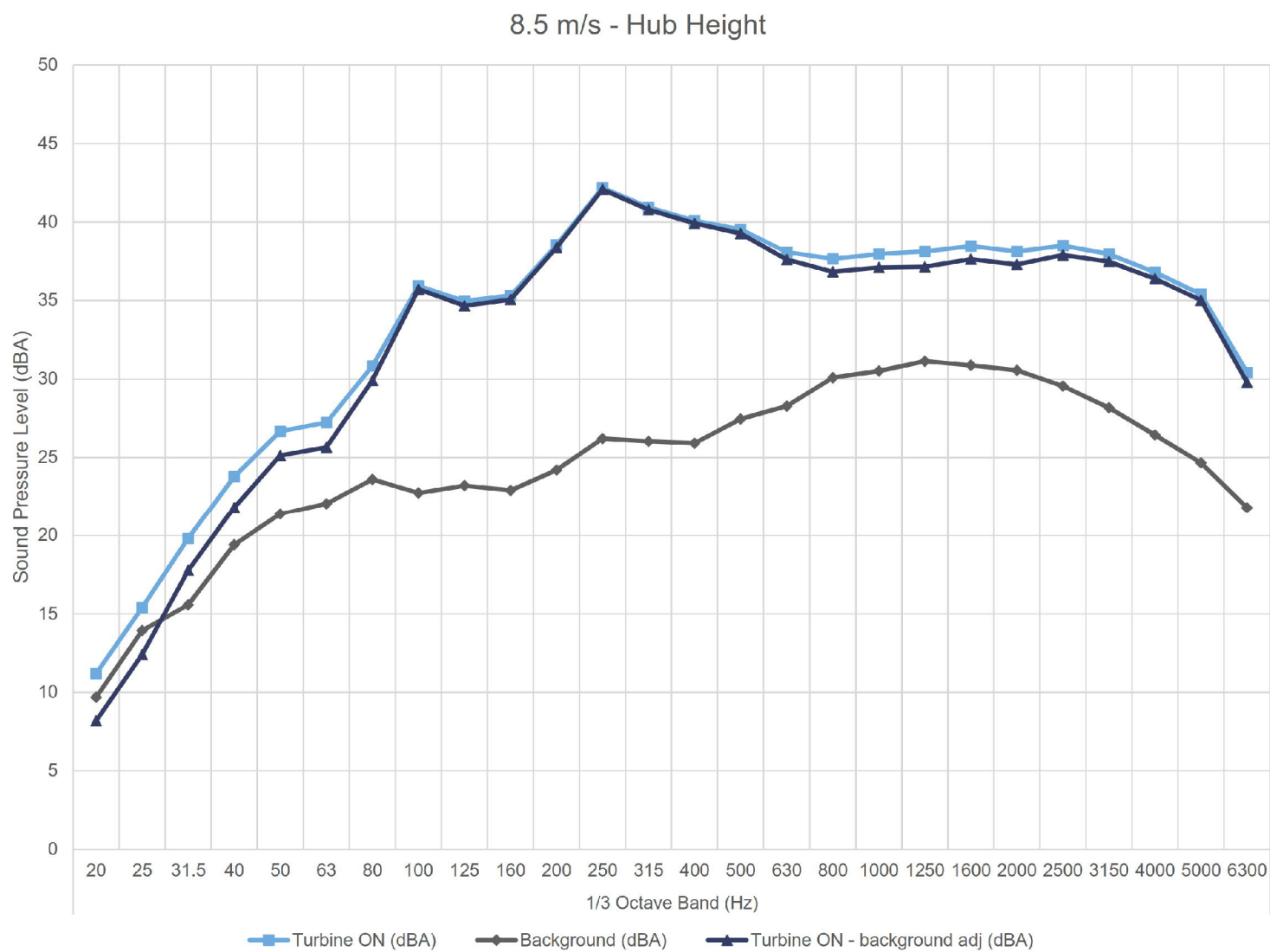


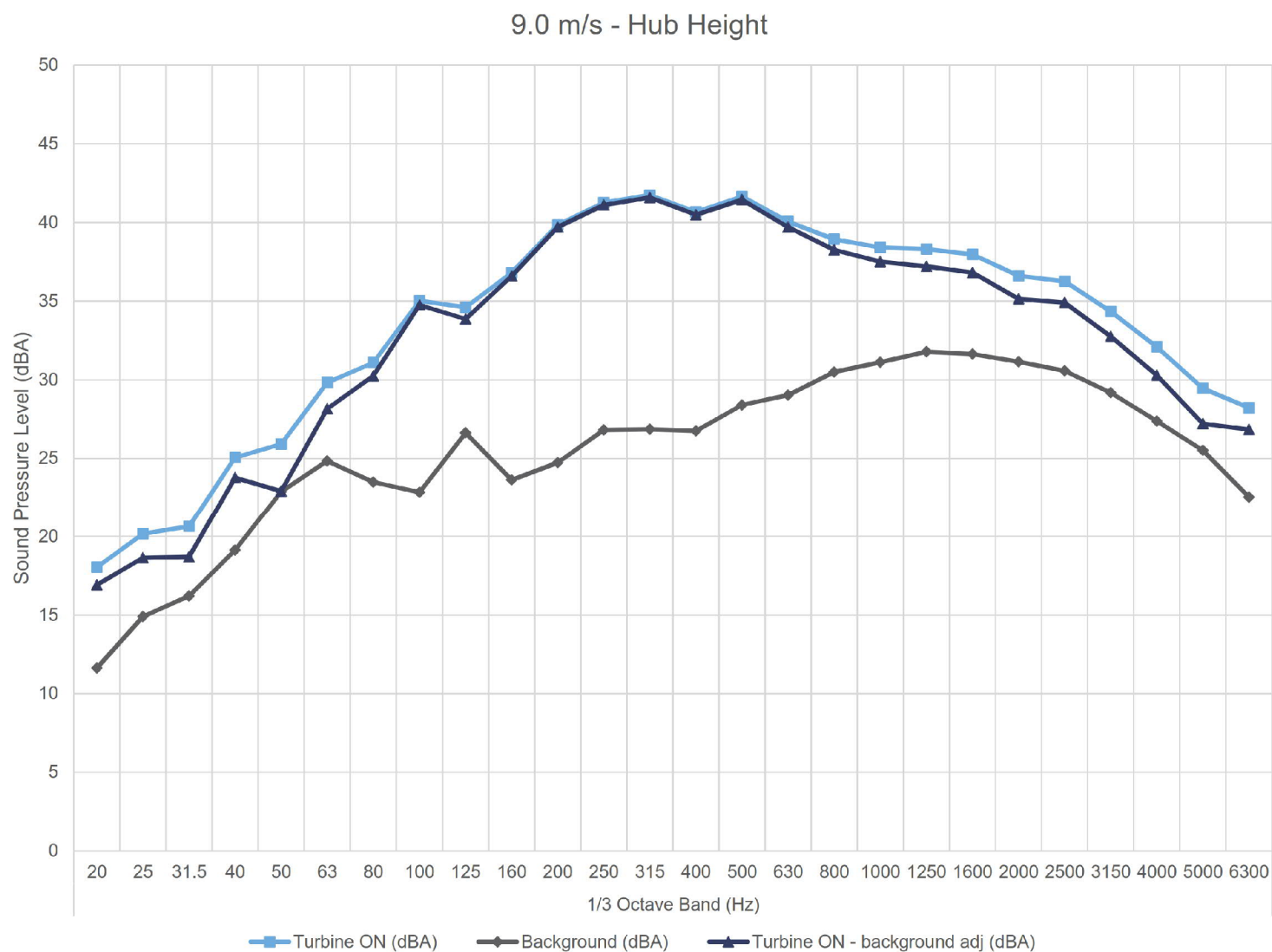


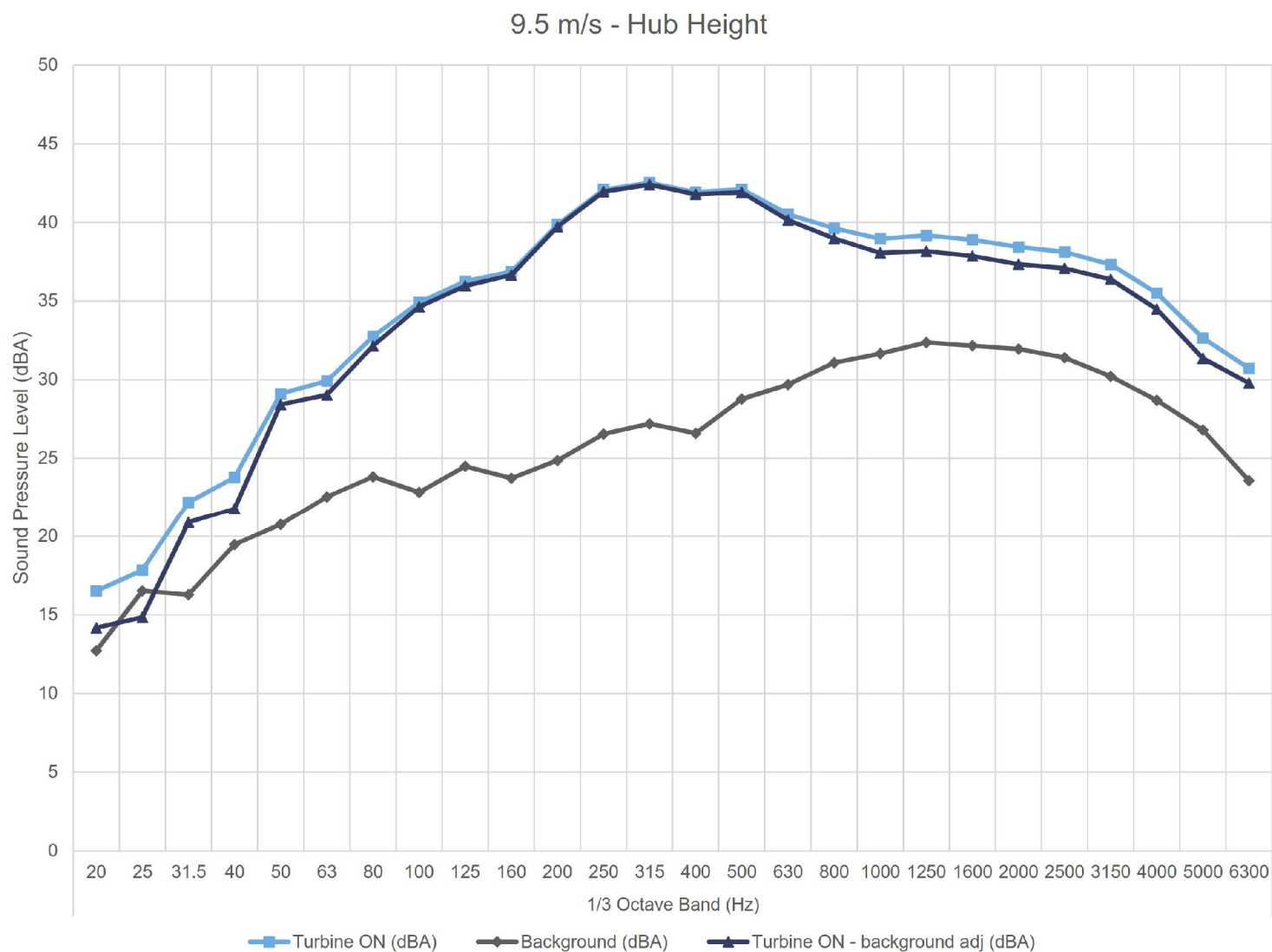


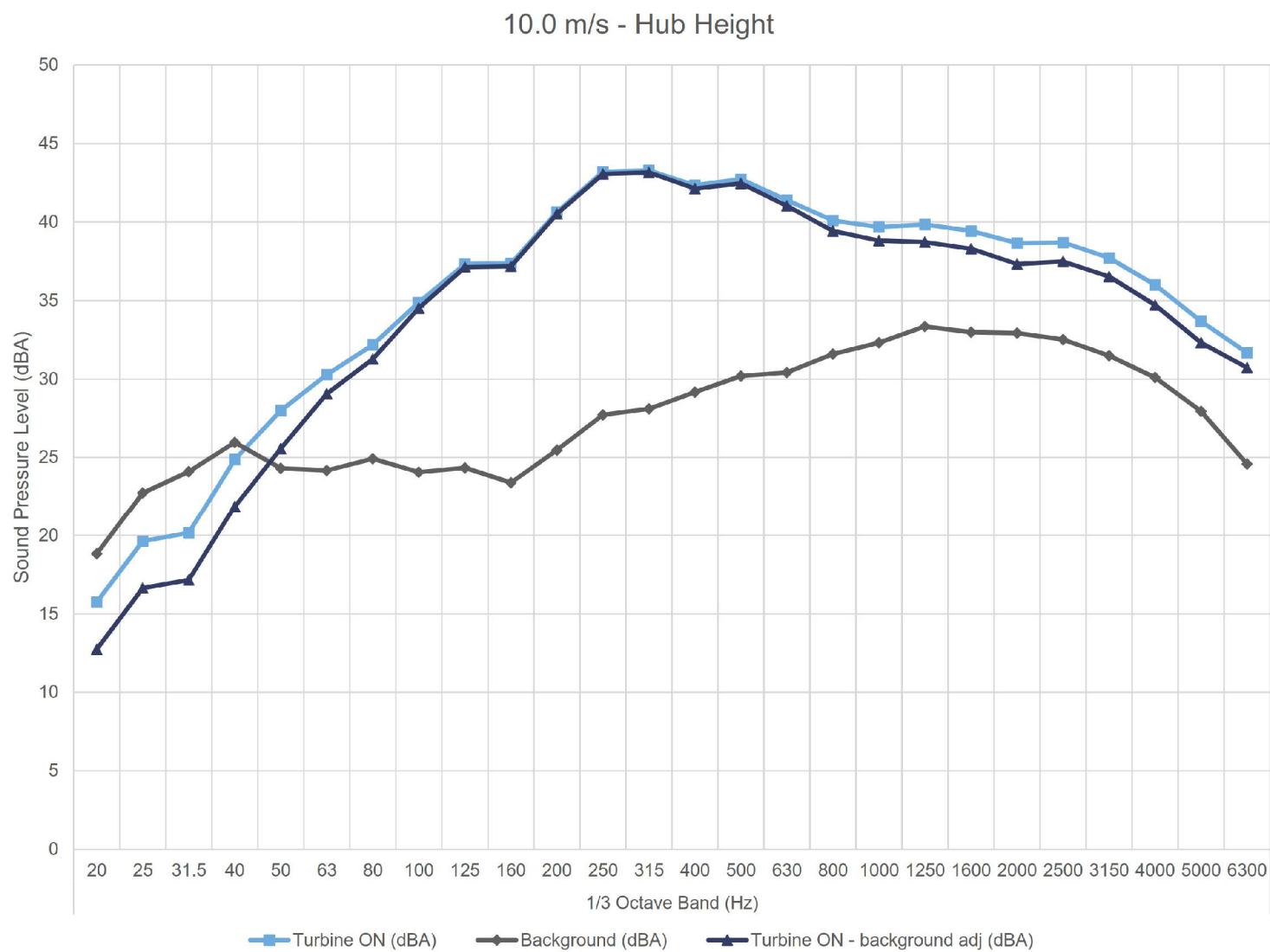




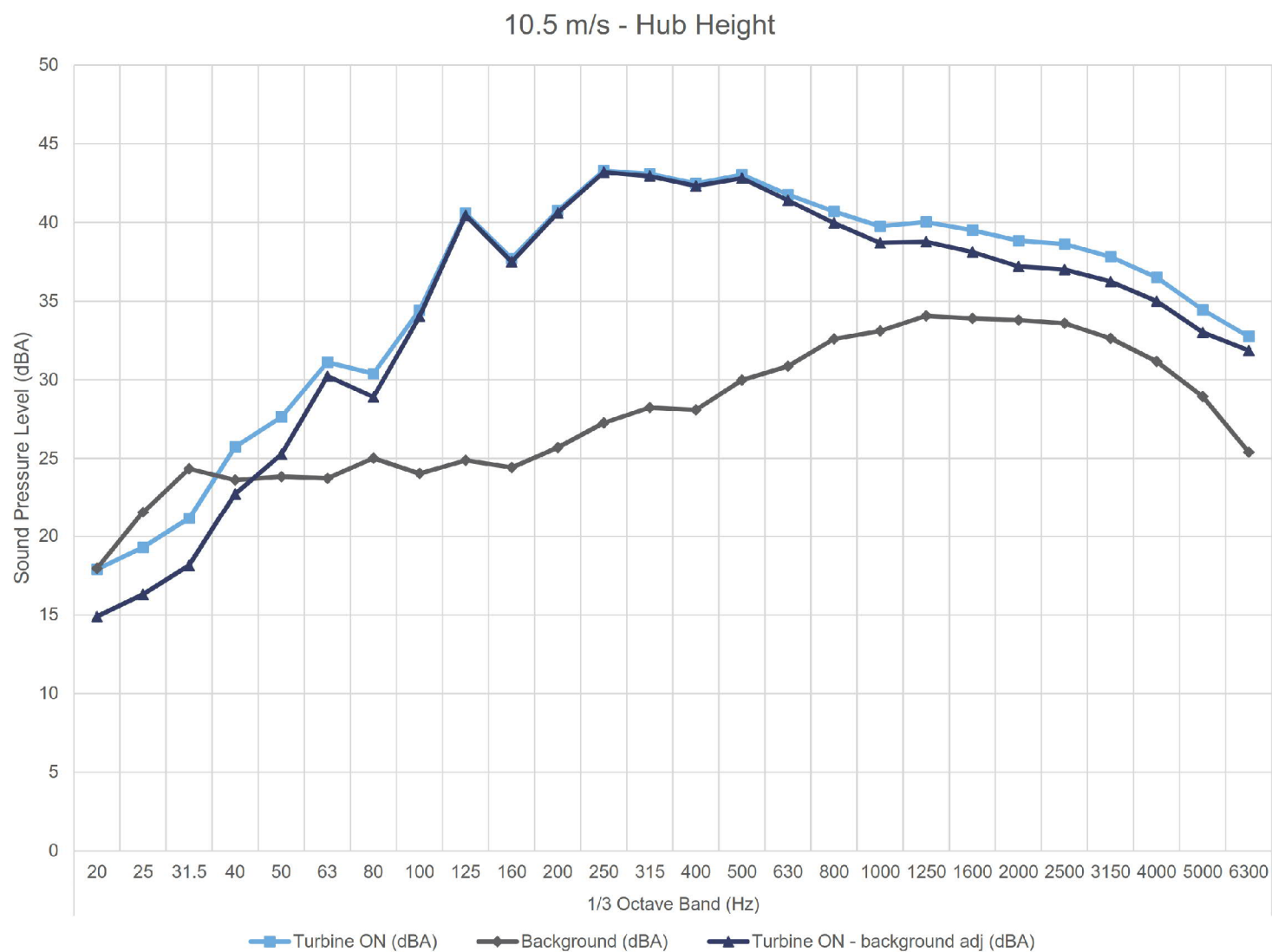


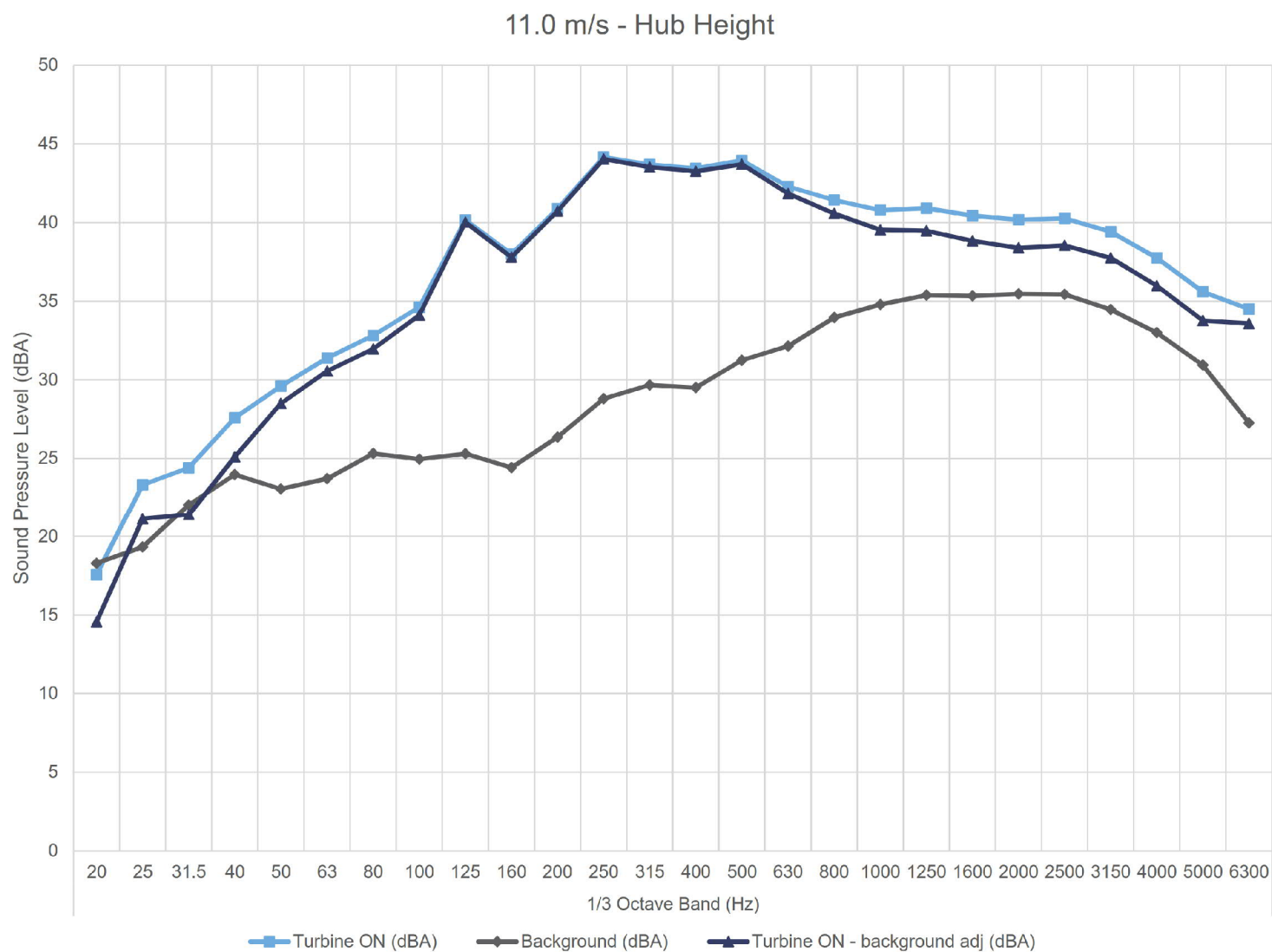


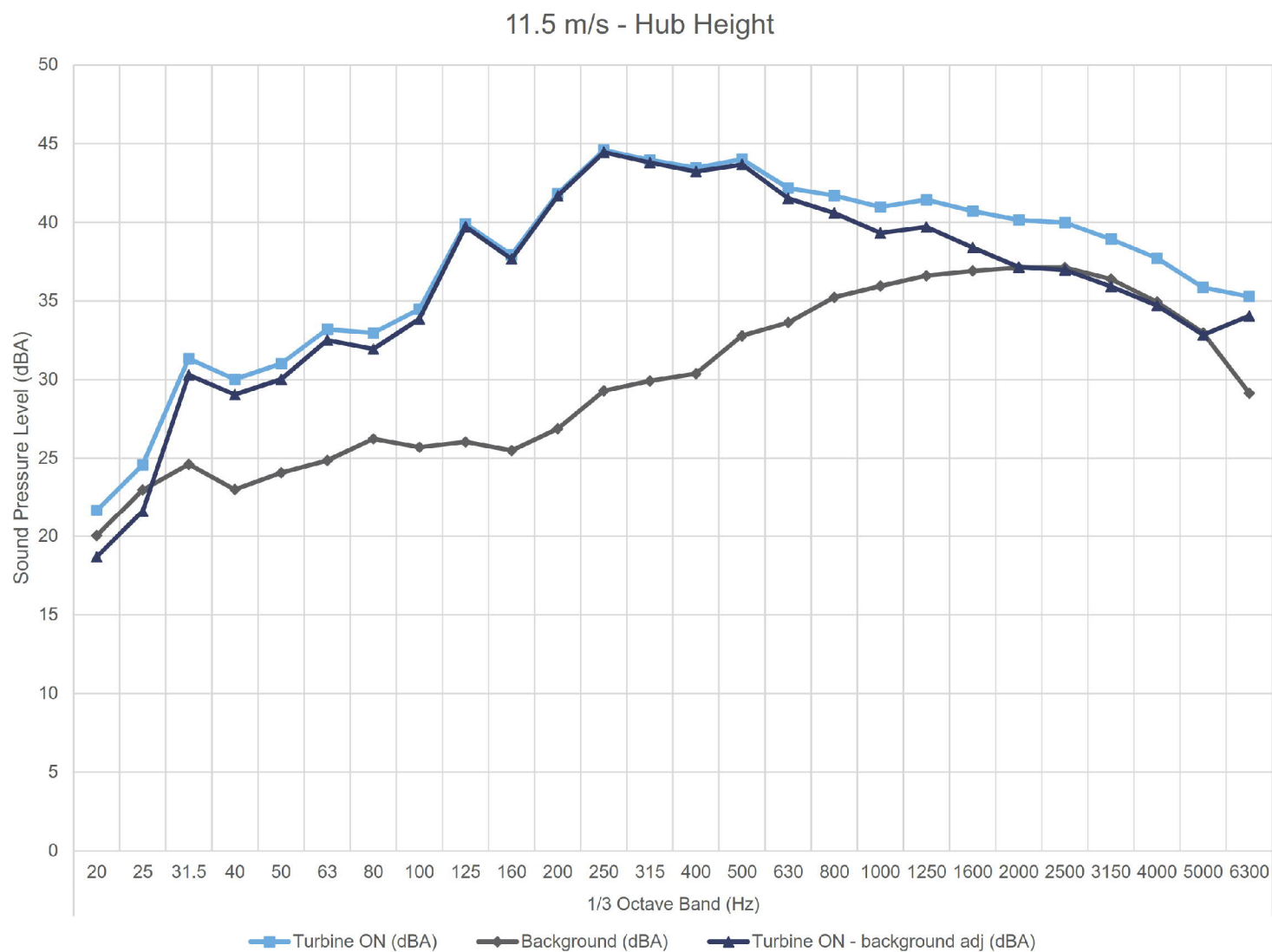


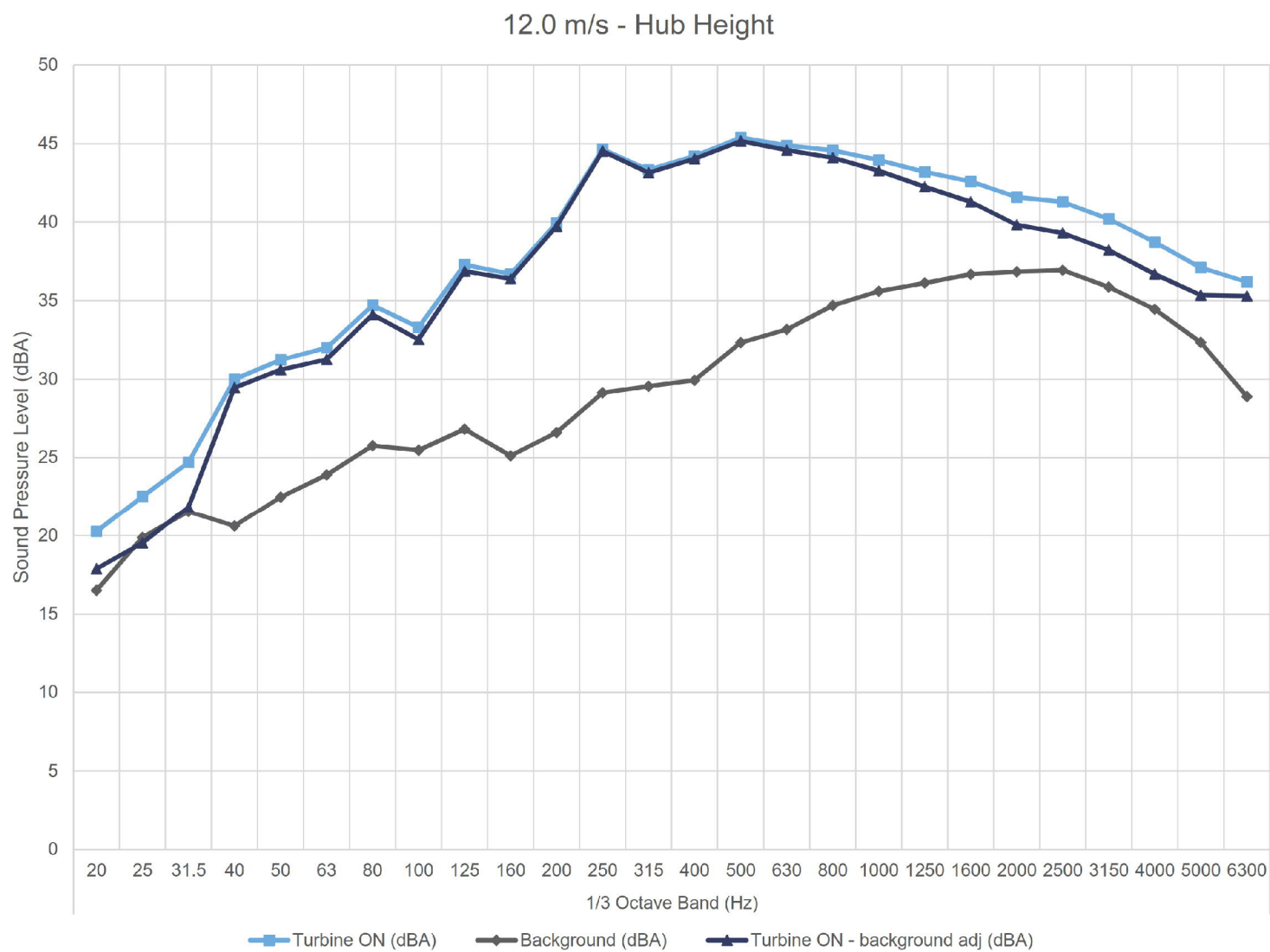


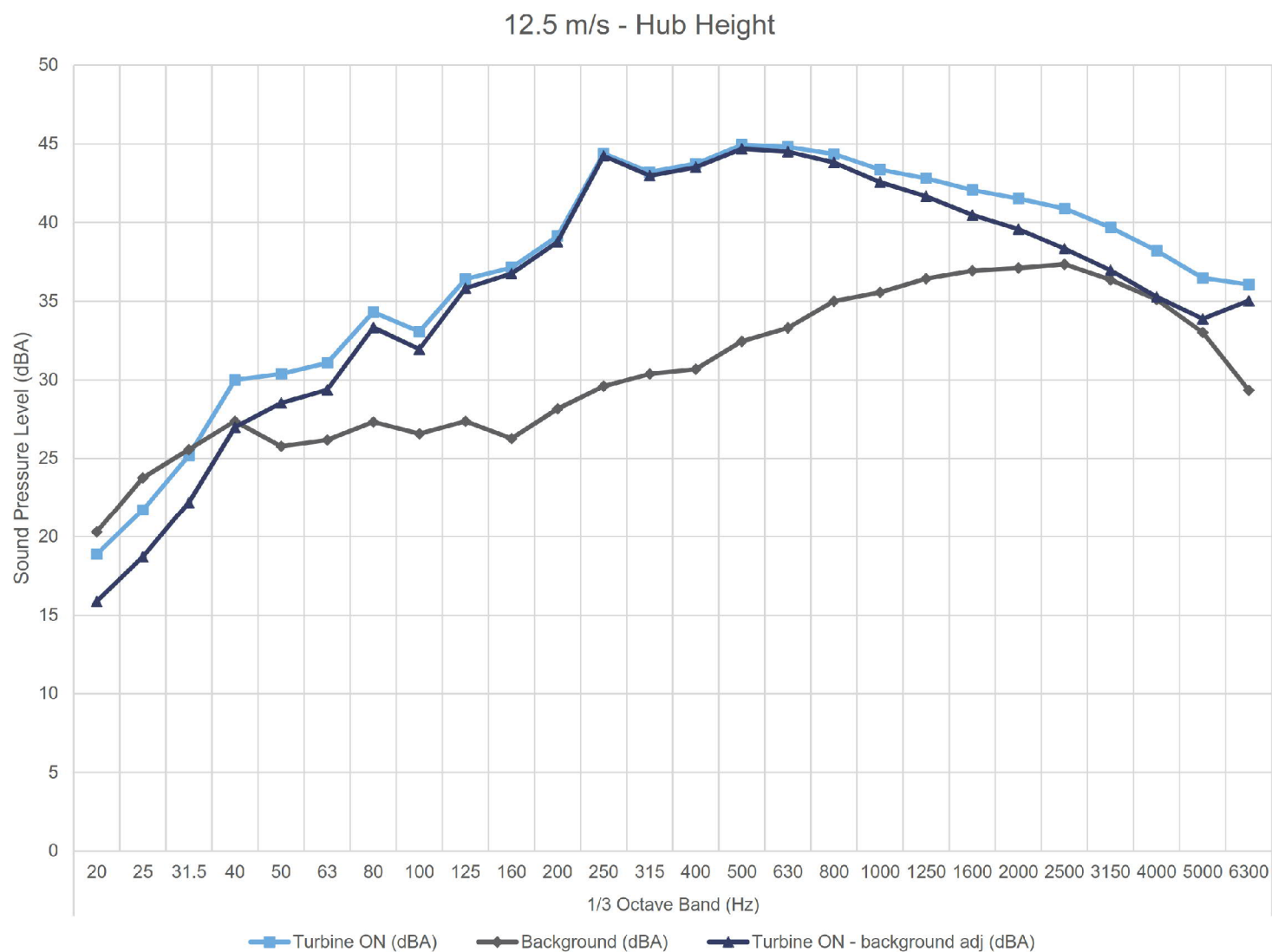


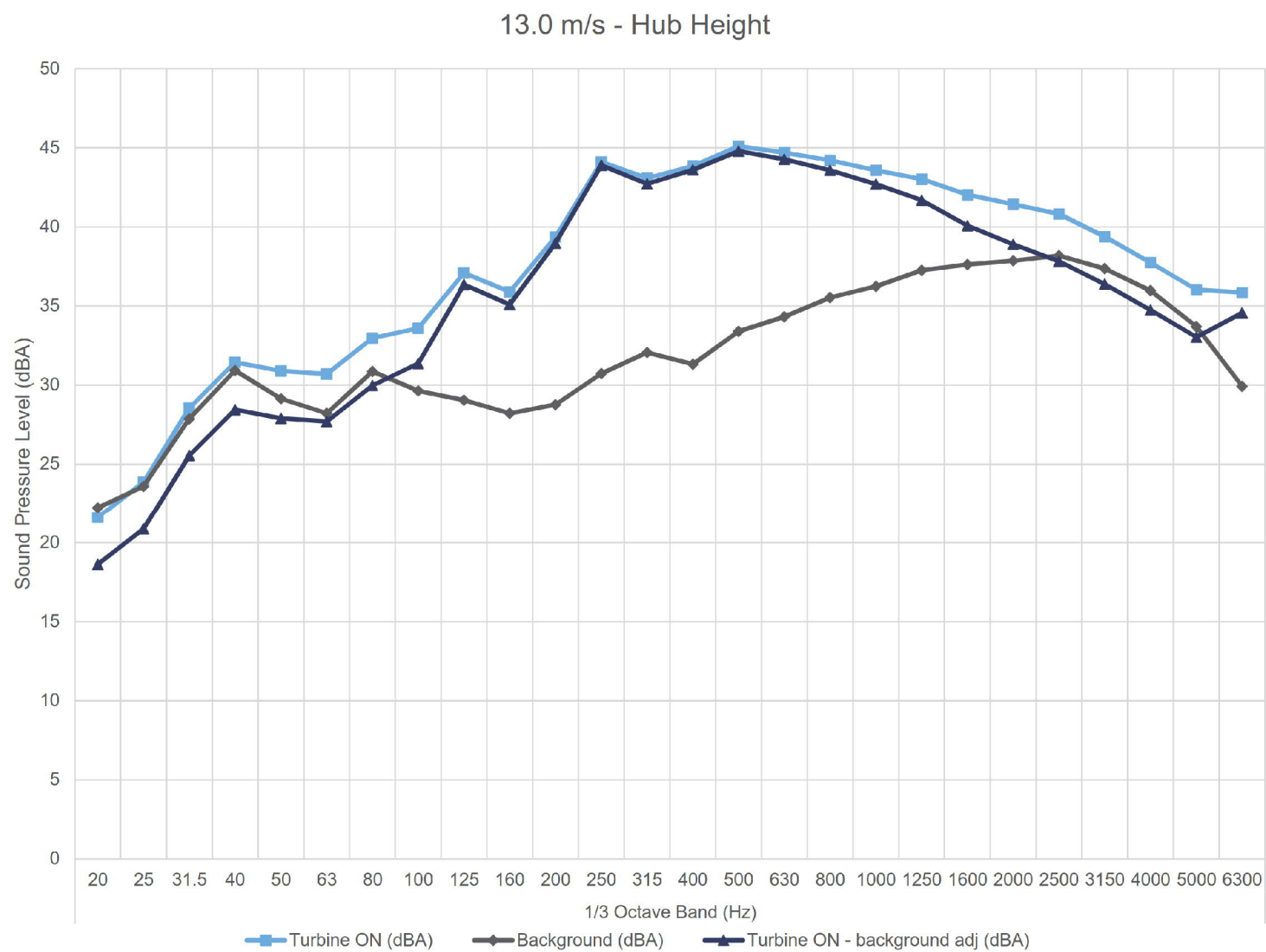


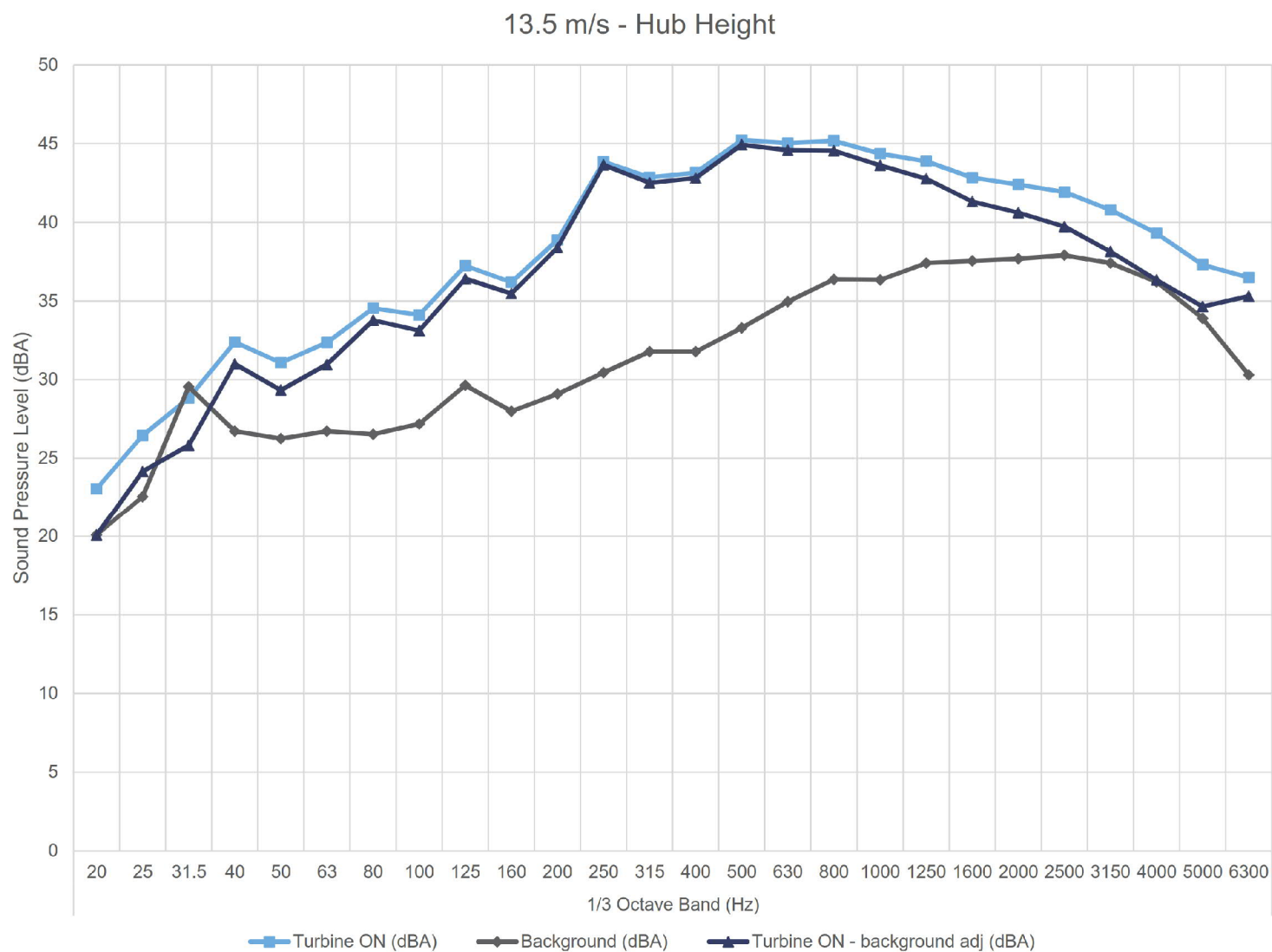














# Table C.01 Detailed apparent sound power level data at hub height

Project: Niagara Wind Farm - Turbine T35 - IEC 61400-11 Measurement

Report ID: 16227.00.T35.RP1

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Created on: 11/3/2017

1/3 Octave values marked with brackets [ ] denote less than 3 dB difference between Turbine ON and Background

Overall levels marked with an asterisk \* denote 3 to 6 dB difference between Turbine ON and Background, while Overall values with less than 3 dB difference between Turbine ON and Background are not reported

| Wind Bin<br>(m/s) | Parameter                         | 1/3 Octave Band (Hz) |        |        |        |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |        |        |        |        | Overall |       |
|-------------------|-----------------------------------|----------------------|--------|--------|--------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|--------|--------|--------|--------|---------|-------|
|                   |                                   | 20                   | 25     | 31.5   | 40     | 50   | 63   | 80   | 100  | 125  | 160  | 200  | 250  | 315  | 400  | 500  | 630  | 800  | 1000 | 1250 | 1600 | 2000 | 2500   | 3150   | 4000   | 5000   | 6300    |       |
| 8.5               | Turbine ON (dBA)                  | 11.2                 | 15.4   | 19.8   | 23.8   | 26.7 | 27.2 | 30.8 | 35.9 | 35.0 | 35.3 | 38.5 | 42.2 | 40.9 | 40.1 | 39.5 | 38.1 | 37.7 | 38.0 | 38.1 | 38.5 | 38.1 | 38.5   | 38.0   | 36.8   | 35.4   | 30.4    | 51.1  |
|                   | Background (dBA)                  | 9.7                  | 13.9   | 15.6   | 19.4   | 21.4 | 22.1 | 23.6 | 22.7 | 23.2 | 22.9 | 24.2 | 26.2 | 26.0 | 25.9 | 27.5 | 28.3 | 30.1 | 30.5 | 31.1 | 30.9 | 30.6 | 29.6   | 28.2   | 26.4   | 24.7   | 21.8    | 40.9  |
|                   | Turbine ON - background adj (dBA) | [8.2]                | [12.4] | 17.8   | 21.8   | 25.1 | 25.7 | 29.9 | 35.7 | 34.7 | 35.1 | 38.4 | 42.1 | 40.8 | 39.9 | 39.3 | 37.6 | 36.8 | 37.1 | 37.2 | 37.6 | 37.3 | 37.9   | 37.5   | 36.4   | 35.0   | 29.8    | 50.7  |
|                   | Signal to noise (dB)              | 1.5                  | 1.5    | 4.2    | 4.4    | 5.3  | 5.2  | 7.2  | 13.2 | 11.8 | 12.4 | 14.3 | 16.0 | 14.9 | 14.2 | 12.1 | 9.8  | 7.6  | 7.5  | 7.0  | 7.6  | 7.6  | 9.0    | 9.8    | 10.4   | 10.7   | 8.6     | 10.2  |
|                   | Uncertainty (dB)                  | 4.6                  | 4.0    | 3.0    | 2.6    | 1.9  | 2.0  | 1.3  | 1.3  | 1.3  | 1.2  | 1.2  | 1.0  | 1.1  | 1.0  | 1.1  | 1.1  | 1.2  | 1.1  | 1.2  | 1.2  | 1.2  | 1.3    | 1.3    | 1.3    | 1.4    | 1.3     | 1.2   |
| 9.0               | PWL (dBA)                         | [59.1]               | [63.3] | 68.6   | 72.7   | 76.0 | 76.5 | 80.8 | 86.6 | 85.5 | 85.9 | 89.3 | 92.9 | 91.7 | 90.8 | 90.1 | 88.5 | 87.7 | 88.0 | 88.0 | 88.5 | 88.2 | 88.8   | 88.4   | 87.3   | 85.9   | 80.7    | 101.6 |
|                   | Turbine ON (dBA)                  | 18.0                 | 20.2   | 20.6   | 25.0   | 25.9 | 29.8 | 31.1 | 35.0 | 34.6 | 36.8 | 39.8 | 41.3 | 41.7 | 40.7 | 41.7 | 40.1 | 38.9 | 38.4 | 38.3 | 38.0 | 36.6 | 36.3   | 34.3   | 32.1   | 29.5   | 28.2    | 51.2  |
|                   | Background (dBA)                  | 11.6                 | 14.9   | 16.2   | 19.1   | 22.9 | 24.8 | 23.5 | 22.8 | 26.6 | 23.6 | 24.7 | 26.8 | 26.9 | 26.8 | 28.4 | 29.0 | 30.5 | 31.1 | 31.8 | 31.6 | 31.1 | 30.6   | 29.2   | 27.4   | 25.5   | 22.5    | 41.7  |
|                   | Turbine ON - background adj (dBA) | 16.9                 | 18.6   | 18.7   | 23.8   | 22.9 | 28.2 | 30.2 | 34.8 | 33.9 | 36.6 | 39.7 | 41.1 | 41.6 | 40.5 | 41.4 | 39.7 | 38.3 | 37.5 | 37.2 | 36.8 | 35.1 | 34.9   | 32.7   | 30.3   | 27.2   | 26.8    | 50.7  |
|                   | Signal to noise (dB)              | 6.4                  | 5.3    | 4.4    | 5.9    | 3.0  | 5.0  | 7.6  | 12.2 | 8.0  | 13.2 | 15.1 | 14.5 | 14.9 | 13.9 | 13.3 | 11.0 | 8.4  | 7.3  | 6.5  | 6.3  | 5.5  | 5.7    | 5.2    | 4.7    | 3.9    | 5.7     | 9.5   |
| 9.5               | Uncertainty (dB)                  | 4.1                  | 3.2    | 2.2    | 1.8    | 2.1  | 1.3  | 1.2  | 1.1  | 1.3  | 1.0  | 0.9  | 0.8  | 0.8  | 0.9  | 0.9  | 1.0  | 1.0  | 1.0  | 1.0  | 1.0  | 1.1  | 1.3    | 1.4    | 1.4    | 1.7    | 1.2     | 1.0   |
|                   | PWL (dBA)                         | 67.8                 | 69.5   | 69.6   | 74.6   | 73.8 | 79.0 | 81.1 | 85.6 | 84.7 | 87.5 | 90.6 | 92.0 | 92.5 | 91.4 | 92.3 | 90.6 | 89.1 | 88.4 | 88.1 | 87.7 | 86.0 | 85.8   | 83.6   | 81.2   | 78.1   | 77.7    | 101.5 |
|                   | Turbine ON (dBA)                  | 16.5                 | 17.8   | 22.2   | 23.8   | 29.1 | 29.9 | 32.7 | 34.9 | 36.3 | 36.9 | 39.9 | 42.1 | 42.5 | 41.9 | 42.1 | 40.5 | 39.6 | 39.0 | 39.2 | 38.9 | 38.4 | 38.1   | 37.3   | 35.5   | 32.7   | 30.7    | 52.1  |
|                   | Background (dBA)                  | 12.7                 | 16.5   | 16.3   | 19.5   | 20.8 | 22.5 | 23.8 | 22.8 | 24.5 | 23.7 | 24.9 | 26.5 | 27.2 | 26.6 | 28.8 | 29.7 | 31.1 | 31.7 | 32.4 | 32.2 | 32.0 | 31.4   | 30.2   | 28.7   | 26.8   | 23.6    | 42.2  |
|                   | Turbine ON - background adj (dBA) | 14.2                 | [14.8] | 20.9   | 21.8   | 28.4 | 29.0 | 32.2 | 34.6 | 36.0 | 36.7 | 39.7 | 42.0 | 42.4 | 41.8 | 41.9 | 40.1 | 39.0 | 38.1 | 38.2 | 37.9 | 37.3 | 37.1   | 36.4   | 34.5   | 31.4   | 29.8    | 51.6  |
| 10.0              | Signal to noise (dB)              | 3.8                  | 1.3    | 5.9    | 4.3    | 8.4  | 7.4  | 8.9  | 12.1 | 11.8 | 13.1 | 15.0 | 15.5 | 15.3 | 15.3 | 13.3 | 10.8 | 8.5  | 7.3  | 6.8  | 6.7  | 6.5  | 6.7    | 7.1    | 6.8    | 5.9    | 7.1     | 9.9   |
|                   | Uncertainty (dB)                  | 3.9                  | 4.4    | 2.3    | 1.8    | 1.5  | 1.2  | 1.4  | 1.0  | 1.1  | 0.9  | 0.8  | 0.8  | 0.8  | 0.9  | 0.9  | 1.0  | 1.0  | 1.0  | 1.0  | 1.0  | 1.1  | 1.3    | 1.5    | 1.6    | 1.5    | 1.1     | 1.0   |
|                   | PWL (dBA)                         | 65.1                 | [65.7] | 71.8   | 72.7   | 79.3 | 79.9 | 83.0 | 85.5 | 86.8 | 87.5 | 90.6 | 92.8 | 93.3 | 92.7 | 92.8 | 91.0 | 89.9 | 88.9 | 89.0 | 88.7 | 88.2 | 88.0   | 87.3   | 85.4   | 82.2   | 80.7    | 102.5 |
|                   | Turbine ON (dBA)                  | 15.7                 | 19.6   | 20.2   | 24.9   | 28.0 | 30.3 | 32.2 | 34.9 | 37.3 | 37.4 | 40.7 | 43.2 | 43.3 | 42.3 | 42.7 | 41.4 | 40.1 | 39.7 | 39.8 | 39.4 | 38.7 | 38.7   | 37.7   | 36.0   | 33.7   | 31.7    | 52.7  |
|                   | Background (dBA)                  | 18.8                 | 22.8   | 24.1   | 26.0   | 24.3 | 24.2 | 24.9 | 24.1 | 24.3 | 23.4 | 25.5 | 27.7 | 28.1 | 29.2 | 30.2 | 30.4 | 31.6 | 32.3 | 33.3 | 33.0 | 32.9 | 32.5   | 31.5   | 30.1   | 28.0   | 24.6    | 43.3  |
| 10.5              | Turbine ON - background adj (dBA) | [12.7]               | [16.6] | [17.2] | [21.9] | 25.6 | 29.1 | 31.3 | 34.5 | 37.1 | 37.2 | 40.5 | 43.1 | 43.2 | 42.1 | 42.5 | 41.0 | 39.4 | 38.8 | 38.7 | 38.3 | 37.3 | 37.5   | 36.5   | 34.7   | 32.3   | 30.7    | 52.2  |
|                   | Signal to noise (dB)              | -3.1                 | -3.1   | -3.9   | -1.1   | 3.7  | 6.1  | 7.3  | 10.8 | 13.0 | 14.0 | 15.2 | 15.5 | 15.2 | 13.2 | 12.5 | 11.0 | 8.5  | 7.4  | 6.5  | 6.4  | 5.7  | 6.2    | 6.2    | 5.9    | 5.7    | 7.1     | 9.4   |
|                   | Uncertainty (dB)                  | 4.4                  | 3.8    | 3.1    | 2.7    | 2.0  | 1.3  | 1.2  | 1.0  | 0.9  | 0.9  | 0.8  | 0.8  | 0.8  | 0.8  | 0.8  | 0.8  | 0.9  | 0.9  | 1.0  | 1.0  | 1.1  | 1.3    | 1.3    | 1.4    | 1.4    | 1.1     | 0.9   |
|                   | PWL (dBA)                         | [63.6]               | [67.5] | [68]   | [72.8] | 76.4 | 79.9 | 82.2 | 85.4 | 88.0 | 88.1 | 91.4 | 93.9 | 94.0 | 93.0 | 93.3 | 91.9 | 90.3 | 89.7 | 89.6 | 89.2 | 88.2 | 88.4   | 87.4   | 85.6   | 83.2   | 81.6    | 103.1 |
|                   | Turbine ON (dBA)                  | 17.9                 | 19.3   | 21.2   | 25.7   | 27.6 | 31.1 | 30.4 | 34.4 | 40.6 | 37.7 | 40.7 | 43.3 | 43.1 | 42.5 | 43.0 | 41.8 | 40.7 | 39.8 | 40.0 | 39.5 | 38.8 | 38.6   | 37.8   | 36.5   | 34.4   | 32.7    | 53.0  |
| 11.0              | Background (dBA)                  | 17.9                 | 21.5   | 24.3   | 23.6   | 23.8 | 23.7 | 25.0 | 24.0 | 24.9 | 24.4 | 25.7 | 27.3 | 28.2 | 28.1 | 30.0 | 30.9 | 32.6 | 33.1 | 34.1 | 33.9 | 33.8 | 33.6   | 32.6   | 31.2   | 28.9   | 25.4    | 43.9  |
|                   | Turbine ON - background adj (dBA) | [14.9]               | [16.3] | [18.2] | [22.7] | 25.3 | 30.2 | 28.9 | 34.0 | 40.5 | 37.5 | 40.6 | 43.2 | 42.9 | 42.3 | 42.8 | 41.4 | 40.0 | 38.7 | 38.8 | 38.1 | 37.2 | 37.0   | 36.3   | 35.0   | 33.0   | 31.9    | 52.5  |
|                   | Signal to noise (dB)              | -0.1                 | -2.2   | -3.2   | 2.1    | 3.8  | 7.4  | 5.4  | 10.4 | 15.7 | 13.3 | 15.1 | 16.0 | 14.9 | 14.4 | 13.1 | 10.9 | 8.1  | 6.7  | 6.0  | 5.6  | 5.1  | 5.0    | 5.2    | 5.3    | 5.5    | 7.3     | 9.1   |
|                   | Uncertainty (dB)                  | 5.1                  | 3.9    | 3.3    | 2.5    | 2.0  | 1.8  | 1.4  | 0.9  | 1.0  | 1.0  | 0.7  | 0.7  | 0.8  | 0.8  | 0.9  | 0.9  | 0.9  | 0.9  | 1.0  | 1.0  | 1.1  | 1.3    | 1.4    | 1.5    | 1.5    | 1.1     | 0.9   |
|                   | PWL (dBA)                         | [65.8]               | [67.2] | [69]   | [73.6] | 76.1 | 81.1 | 79.8 | 84.9 | 91.3 | 88.4 | 91.5 | 94.1 | 93.8 | 93.2 | 93.7 | 92.3 | 90.9 | 89.6 | 89.6 | 89.0 | 88.1 | 87.9   | 87.1   | 85.9   | 83.9   | 82.7    | 103.3 |
| 11.5              | Turbine ON (dBA)                  | 17.6                 | 23.3   | 24.4   | 27.6   | 29.6 | 31.4 | 32.8 | 34.6 | 40.2 | 38.0 | 40.9 | 44.2 | 43.7 | 43.4 | 43.9 | 42.3 | 41.4 | 40.8 | 40.9 | 40.4 | 40.2 | 40.3   | 39.4   | 37.7   | 35.6   | 34.5    | 53.8  |
|                   | Background (dBA)                  | 18.3                 | 19.3   | 22.0   | 24.0   | 23.1 | 23.7 | 25.3 | 25.0 | 25.3 | 24.4 | 26.4 | 28.8 | 29.7 | 29.5 | 31.2 | 32.1 | 34.0 | 34.8 | 35.4 | 35.3 | 35.5 | 35.4   | 34.5   | 33.0   | 30.9   | 27.3    | 45.3  |
|                   | Turbine ON - background adj (dBA) | [14.6]               | 21.1   | [21.4] | 25.1   | 28.5 | 30.6 | 32.0 | 34.1 | 40.0 | 37.8 | 40.7 | 44.0 | 43.5 | 43.3 | 43.7 | 41.8 | 40.6 | 39.5 | 39.5 | 38.8 | 38.4 | 38.5   | 37.7   | 36.0   | 33.8   | 33.6    | 53.2  |
|                   | Signal to noise (dB)              | -0.7                 | 4.0    | 2.4    | 3.6    | 6.5  | 7.7  | 7.5  | 9.7  | 14.9 | 13.6 | 14.5 | 15.4 | 14.0 | 13.9 | 12.7 | 10.1 | 7.5  | 6.0  | 5.5  | 5.1  | 4.7  | 4.8    | 5.0    | 4.8    | 4.6    | 7.2     | 8.5   |
|                   | Uncertainty (dB)                  | 3.6                  | 3.0    | 3.0    | 2.1    | 1.4  | 1.2  | 1.2  | 0.9  | 0.8  | 0.8  | 0.7  | 0.7  | 0.7  | 0.7  | 0.7  | 0.7  | 0.8  | 0.9  | 1.0  | 1.0  | 1.1  | 1.3    | 1.3    | 1.3    | 1.3    | 0.9     | 0.8   |
| 11.5              | PWL (dBA)                         | [65.4]               | 72.0   | [72.3] | 76.0   | 79.4 | 81.4 | 82.8 | 85.0 | 90.9 | 88.7 | 91.6 | 94.9 | 94.4 | 94.1 | 94.6 | 92.7 | 91.5 | 90.4 | 90.4 | 89.7 | 89.3 | 89.4   | 88.6   | 86.9   | 84.6   | 84.5    | 104.1 |
|                   | Turbine ON (dBA)                  | 21.7                 | 24.6   | 31.3   | 30.0   | 31.0 | 33.2 | 33.0 | 34.5 | 39.9 | 37.9 | 41.8 | 44.6 | 44.0 | 43.5 | 44.0 | 42.2 | 41.7 | 41.0 | 41.4 | 40.7 | 40.2 | 40.0   | 38.9   | 37.7   | 35.9   | 35.3    | 54.0  |
|                   | Background (dBA)                  | 20.0                 | 23.0   | 24.6   | 23.0   | 24.1 | 24.9 | 26.2 | 25.7 | 26.0 | 25.5 | 26.9 | 29.3 | 29.9 | 30.4 | 32.8 | 33.6 | 35.2 | 36.0 | 36.6 | 36.9 | 37.1 | 37.1   | 36.4   | 34.9   | 33.0   | 29.1    | 46.8  |
|                   | Turbine ON - background adj (dBA) | [18.7]               | [21.6] | 30.3   | 29.1   | 30.0 | 32.5 | 31.9 | 33.9 | 39.7 | 37.7 | 41.7 | 44.5 | 43.8 | 43.2 | 43.7 | 41.5 | 40.6 | 39.3 | 39.7 | 38.4 | 37.2 | [37]   | [35.9] | [34.7] | [32.9] | [34.1]  | 53.2  |
|                   | Signal to noise (dB)              | 1.6                  | 1.6    | 6.7    | 7.0    | 6.9  | 8.3  | 6.7  | 8.8  | 13.9 | 12.4 | 14.9 | 15.3 | 14.1 | 13.1 | 11.2 | 8.5  | 6.5  | 5.0  | 4.8  | 3.8  | 3.0  | 2.9    | 2.5    | 2.8    | 2.9    | 6.1     | 7.2   |
| 11.5              | Uncertainty (dB)                  | 5.0                  | 5.0    | 4.4    | 2.3    | 2.1  | 1.9  | 1.6  | 1.1  | 1.0  | 1.0  | 0.8  | 0.7  | 0.8  | 0.7  | 0.8  | 0.8  | 1.0  | 1.2  | 1.2  | 1.4  | 1.9  | 2.2    | 2.3    | 2.4    | 2.4    | 1.1     | 1.0   |
|                   | PWL (dBA)                         | [69.6]               | [72.5] | 81.2   | 79.9   | 80.9 | 83.4 | 82.8 | 84.7 | 90.6 | 88.6 | 92.6 | 95.3 | 94.7 | 94.1 | 94.6 | 92.4 | 91.5 | 90.2 | 90.6 | 89.3 | 88.0 | [87.9] | [86.8] | [85.6] | [83.7] | 84.9    | 104.0 |

# Table C.01 Detailed apparent sound power level data at hub height

Project: Niagara Wind Farm - Turbine T35 - IEC 61400-11 Measurement

Report ID: 16227.00.T35.RP1

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Created on: 11/3/2017

1/3 Octave values marked with brackets [ ] denote less than 3 dB difference between Turbine ON and Background

Overall levels marked with an asterisk \* denote 3 to 6 dB difference between Turbine ON and Background, while Overall values with less than 3 dB difference between Turbine ON and Background are not reported

| Wind Bin<br>(m/s) | Parameter                         | 20     | 25     | 31.5   | 40     | 50     | 63     | 80     | 100  | 125  | 160  | 200  | 250  | 315  | 400  | 500  | 630  | 800  | 1000 | 1250 | 1600 | 2000 | 2500   | 3150   | 4000   | 5000   | 6300 | Overall |
|-------------------|-----------------------------------|--------|--------|--------|--------|--------|--------|--------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|--------|--------|--------|--------|------|---------|
| 12.0              | Turbine ON (dBA)                  | 20.3   | 22.5   | 24.7   | 30.0   | 31.2   | 32.0   | 34.7   | 33.3 | 37.3 | 36.7 | 40.0 | 44.6 | 43.3 | 44.2 | 45.4 | 44.9 | 44.6 | 44.0 | 43.2 | 42.6 | 41.6 | 41.3   | 40.2   | 38.7   | 37.1   | 36.2 | 55.0    |
|                   | Background (dBA)                  | 16.5   | 19.9   | 21.5   | 20.6   | 22.5   | 23.9   | 25.8   | 25.5 | 26.8 | 25.1 | 26.6 | 29.1 | 29.6 | 29.9 | 32.3 | 33.2 | 34.7 | 35.6 | 36.1 | 36.7 | 36.8 | 36.9   | 35.9   | 34.4   | 32.4   | 28.9 | 46.4    |
|                   | Turbine ON - background adj (dBA) | 17.9   | [19.5] | 21.8   | 29.5   | 30.6   | 31.3   | 34.1   | 32.5 | 36.9 | 36.4 | 39.8 | 44.5 | 43.1 | 44.0 | 45.2 | 44.6 | 44.1 | 43.3 | 42.2 | 41.3 | 39.8 | 39.3   | 38.2   | 36.7   | 35.3   | 35.3 | 54.4    |
|                   | Signal to noise (dB)              | 3.7    | 2.6    | 3.2    | 9.4    | 8.7    | 8.1    | 8.9    | 7.8  | 10.5 | 11.6 | 13.4 | 15.5 | 13.8 | 14.3 | 13.0 | 11.7 | 9.9  | 8.4  | 7.1  | 5.9  | 4.7  | 4.3    | 4.3    | 4.3    | 4.8    | 7.3  | 8.7     |
|                   | Uncertainty (dB)                  | 2.8    | 3.3    | 2.7    | 1.1    | 1.2    | 1.1    | 1.2    | 1.1  | 1.0  | 0.9  | 0.8  | 0.8  | 0.7  | 0.7  | 0.7  | 0.8  | 0.8  | 0.9  | 0.9  | 1.0  | 1.2  | 1.5    | 1.5    | 1.6    | 1.4    | 1.0  | 0.9     |
|                   | PWL (dBA)                         | 68.7   | [70.4] | 72.7   | 80.3   | 81.5   | 82.1   | 85.0   | 83.4 | 87.8 | 87.3 | 90.6 | 95.4 | 94.0 | 94.9 | 96.0 | 95.5 | 95.0 | 94.2 | 93.1 | 92.2 | 90.7 | 90.2   | 89.1   | 87.6   | 86.2   | 86.2 | 105.3   |
| 12.5              | Turbine ON (dBA)                  | 18.9   | 21.7   | 25.2   | 30.0   | 30.4   | 31.1   | 34.3   | 33.1 | 36.4 | 37.1 | 39.1 | 44.4 | 43.2 | 43.7 | 44.9 | 44.8 | 44.4 | 43.4 | 42.8 | 42.1 | 41.5 | 40.9   | 39.7   | 38.2   | 36.5   | 36.1 | 54.7    |
|                   | Background (dBA)                  | 20.3   | 23.8   | 25.6   | 27.4   | 25.8   | 26.2   | 27.3   | 26.6 | 27.4 | 26.3 | 28.2 | 29.6 | 30.4 | 30.7 | 32.4 | 33.3 | 35.0 | 35.6 | 36.4 | 36.9 | 37.1 | 37.4   | 36.4   | 35.1   | 33.0   | 29.3 | 46.9    |
|                   | Turbine ON - background adj (dBA) | [15.9] | [18.7] | [22.2] | [27]   | 28.5   | 29.4   | 33.3   | 31.9 | 35.8 | 36.8 | 38.8 | 44.2 | 43.0 | 43.5 | 44.7 | 44.5 | 43.8 | 42.6 | 41.7 | 40.5 | 39.6 | 38.3   | 37.0   | 35.3   | 33.9   | 35.0 | 53.9    |
|                   | Signal to noise (dB)              | -1.4   | -2.1   | -0.4   | 2.6    | 4.6    | 4.9    | 7.0    | 6.5  | 9.0  | 10.9 | 11.0 | 14.8 | 12.8 | 13.1 | 12.5 | 11.5 | 9.4  | 7.8  | 6.4  | 5.1  | 4.4  | 3.5    | 3.3    | 3.1    | 3.5    | 6.7  | 7.8     |
|                   | Uncertainty (dB)                  | 3.6    | 3.5    | 3.1    | 2.7    | 1.7    | 1.3    | 1.3    | 1.2  | 1.0  | 1.0  | 0.7  | 0.8  | 0.7  | 0.7  | 0.7  | 0.7  | 0.8  | 0.8  | 0.9  | 1.0  | 1.2  | 1.7    | 1.8    | 1.9    | 1.7    | 1.0  | 0.9     |
|                   | PWL (dBA)                         | [66.7] | [69.6] | [73.1] | [77.9] | 79.4   | 80.3   | 84.2   | 82.8 | 86.7 | 87.6 | 89.6 | 95.1 | 93.9 | 94.4 | 95.6 | 95.4 | 94.7 | 93.4 | 92.5 | 91.4 | 90.5 | 89.2   | 87.8   | 86.2   | 84.8   | 85.9 | 104.8   |
| 13.0              | Turbine ON (dBA)                  | 21.6   | 23.9   | 28.6   | 31.4   | 30.9   | 30.7   | 33.0   | 33.6 | 37.1 | 35.9 | 39.4 | 44.1 | 43.1 | 43.9 | 45.1 | 44.7 | 44.2 | 43.6 | 43.0 | 42.0 | 41.4 | 40.8   | 39.4   | 37.7   | 36.0   | 35.9 | 54.7    |
|                   | Background (dBA)                  | 22.2   | 23.6   | 27.9   | 30.9   | 29.1   | 28.2   | 30.9   | 29.6 | 29.1 | 28.2 | 28.8 | 30.7 | 32.1 | 31.3 | 33.4 | 34.3 | 35.5 | 36.3 | 37.3 | 37.6 | 37.9 | 38.2   | 37.4   | 36.0   | 33.7   | 29.9 | 47.9    |
|                   | Turbine ON - background adj (dBA) | [18.6] | [20.9] | [25.6] | [28.4] | [27.9] | [27.7] | [30]   | 31.4 | 36.4 | 35.1 | 39.0 | 43.9 | 42.7 | 43.6 | 44.8 | 44.3 | 43.6 | 42.7 | 41.7 | 40.1 | 38.9 | [37.8] | [36.4] | [34.7] | [33]   | 34.6 | 53.7    |
|                   | Signal to noise (dB)              | -0.6   | 0.3    | 0.7    | 0.5    | 1.8    | 2.5    | 2.1    | 4.0  | 8.0  | 7.7  | 10.6 | 13.4 | 11.0 | 12.5 | 11.7 | 10.4 | 8.7  | 7.3  | 5.8  | 4.4  | 3.6  | 2.6    | 2.0    | 1.8    | 2.3    | 5.9  | 6.8     |
|                   | Uncertainty (dB)                  | 4.0    | 3.8    | 4.0    | 3.7    | 3.2    | 2.4    | 2.4    | 1.9  | 1.0  | 1.0  | 0.8  | 0.8  | 0.8  | 0.7  | 0.7  | 0.8  | 0.8  | 0.9  | 1.0  | 1.2  | 1.5  | 2.0    | 2.0    | 2.0    | 2.0    | 1.1  | 1.0     |
|                   | PWL (dBA)                         | [69.5] | [71.8] | [76.4] | [79.3] | [78.8] | [78.6] | [80.8] | 82.2 | 87.2 | 86.0 | 89.9 | 94.8 | 93.6 | 94.5 | 95.7 | 95.2 | 94.5 | 93.6 | 92.6 | 91.0 | 89.8 | [88.7] | [87.3] | [85.6] | [83.9] | 85.4 | 104.6   |
| 13.5              | Turbine ON (dBA)                  | 23.1   | 26.4   | 28.8   | 32.4   | 31.1   | 32.4   | 34.5   | 34.1 | 37.2 | 36.2 | 38.9 | 43.9 | 42.9 | 43.1 | 45.2 | 45.0 | 45.2 | 44.4 | 43.9 | 42.8 | 42.4 | 41.9   | 40.8   | 39.3   | 37.3   | 36.5 | 55.1    |
|                   | Background (dBA)                  | 20.1   | 22.6   | 29.6   | 26.7   | 26.3   | 26.7   | 26.5   | 27.2 | 29.6 | 28.0 | 29.1 | 30.5 | 31.8 | 31.8 | 33.3 | 34.9 | 36.4 | 36.3 | 37.4 | 37.5 | 37.7 | 37.9   | 37.4   | 36.2   | 33.9   | 30.3 | 47.8    |
|                   | Turbine ON - background adj (dBA) | [20.1] | 24.2   | [25.8] | 31.0   | 29.3   | 31.0   | 33.8   | 33.1 | 36.4 | 35.5 | 38.4 | 43.6 | 42.5 | 42.8 | 44.9 | 44.6 | 44.6 | 43.6 | 42.8 | 41.3 | 40.6 | 39.7   | 38.1   | 36.3   | 34.6   | 35.3 | 54.2    |
|                   | Signal to noise (dB)              | 3.0    | 3.9    | -0.7   | 5.7    | 4.8    | 5.6    | 8.0    | 6.9  | 7.6  | 8.2  | 9.8  | 13.4 | 11.1 | 11.4 | 11.9 | 10.1 | 8.8  | 8.0  | 6.5  | 5.3  | 4.7  | 4.0    | 3.4    | 3.1    | 3.4    | 6.2  | 7.3     |
|                   | Uncertainty (dB)                  | 4.1    | 3.8    | 4.8    | 1.7    | 1.6    | 1.4    | 1.2    | 1.1  | 1.1  | 1.0  | 0.8  | 0.8  | 0.8  | 0.7  | 0.7  | 0.8  | 0.8  | 0.9  | 1.0  | 1.1  | 1.2  | 1.6    | 1.9    | 2.2    | 2.0    | 1.1  | 1.0     |
|                   | PWL (dBA)                         | [70.9] | 75.0   | [76.7] | 81.9   | 80.2   | 81.9   | 84.7   | 84.0 | 87.3 | 86.4 | 89.3 | 94.5 | 93.4 | 93.7 | 95.8 | 95.5 | 95.4 | 94.5 | 93.6 | 92.2 | 91.5 | 90.6   | 89.0   | 87.2   | 85.5   | 86.2 | 105.1   |

# Table C.02 Detailed apparent sound power level data at 10m height

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1/3 Octave values marked with brackets [ ] denote less than 3 dB difference between Turbine ON and Background

Overall levels marked with an asterisk \* denote 3 to 6 dB difference between Turbine ON and Background, while Overall values with less than 3 dB difference between Turbine ON and Background are not reported

| Wind Bin<br>(m/s) | Parameter                         | 20     | 25     | 31.5   | 40     | 50   | 63   | 80   | 100  | 125  | 160  | 200  | 250  | 315  | 400  | 500  | 630  | 800  | 1000 | 1250 | 1600 | 2000 | 2500 | 3150 | 4000 | 5000 | 6300 | Overall |
|-------------------|-----------------------------------|--------|--------|--------|--------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|---------|
| 6.0               | Turbine ON (dBA)                  | 15.4   | 17.7   | 19.7   | 24.1   | 26.4 | 28.8 | 31.3 | 35.4 | 34.9 | 36.1 | 39.4 | 41.7 | 41.5 | 40.8 | 41.1 | 39.5 | 38.5 | 38.2 | 38.3 | 38.3 | 37.5 | 37.4 | 36.1 | 34.4 | 32.4 | 29.4 | 51.2    |
|                   | Background (dBA)                  | 10.9   | 14.0   | 15.6   | 18.9   | 21.7 | 23.4 | 23.4 | 22.9 | 25.2 | 23.3 | 24.5 | 26.4 | 26.5 | 26.3 | 27.9 | 28.6 | 30.4 | 30.9 | 31.4 | 31.2 | 30.8 | 30.0 | 28.6 | 27.0 | 25.1 | 22.2 | 41.3    |
|                   | Turbine ON - background adj (dBA) | 13.6   | 15.2   | 17.6   | 22.6   | 24.5 | 27.3 | 30.5 | 35.2 | 34.4 | 35.9 | 39.2 | 41.6 | 41.4 | 40.6 | 40.9 | 39.1 | 37.8 | 37.3 | 37.3 | 37.3 | 36.5 | 36.6 | 35.3 | 33.5 | 31.5 | 28.5 | 50.8    |
|                   | Signal to noise (dB)              | 4.5    | 3.7    | 4.1    | 5.3    | 4.7  | 5.4  | 7.9  | 12.6 | 9.7  | 12.8 | 14.9 | 15.3 | 15.0 | 14.5 | 13.2 | 10.9 | 8.1  | 7.3  | 6.9  | 7.1  | 6.7  | 7.4  | 7.5  | 7.4  | 7.3  | 7.2  | 10.0    |
|                   | Uncertainty (dB)                  | 2.9    | 2.9    | 2.0    | 1.6    | 1.5  | 1.4  | 1.1  | 1.0  | 1.1  | 1.0  | 0.9  | 0.8  | 0.8  | 0.8  | 0.9  | 0.9  | 0.9  | 1.0  | 1.0  | 1.0  | 1.0  | 1.1  | 1.2  | 1.2  | 1.3  | 1.1  | 0.9     |
|                   | PWL (dBA)                         | 64.4   | 66.1   | 68.5   | 73.5   | 75.4 | 78.2 | 81.4 | 86.1 | 85.3 | 86.8 | 90.1 | 92.4 | 92.2 | 91.5 | 91.7 | 90.0 | 88.7 | 88.2 | 88.2 | 88.2 | 87.4 | 87.4 | 86.2 | 84.4 | 82.4 | 79.3 | 101.6   |
| 7.0               | Turbine ON (dBA)                  | 17.0   | 21.2   | 22.2   | 25.8   | 28.7 | 30.9 | 32.2 | 34.6 | 39.1 | 37.6 | 40.6 | 43.3 | 43.1 | 42.6 | 43.0 | 41.7 | 40.7 | 40.0 | 40.1 | 39.7 | 39.1 | 39.1 | 38.3 | 36.7 | 34.4 | 32.7 | 53.0    |
|                   | Background (dBA)                  | 18.3   | 21.5   | 23.4   | 24.8   | 23.8 | 23.9 | 24.8 | 24.3 | 24.9 | 23.9 | 25.9 | 28.0 | 28.6 | 28.9 | 30.4 | 31.1 | 32.7 | 33.4 | 34.2 | 34.1 | 34.1 | 33.9 | 32.9 | 31.4 | 29.4 | 25.8 | 44.2    |
|                   | Turbine ON - background adj (dBA) | [14]   | [18.2] | [19.2] | [22.8] | 27.0 | 30.0 | 31.4 | 34.2 | 39.0 | 37.4 | 40.4 | 43.2 | 43.0 | 42.4 | 42.8 | 41.3 | 39.9 | 38.9 | 38.8 | 38.3 | 37.5 | 37.6 | 36.8 | 35.1 | 32.7 | 31.7 | 52.4    |
|                   | Signal to noise (dB)              | -1.3   | -0.2   | -1.2   | 1.0    | 4.9  | 7.0  | 7.4  | 10.4 | 14.2 | 13.7 | 14.7 | 15.3 | 14.5 | 13.7 | 12.6 | 10.6 | 8.0  | 6.6  | 5.9  | 5.6  | 5.1  | 5.3  | 5.4  | 5.2  | 5.0  | 6.9  | 8.9     |
|                   | Uncertainty (dB)                  | 3.2    | 3.0    | 2.4    | 2.1    | 1.4  | 1.1  | 1.1  | 0.9  | 0.9  | 0.8  | 0.7  | 0.7  | 0.7  | 0.7  | 0.8  | 0.8  | 0.9  | 0.9  | 1.0  | 1.0  | 1.1  | 1.3  | 1.3  | 1.3  | 1.3  | 1.1  | 0.9     |
|                   | PWL (dBA)                         | [64.8] | [69.1] | [70]   | [73.6] | 77.9 | 80.9 | 82.2 | 85.1 | 89.8 | 88.3 | 91.3 | 94.0 | 93.9 | 93.3 | 93.7 | 92.2 | 90.8 | 89.8 | 89.7 | 89.2 | 88.4 | 88.5 | 87.7 | 86.0 | 83.6 | 82.6 | 103.3   |
| 8.0               | Turbine ON (dBA)                  | 20.0   | 22.9   | 26.5   | 29.6   | 30.9 | 31.9 | 34.4 | 33.7 | 37.9 | 37.4 | 40.3 | 44.4 | 43.5 | 43.8 | 44.8 | 44.2 | 43.7 | 43.0 | 42.5 | 41.9 | 41.1 | 40.9 | 39.8 | 38.4 | 36.6 | 35.7 | 54.6    |
|                   | Background (dBA)                  | 18.8   | 22.2   | 23.3   | 22.2   | 23.2 | 24.2 | 26.3 | 25.1 | 26.1 | 25.3 | 26.6 | 29.1 | 29.7 | 30.0 | 32.3 | 33.1 | 34.8 | 35.5 | 36.2 | 36.6 | 36.7 | 36.8 | 35.9 | 34.5 | 32.4 | 28.8 | 46.4    |
|                   | Turbine ON - background adj (dBA) | [17]   | [19.9] | 23.7   | 28.8   | 30.0 | 31.1 | 33.7 | 33.1 | 37.6 | 37.1 | 40.1 | 44.3 | 43.4 | 43.7 | 44.6 | 43.8 | 43.1 | 42.1 | 41.4 | 40.4 | 39.2 | 38.7 | 37.6 | 36.1 | 34.6 | 34.7 | 53.9    |
|                   | Signal to noise (dB)              | 1.2    | 0.7    | 3.2    | 7.5    | 7.7  | 7.7  | 8.1  | 8.6  | 11.8 | 12.1 | 13.7 | 15.4 | 13.8 | 13.9 | 12.5 | 11.0 | 8.9  | 7.5  | 6.3  | 5.4  | 4.4  | 4.1  | 3.9  | 3.9  | 4.2  | 6.9  | 8.2     |
|                   | Uncertainty (dB)                  | 2.8    | 2.8    | 2.6    | 1.1    | 1.1  | 1.0  | 1.0  | 0.9  | 0.9  | 0.8  | 0.7  | 0.7  | 0.7  | 0.7  | 0.7  | 0.7  | 0.8  | 0.8  | 0.9  | 1.0  | 1.1  | 1.4  | 1.5  | 1.5  | 1.4  | 1.0  | 0.8     |
|                   | PWL (dBA)                         | [67.9] | [70.8] | 74.6   | 79.6   | 80.9 | 82.0 | 84.5 | 83.9 | 88.5 | 88.0 | 91.0 | 95.2 | 94.2 | 94.5 | 95.5 | 94.7 | 94.0 | 93.0 | 92.3 | 91.3 | 90.1 | 89.6 | 88.5 | 87.0 | 85.4 | 85.6 | 104.8   |
| 9.0               | Turbine ON (dBA)                  | 22.4   | 24.8   | 28.3   | 31.7   | 30.8 | 31.7 | 33.6 | 33.7 | 36.9 | 35.8 | 39.0 | 44.0 | 43.0 | 43.6 | 45.2 | 45.0 | 44.8 | 44.0 | 43.5 | 42.5 | 42.0 | 41.5 | 40.3 | 38.8 | 36.9 | 36.2 | 54.9    |
|                   | Background (dBA)                  | 21.3   | 23.3   | 28.6   | 29.6   | 27.8 | 27.3 | 28.9 | 28.3 | 28.9 | 27.5 | 28.9 | 30.2 | 31.4 | 31.3 | 33.0 | 34.1 | 35.6 | 36.1 | 37.0 | 37.3 | 37.5 | 37.7 | 37.0 | 35.7 | 33.5 | 29.7 | 47.5    |
|                   | Turbine ON - background adj (dBA) | [19.4] | [21.8] | [25.3] | [28.7] | 27.8 | 29.7 | 31.8 | 32.2 | 36.2 | 35.1 | 38.6 | 43.9 | 42.7 | 43.4 | 44.9 | 44.6 | 44.2 | 43.3 | 42.4 | 41.0 | 40.1 | 39.1 | 37.5 | 35.8 | 34.2 | 35.1 | 54.1    |
|                   | Signal to noise (dB)              | 1.2    | 1.5    | -0.3   | 2.1    | 3.0  | 4.4  | 4.7  | 5.4  | 8.0  | 8.3  | 10.1 | 13.8 | 11.6 | 12.4 | 12.2 | 10.8 | 9.2  | 8.0  | 6.5  | 5.2  | 4.5  | 3.7  | 3.3  | 3.1  | 3.4  | 6.5  | 7.4     |
|                   | Uncertainty (dB)                  | 3.0    | 3.0    | 2.8    | 2.3    | 1.9  | 1.6  | 1.4  | 1.2  | 1.0  | 1.0  | 0.8  | 0.8  | 0.8  | 0.7  | 0.7  | 0.8  | 0.8  | 0.9  | 0.9  | 1.0  | 1.2  | 1.5  | 1.7  | 1.8  | 1.6  | 1.1  | 0.9     |
|                   | PWL (dBA)                         | [70.3] | [72.7] | [76.2] | [79.6] | 78.7 | 80.5 | 82.7 | 83.0 | 87.0 | 86.0 | 89.5 | 94.7 | 93.6 | 94.3 | 95.8 | 95.5 | 95.1 | 94.1 | 93.2 | 91.8 | 91.0 | 90.0 | 88.4 | 86.7 | 85.1 | 86.0 | 105.0   |

## Table C.03 Type B measurement uncertainty summary

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| Overall Equipment Uncertainties |                |             |
|---------------------------------|----------------|-------------|
|                                 | Typical values | Used values |
| Calibration                     | 0.2 dB         | 0.2 dB      |
| Board                           | 0.3 dB         | 0.3 dB      |
| Distance                        | 0.1 dB         | 0.1 dB      |
| Air absorption                  | 0 dB           | 0 dB        |
| Weather                         | 0.5 dB         | 0.5 dB      |

| 1/3 Octave Band Uncertainties |                        |                                                     |
|-------------------------------|------------------------|-----------------------------------------------------|
| Frequency (Hz)                | Microphone Uncertainty | Overall (including overall equipment Uncertainties) |
| 20                            | 0.8 dB                 | 1 dB                                                |
| 25                            | 0.8 dB                 | 1 dB                                                |
| 31.5                          | 0.5 dB                 | 0.8 dB                                              |
| 40                            | 0.5 dB                 | 0.8 dB                                              |
| 50                            | 0.5 dB                 | 0.8 dB                                              |
| 63                            | 0.5 dB                 | 0.8 dB                                              |
| 80                            | 0.5 dB                 | 0.8 dB                                              |
| 100                           | 0.5 dB                 | 0.8 dB                                              |
| 125                           | 0.5 dB                 | 0.8 dB                                              |
| 160                           | 0.5 dB                 | 0.8 dB                                              |
| 200                           | 0.3 dB                 | 0.7 dB                                              |
| 250                           | 0.3 dB                 | 0.7 dB                                              |
| 315                           | 0.3 dB                 | 0.7 dB                                              |
| 400                           | 0.3 dB                 | 0.7 dB                                              |
| 500                           | 0.3 dB                 | 0.7 dB                                              |
| 630                           | 0.3 dB                 | 0.7 dB                                              |
| 800                           | 0.3 dB                 | 0.7 dB                                              |
| 1000                          | 0.3 dB                 | 0.7 dB                                              |
| 1250                          | 0.3 dB                 | 0.7 dB                                              |
| 1600                          | 0.3 dB                 | 0.7 dB                                              |
| 2000                          | 0.3 dB                 | 0.7 dB                                              |
| 2500                          | 0.5 dB                 | 0.8 dB                                              |
| 3150                          | 0.5 dB                 | 0.8 dB                                              |
| 4000                          | 0.5 dB                 | 0.8 dB                                              |
| 5000                          | 0.5 dB                 | 0.8 dB                                              |
| 6300                          | 0.5 dB                 | 0.8 dB                                              |
| 8000                          | 0.5 dB                 | 0.8 dB                                              |
| 10000                         | 1.3 dB                 | 1.4 dB                                              |

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| Wind Bin<br>(m/s) | Parameter  | Average<br>Wind Speed | # of data<br>points | Parameter                 | 1/3 Octave Band (Hz) |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |     | Overall |
|-------------------|------------|-----------------------|---------------------|---------------------------|----------------------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|-----|---------|
|                   |            |                       |                     | 20                        | 25                   | 31.5 | 40   | 50   | 63   | 80   | 100  | 125  | 160  | 200  | 250  | 315  | 400  | 500  | 630  | 800  | 1000 | 1250 | 1600 | 2000 | 2500 | 3150 | 4000 | 5000 | 6300 |      |      |     |         |
| 8.5               | Turbine ON | 8.57                  | 10                  | Average (dBA)             | 12.2                 | 16.1 | 19.9 | 24.0 | 26.5 | 27.6 | 30.9 | 35.8 | 34.9 | 35.5 | 38.7 | 42.0 | 41.1 | 40.2 | 39.9 | 38.4 | 37.9 | 38.0 | 38.2 | 38.4 | 37.9 | 38.2 | 37.4 | 36.1 | 34.5 | 30.1 | 51.1 |     |         |
|                   |            |                       |                     | Uncertainty A (dB)        | 1.4                  | 1.1  | 1.3  | 1.1  | 0.7  | 0.8  | 0.3  | 0.6  | 0.7  | 0.5  | 0.7  | 0.4  | 0.5  | 0.5  | 0.5  | 0.5  | 0.4  | 0.3  | 0.3  | 0.4  | 0.4  | 0.4  | 0.5  | 0.6  | 0.5  | 0.7  | 0.5  |     |         |
|                   |            |                       |                     | Uncertainty B (dB)        | 1.0                  | 1.0  | 0.8  | 0.8  | 0.8  | 0.8  | 0.8  | 0.8  | 0.8  | 0.8  | 0.7  | 0.7  | 0.7  | 0.7  | 0.7  | 0.7  | 0.7  | 0.7  | 0.7  | 0.7  | 0.7  | 0.7  | 0.7  | 0.8  | 0.8  | 0.8  | 0.8  |     |         |
|                   |            |                       |                     | Combined Uncertainty (dB) | 1.7                  | 1.5  | 1.5  | 1.3  | 1.1  | 1.2  | 0.9  | 1.0  | 1.1  | 1.0  | 1.0  | 1.0  | 0.8  | 0.9  | 0.8  | 0.8  | 0.8  | 0.8  | 0.8  | 0.8  | 0.8  | 0.8  | 0.9  | 1.0  | 1.0  | 1.1  | 0.9  |     |         |
|                   | Background | 8.48                  | 41                  | Average (dBA)             | 9.6                  | 13.9 | 15.6 | 19.4 | 21.3 | 22.0 | 23.6 | 22.7 | 23.1 | 22.9 | 24.2 | 26.2 | 26.0 | 25.9 | 27.4 | 28.3 | 30.1 | 30.5 | 31.1 | 30.9 | 30.5 | 29.5 | 28.2 | 26.4 | 24.6 | 21.8 | 40.9 |     |         |
|                   |            |                       |                     | Uncertainty A (dB)        | 1.5                  | 1.5  | 1.1  | 0.9  | 0.6  | 0.5  | 0.5  | 0.4  | 0.3  | 0.3  | 0.3  | 0.3  | 0.4  | 0.4  | 0.4  | 0.4  | 0.5  | 0.5  | 0.6  | 0.6  | 0.7  | 0.7  | 0.8  | 0.8  | 0.8  | 0.6  | 0.5  |     |         |
|                   |            |                       |                     | Uncertainty B (dB)        | 1.0                  | 1.0  | 0.8  | 0.8  | 0.8  | 0.8  | 0.8  | 0.8  | 0.8  | 0.8  | 0.7  | 0.7  | 0.7  | 0.7  | 0.7  | 0.7  | 0.7  | 0.7  | 0.7  | 0.7  | 0.7  | 0.7  | 0.8  | 0.8  | 0.8  | 0.8  | 0.8  |     |         |
|                   |            |                       |                     | Combined Uncertainty (dB) | 1.9                  | 1.8  | 1.3  | 1.2  | 1.0  | 0.9  | 0.9  | 0.9  | 0.9  | 0.9  | 0.8  | 0.8  | 0.8  | 0.8  | 0.8  | 0.8  | 0.8  | 0.8  | 0.9  | 0.9  | 0.9  | 0.9  | 1.0  | 1.1  | 1.2  | 1.1  | 1.0  | 1.0 |         |
| 9.0               | Turbine ON | 9.00                  | 10                  | Average (dBA)             | 18.0                 | 20.2 | 20.6 | 25.1 | 25.9 | 29.8 | 31.1 | 35.0 | 34.6 | 36.8 | 39.8 | 41.3 | 41.7 | 40.7 | 41.6 | 40.1 | 38.9 | 38.4 | 38.3 | 38.0 | 36.6 | 36.2 | 34.3 | 32.1 | 29.4 | 28.2 | 51.2 |     |         |
|                   |            |                       |                     | Uncertainty A (dB)        | 3.0                  | 1.9  | 1.0  | 1.0  | 0.5  | 0.3  | 0.6  | 0.6  | 0.7  | 0.5  | 0.5  | 0.3  | 0.4  | 0.5  | 0.5  | 0.6  | 0.5  | 0.4  | 0.4  | 0.3  | 0.3  | 0.4  | 0.5  | 0.4  | 0.4  | 0.4  | 0.3  |     |         |
|                   |            |                       |                     | Uncertainty B (dB)        | 1.0                  | 1.0  | 0.8  | 0.8  | 0.8  | 0.8  | 0.8  | 0.8  | 0.8  | 0.8  | 0.7  | 0.7  | 0.7  | 0.7  | 0.7  | 0.7  | 0.7  | 0.7  | 0.7  | 0.7  | 0.7  | 0.7  | 0.7  | 0.8  | 0.8  | 0.8  | 0.8  |     |         |
|                   |            |                       |                     | Combined Uncertainty (dB) | 3.1                  | 2.2  | 1.3  | 1.3  | 0.9  | 0.9  | 1.0  | 1.0  | 1.1  | 1.0  | 0.8  | 0.8  | 0.8  | 0.8  | 0.9  | 0.9  | 0.9  | 0.8  | 0.8  | 0.8  | 0.8  | 0.8  | 0.9  | 0.9  | 0.9  | 0.9  | 0.9  | 0.9 |         |
|                   | Background | 8.99                  | 50                  | Average (dBA)             | 11.6                 | 14.9 | 16.2 | 19.1 | 22.9 | 24.9 | 23.5 | 22.8 | 26.7 | 23.6 | 24.7 | 26.8 | 26.9 | 26.8 | 28.4 | 29.0 | 30.5 | 31.1 | 31.8 | 31.6 | 31.1 | 30.5 | 29.2 | 27.4 | 25.5 | 22.5 | 41.7 |     |         |
|                   |            |                       |                     | Uncertainty A (dB)        | 1.5                  | 1.4  | 1.1  | 0.8  | 0.7  | 0.7  | 0.5  | 0.4  | 0.6  | 0.4  | 0.3  | 0.4  | 0.4  | 0.4  | 0.4  | 0.4  | 0.4  | 0.4  | 0.5  | 0.5  | 0.6  | 0.6  | 0.7  | 0.7  | 0.6  | 0.5  |      |     |         |
|                   |            |                       |                     | Uncertainty B (dB)        | 1.0                  | 1.0  | 0.8  | 0.8  | 0.8  | 0.8  | 0.8  | 0.8  | 0.8  | 0.8  | 0.7  | 0.7  | 0.7  | 0.7  | 0.7  | 0.7  | 0.7  | 0.7  | 0.7  | 0.7  | 0.7  | 0.7  | 0.7  | 0.8  | 0.8  | 0.8  | 0.8  |     |         |
|                   |            |                       |                     | Combined Uncertainty (dB) | 1.8                  | 1.8  | 1.3  | 1.1  | 1.0  | 1.0  | 1.0  | 0.9  | 1.0  | 0.9  | 0.8  | 0.8  | 0.8  | 0.8  | 0.8  | 0.8  | 0.8  | 0.8  | 0.8  | 0.8  | 0.9  | 0.9  | 1.0  | 1.1  | 1.1  | 1.0  | 0.9  |     |         |
| 9.5               | Turbine ON | 9.52                  | 10                  | Average (dBA)             | 16.5                 | 17.8 | 22.3 | 23.7 | 29.2 | 29.9 | 32.8 | 34.9 | 36.3 | 36.9 | 39.9 | 42.1 | 42.6 | 42.0 | 42.1 | 40.5 | 39.7 | 39.0 | 39.2 | 38.9 | 38.5 | 38.2 | 37.4 | 35.6 | 32.8 | 30.8 | 52.1 |     |         |
|                   |            |                       |                     | Uncertainty A (dB)        | 2.0                  | 1.7  | 1.6  | 0.7  | 1.1  | 0.6  | 0.9  | 0.5  | 0.7  | 0.5  | 0.5  | 0.5  | 0.5  | 0.4  | 0.5  | 0.6  | 0.5  | 0.4  | 0.4  | 0.4  | 0.5  | 0.7  | 0.9  | 1.0  | 0.7  | 0.3  |      |     |         |
|                   |            |                       |                     | Uncertainty B (dB)        | 1.0                  | 1.0  | 0.8  | 0.8  | 0.8  | 0.8  | 0.8  | 0.8  | 0.8  | 0.8  | 0.7  | 0.7  | 0.7  | 0.7  | 0.7  | 0.7  | 0.7  | 0.7  | 0.7  | 0.7  | 0.7  | 0.7  | 0.7  | 0.8  | 0.8  | 0.8  | 0.8  |     |         |
|                   |            |                       |                     | Combined Uncertainty (dB) | 2.2                  | 2.0  | 1.8  | 1.1  | 1.4  | 1.0  | 1.2  | 0.9  | 1.0  | 0.9  | 0.8  | 0.8  | 0.8  | 0.9  | 0.9  | 0.9  | 0.9  | 0.9  | 0.8  | 0.8  | 0.8  | 0.8  | 0.8  | 1.0  | 1.2  | 1.3  | 1.1  | 0.9 |         |
|                   | Background | 9.52                  | 31                  | Average (dBA)             | 12.8                 | 16.6 | 16.3 | 19.5 | 20.7 | 22.5 | 23.8 | 22.8 | 24.4 | 23.7 | 24.9 | 26.5 | 27.2 | 26.6 | 28.8 | 29.7 | 31.1 | 31.7 | 32.4 | 32.2 | 32.0 | 31.4 | 30.3 | 28.8 | 26.9 | 23.6 | 42.2 |     |         |
|                   |            |                       |                     | Uncertainty A (dB)        | 1.5                  | 1.8  | 1.3  | 0.9  | 0.5  | 0.5  | 0.6  | 0.5  | 0.5  | 0.6  | 0.4  | 0.5  | 0.4  | 0.5  | 0.5  | 0.5  | 0.5  | 0.5  | 0.5  | 0.5  | 0.6  | 0.6  | 0.7  | 0.8  | 0.8  | 0.7  | 0.6  |     |         |
|                   |            |                       |                     | Uncertainty B (dB)        | 1.0                  | 1.0  | 0.8  | 0.8  | 0.8  | 0.8  | 0.8  | 0.8  | 0.8  | 0.8  | 0.7  | 0.7  | 0.7  | 0.7  | 0.7  | 0.7  | 0.7  | 0.7  | 0.7  | 0.7  | 0.7  | 0.7  | 0.8  | 0.8  | 0.8  | 0.8  | 0.8  |     |         |
|                   |            |                       |                     | Combined Uncertainty (dB) | 1.8                  | 2.1  | 1.5  | 1.2  | 1.0  | 1.0  | 1.0  | 0.9  | 1.0  | 1.0  | 0.8  | 0.8  | 0.8  | 0.9  | 0.9  | 0.8  | 0.8  | 0.8  | 0.9  | 0.9  | 0.9  | 0.9  | 1.1  | 1.1  | 1.1  | 1.1  | 1.0  |     |         |
| 10.0              | Turbine ON | 10.00                 | 20                  | Average (dBA)             | 15.7                 | 19.6 | 20.1 | 24.9 | 28.0 | 30.3 | 32.2 | 34.9 | 37.3 | 37.4 | 40.7 | 43.2 | 43.3 | 42.3 | 42.7 | 41.4 | 40.1 | 39.7 | 39.8 | 39.4 | 38.7 | 38.7 | 37.7 | 36.0 | 33.7 | 31.7 | 52.7 |     |         |
|                   |            |                       |                     | Uncertainty A (dB)        | 1.6                  | 1.1  | 0.8  | 0.7  | 0.6  | 0.5  | 0.5  | 0.4  | 0.4  | 0.3  | 0.3  | 0.3  | 0.2  | 0.2  | 0.3  | 0.3  | 0.4  | 0.2  | 0.3  | 0.3  | 0.3  | 0.5  | 0.5  | 0.6  | 0.5  | 0.3  |      |     |         |
|                   |            |                       |                     | Uncertainty B (dB)        | 1.0                  | 1.0  | 0.8  | 0.8  | 0.8  | 0.8  | 0.8  | 0.8  | 0.8  | 0.8  | 0.7  | 0.7  | 0.7  | 0.7  | 0.7  | 0.7  | 0.7  | 0.7  | 0.7  | 0.7  | 0.7  | 0.7  | 0.8  | 0.8  | 0.8  | 0.8  | 0.8  |     |         |
|                   |            |                       |                     | Combined Uncertainty (dB) | 1.9                  | 1.5  | 1.1  | 1.0  | 1.0  | 0.9  | 1.0  | 0.9  | 0.9  | 0.8  | 0.8  | 0.8  | 0.8  | 0.7  | 0.7  | 0.7  | 0.8  | 0.8  | 0.7  | 0.8  | 0.8  | 0.8  | 0.8  | 0.9  | 1.0  | 1.0  | 1.0  | 0.8 |         |
|                   | Background | 10.00                 | 41                  | Average (dBA)             | 18.8                 | 22.8 | 24.1 | 26.0 | 24.3 | 24.2 | 24.9 | 24.1 | 24.3 | 23.4 | 25.5 | 27.7 | 28.1 | 29.2 | 30.2 | 30.4 | 31.6 | 32.3 | 33.4 | 33.0 | 32.9 | 32.5 | 31.5 | 30.1 | 28.0 | 24.6 | 43.3 |     |         |
|                   |            |                       |                     | Uncertainty A (dB)        | 2.1                  | 2.2  | 2.0  | 1.5  | 0.9  | 0.6  | 0.6  | 0.5  | 0.5  | 0.5  | 0.5  | 0.5  | 0.6  | 0.7  | 0.6  | 0.5  | 0.4  | 0.5  | 0.5  | 0.6  | 0.7  | 0.7  | 0.8  | 0.8  | 0.7  | 0.6  |      |     |         |
|                   |            |                       |                     | Uncertainty B (dB)        | 1.0                  | 1.0  | 0.8  | 0.8  | 0.8  | 0.8  | 0.8  | 0.8  | 0.8  | 0.8  | 0.8  | 0.7  | 0.7  | 0.7  | 0.7  | 0.7  | 0.7  | 0.7  | 0.7  | 0.7  | 0.7  | 0.7  | 0.8  | 0.8  | 0.8  | 0.8  | 0.8  |     |         |
|                   |            |                       |                     | Combined Uncertainty (dB) | 2.3                  | 2.4  | 2.2  | 1.7  | 1.2  | 1.0  | 1.0  | 1.0  | 0.9  | 0.9  | 0.9  | 0.8  | 0.9  | 1.0  | 0.9  | 0.8  | 0.8  | 0.8  | 0.8  | 0.9  | 0.9  | 1.0  | 1.1  | 1.1  | 1.1  | 1.1  | 1.0  |     |         |
| 10.5              | Turbine ON | 10.45                 | 10                  | Average (dBA)             | 18.0                 | 18.9 | 20.9 | 25.6 | 27.4 | 31.1 | 30.1 | 34.4 | 40.6 | 37.7 | 40.7 | 43.2 | 43.0 | 42.4 | 42.9 | 41.7 | 40.6 | 39.6 | 39.9 | 39.4 | 38.7 | 38.4 | 37.6 | 36.4 | 34.3 | 32.6 | 52.9 |     |         |
|                   |            |                       |                     | Uncertainty A (dB)        | 2.3                  | 1.4  | 1.1  | 0.7  | 0.8  | 1.4  | 0.7  | 0.5  | 0.7  | 0.6  | 0.4  | 0.3  | 0.5  | 0.4  | 0.6  | 0.7  | 0.4  | 0.4  | 0.4  | 0.3  | 0.4  | 0.5  | 0.6  | 0.7  | 0.8  | 0.5  |      |     |         |
|                   |            |                       |                     | Uncertainty B (dB)        | 1.0                  | 1.0  | 0.8  | 0.8  | 0.8  | 0.8  | 0.8  | 0.8  | 0.8  | 0.8  | 0.8  | 0.7  | 0.7  | 0.7  | 0.7  | 0.7  | 0.7  | 0.7  | 0.7  | 0.7  | 0.7  | 0.7  | 0.7  | 0.8  | 0.8  | 0.8  | 0.8  |     |         |
|                   |            |                       |                     | Combined Uncertainty (dB) | 2.5                  | 1.7  | 1.3  | 1.1  | 1.1  | 1.6  | 1.1  | 0.9  | 1.1  | 1.0  | 0.8  | 0.8  | 0.9  | 0.8  | 0.9  | 1.0  | 0.8  | 0.8  | 0.8  | 0.8  | 0.8  | 0.7  | 0.8  | 0.9  | 1.0  | 1.1  | 1.1  | 0.9 |         |
|                   | Background | 10.53                 | 28                  | Average (dBA)             | 17.9                 | 21.5 | 24.4 | 23.5 | 23.8 | 23.7 | 25.0 | 24.0 | 24.9 | 24.5 | 25.7 | 27.2 | 28.2 | 28.0 | 30.0 | 30.9 | 32.7 | 33.2 | 34.1 | 34.0 | 33.8 | 33.7 | 32.7 | 31.2 | 29.0 | 25.5 | 43.9 |     |         |
|                   |            |                       |                     | Uncertainty A (dB)        | 2.2                  | 2.3  | 2.2  | 1.4  | 0.9  | 0.6  | 0.6  | 0.7  | 0.6  | 0.5  | 0.5  | 0.4  | 0.5  | 0.5  | 0.5  | 0.6  | 0.5  | 0.6  | 0.7  | 0.7  | 0.8  | 0.8  | 1.0  | 1.0  | 1.1  | 1.0  | 0.8  |     |         |
|                   |            |                       |                     | Uncertainty B (dB)        | 1.0                  | 1.0  | 0.8  | 0.8  | 0.8  | 0.8  | 0.8  | 0.8  | 0.8  | 0.8  | 0.8  | 0.7  | 0.7  | 0.7  | 0.7  | 0.7  | 0.7  | 0.7  | 0.7  | 0.7  | 0.7  | 0.7  | 0.8  | 0.8  | 0.8  | 0.8  | 0.8  |     |         |
|                   |            |                       |                     | Combined Uncertainty (dB) | 2.4                  | 2.5  | 2.3  | 1.6  | 1.2  | 1.0  | 1.0  | 1.1  | 1.0  | 1.0  | 0.9  | 0.8  | 0.8  | 0.9  | 0.9  | 0.9  | 0.9  | 0.9  | 0.9  | 0.9  | 1.0  | 1.0  | 1.1  | 1.2  | 1.3  | 1.2  | 1.1  |     |         |
| 11.0              | Turbine ON | 10.92                 | 16                  | Average (dBA)             | 16.9                 | 23.1 | 23.3 | 27.2 | 29.4 | 31.1 | 32.8 | 34.6 | 40.2 | 38.0 | 40.7 | 44.1 | 43.7 | 43.4 | 43.9 | 42.3 | 41.4 | 40.8 | 40.8 | 40.4 | 40.2 | 40.3 | 39.5 | 37.8 | 35.5 | 34.4 | 53.8 |     |         |
|                   |            |                       |                     | Uncertainty A (dB)        | 1.4                  | 1.6  | 1.1  | 0.7  | 0.9  | 0.8  | 0.8  | 0.5  | 0.4  | 0.4  | 0.3  | 0.3  | 0.4  | 0.3  | 0.3  | 0.3  | 0.2  | 0.2  | 0.3  | 0.2  | 0.4  | 0.5  | 0.5  | 0.4  | 0.4  | 0.2  |      |     |         |
|                   |            |                       |                     | Uncertainty B (dB)        | 1.0                  | 1.0  | 0.8  | 0.8  | 0.8  | 0.8  | 0.8  | 0.8  | 0.8  | 0.8  | 0.7  | 0.7  | 0.7  | 0.7  | 0.7  | 0.7  | 0.7  | 0.7  | 0.7  | 0.7  | 0.7  | 0.7  | 0.7  | 0.8  | 0.8  | 0.8  | 0.8  |     |         |
|                   |            |                       |                     | Combined Uncertainty (dB) | 1.8                  | 1.9  | 1.3  | 1.1  | 1.2  | 1.1  | 1.1  | 0.9  | 0.9  | 0.9  | 0.7  | 0.8  | 0.8  | 0.7  | 0.8  | 0.8  | 0.7  | 0.7  | 0.7  | 0.8  | 0.7  | 0.8  | 0.9  | 0.9  | 0.9  | 0.9  | 0.8  |     |         |
|                   | Background | 10.96                 | 36                  | Average (dBA)             | 18.1                 | 19.0 | 21.8 | 24.1 | 23.0 | 23.6 | 25.2 | 24.9 | 25.2 | 24.3 | 26.3 | 28.8 | 29.6 | 29.4 | 31.1 | 32.0 | 33.8 | 34.7 | 35.3 | 35.2 | 35.3 | 35.3 | 34.3 | 32.8 | 30.8 | 27.1 | 45.2 |     |         |
|                   |            |                       |                     | Uncertainty A (dB)        | 1.6                  | 1.4  | 1.6  | 1.3  | 0.7  | 0.6  | 0.7  | 0.7  | 0.5  | 0.4  | 0.4  | 0.5  | 0.5  | 0.5  | 0.5  | 0.5  | 0.5  | 0.5  | 0.5  | 0.6  | 0.6  | 0.7  | 0.8  | 0.9  | 0.9  | 0.8  | 0.7  |     |         |
|                   |            |                       |                     | Uncertainty B (dB)        | 1.0                  | 1.0  | 0.8  | 0.8  | 0.8  | 0.8  | 0.8  | 0.8  | 0.8  | 0.8  | 0.7  | 0.7  | 0.7  | 0.7  | 0.7  | 0.7  | 0.7  | 0.7  | 0.7  | 0.7  | 0.7  | 0.7  | 0.8  | 0.8  | 0.8  | 0.8  | 0.8  |     |         |
|                   |            |                       |                     | Combined Uncertainty (dB) | 1.9                  | 1.8  | 1.8  | 1.5  | 1.1  | 1.0  | 1.0  | 1.0  | 0.9  | 0.9  | 0.8  | 0.8  | 0.9  | 0.9  | 0.9  | 0.9  | 0.9  | 0.9  | 0.9  | 0.9  | 0.9  | 0.9  | 1.0  | 1.1  | 1.2  | 1.2  | 1.1  |     |         |

# Table C.04 Detailed measurement uncertainty at hub height

Project: Niagara Wind Farm - Turbine T35 - IEC 61400-11 Measurement

Report ID: 16227.00.T35.RP1

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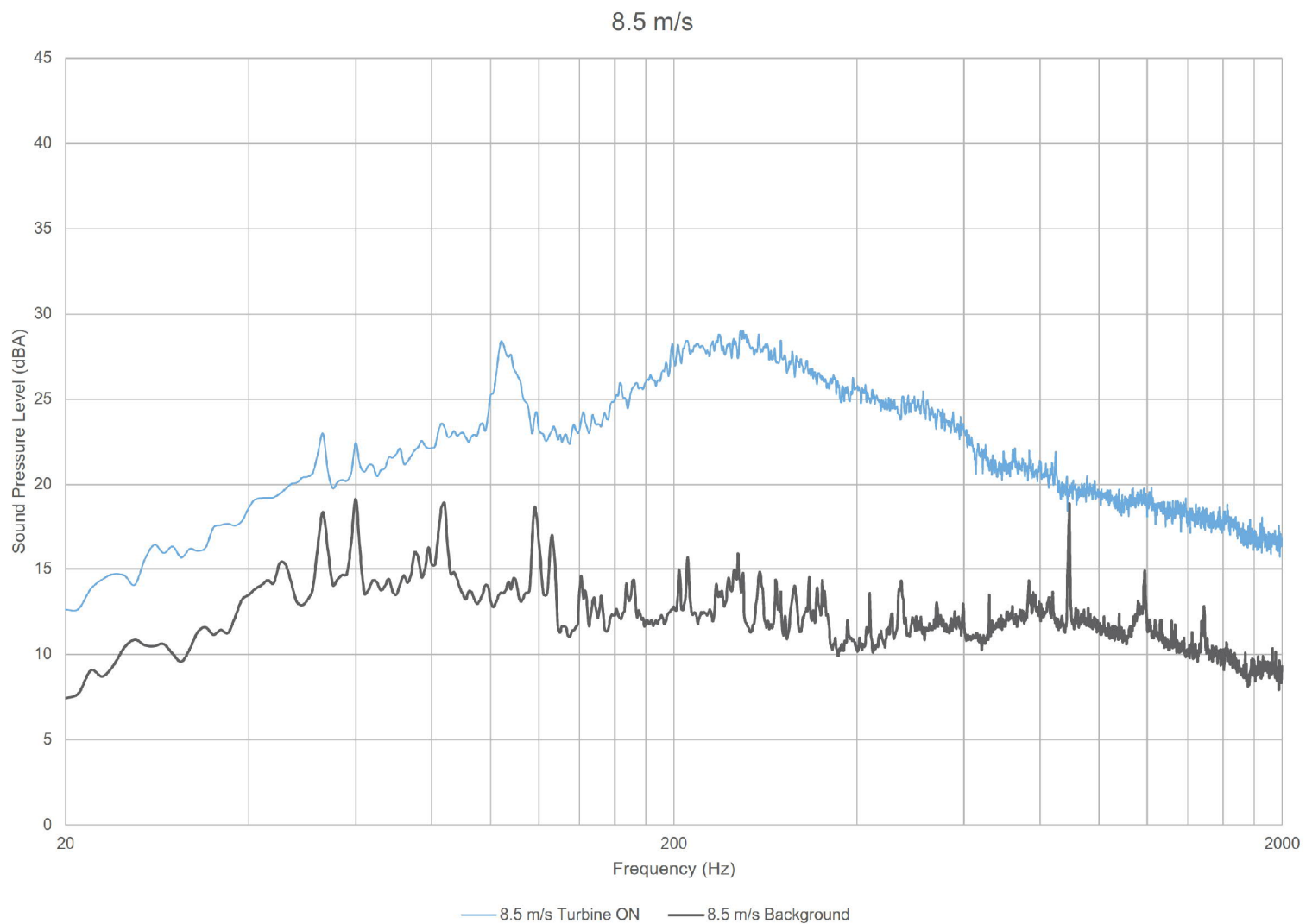
| Wind Bin<br>(m/s) | Parameter  | Average<br>Wind Speed | # of data<br>points | Parameter                 | 20   | 25   | 31.5 | 40   | 50   | 63   | 80   | 100  | 125  | 160  | 200  | 250  | 315  | 400  | 500  | 630  | 800  | 1000 | 1250 | 1600 | 2000 | 2500 | 3150 | 4000 | 5000 | 6300 | Overall |
|-------------------|------------|-----------------------|---------------------|---------------------------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|---------|
| 11.5              | Turbine ON | 11.52                 | 10                  | Average (dBA)             | 21.9 | 24.7 | 31.7 | 30.1 | 31.1 | 33.3 | 33.0 | 34.5 | 39.9 | 37.9 | 41.9 | 44.6 | 44.0 | 43.5 | 44.0 | 42.2 | 41.7 | 41.0 | 41.5 | 40.7 | 40.2 | 40.0 | 38.9 | 37.7 | 35.9 | 35.3 | 54.1    |
|                   |            |                       |                     | Uncertainty A (dB)        | 2.2  | 2.1  | 3.5  | 1.7  | 1.5  | 1.5  | 1.0  | 0.6  | 0.6  | 0.5  | 0.4  | 0.3  | 0.3  | 0.2  | 0.3  | 0.3  | 0.3  | 0.4  | 0.4  | 0.3  | 0.4  | 0.6  | 0.6  | 0.7  | 0.7  | 0.2  |         |
|                   |            |                       |                     | Uncertainty B (dB)        | 1.0  | 1.0  | 0.8  | 0.8  | 0.8  | 0.8  | 0.8  | 0.8  | 0.8  | 0.8  | 0.7  | 0.7  | 0.7  | 0.7  | 0.7  | 0.7  | 0.7  | 0.7  | 0.7  | 0.7  | 0.7  | 0.7  | 0.8  | 0.8  | 0.8  | 0.8  | 0.8     |
|                   |            |                       |                     | Combined Uncertainty (dB) | 2.4  | 2.3  | 3.6  | 1.9  | 1.7  | 1.7  | 1.3  | 1.0  | 1.0  | 0.9  | 0.8  | 0.7  | 0.8  | 0.7  | 0.8  | 0.7  | 0.7  | 0.7  | 0.8  | 0.8  | 0.8  | 1.0  | 1.0  | 1.0  | 1.0  | 0.8  |         |
|                   | Background | 11.46                 | 31                  | Average (dBA)             | 20.3 | 23.2 | 24.8 | 23.2 | 24.2 | 24.9 | 26.3 | 25.7 | 26.0 | 25.5 | 26.9 | 29.3 | 29.9 | 30.4 | 32.8 | 33.7 | 35.3 | 36.0 | 36.6 | 36.9 | 37.2 | 37.1 | 36.4 | 35.0 | 33.0 | 29.2 | 46.8    |
|                   |            |                       |                     | Uncertainty A (dB)        | 1.9  | 2.1  | 1.6  | 0.9  | 0.7  | 0.6  | 0.7  | 0.8  | 0.5  | 0.5  | 0.4  | 0.6  | 0.5  | 0.6  | 0.6  | 0.6  | 0.6  | 0.6  | 0.6  | 0.7  | 0.9  | 1.0  | 1.1  | 1.1  | 1.1  | 0.9  |         |
|                   |            |                       |                     | Uncertainty B (dB)        | 1.0  | 1.0  | 0.8  | 0.8  | 0.8  | 0.8  | 0.8  | 0.8  | 0.8  | 0.8  | 0.7  | 0.7  | 0.7  | 0.7  | 0.7  | 0.7  | 0.7  | 0.7  | 0.7  | 0.7  | 0.7  | 0.8  | 0.8  | 0.8  | 0.8  | 0.8  |         |
|                   |            |                       |                     | Combined Uncertainty (dB) | 2.2  | 2.3  | 1.8  | 1.2  | 1.1  | 1.0  | 1.1  | 1.1  | 0.9  | 0.9  | 0.8  | 0.9  | 0.9  | 0.9  | 0.9  | 0.9  | 0.9  | 0.9  | 0.9  | 0.9  | 1.0  | 1.1  | 1.2  | 1.3  | 1.4  | 1.3  | 1.2     |
| 12.0              | Turbine ON | 12.01                 | 35                  | Average (dBA)             | 20.2 | 22.5 | 24.5 | 30.0 | 31.2 | 32.0 | 34.8 | 33.3 | 37.2 | 36.7 | 39.9 | 44.6 | 43.3 | 44.2 | 45.4 | 44.9 | 44.6 | 44.0 | 43.2 | 42.6 | 41.6 | 41.3 | 40.2 | 38.7 | 37.1 | 36.2 | 55.1    |
|                   |            |                       |                     | Uncertainty A (dB)        | 1.1  | 0.9  | 0.8  | 0.5  | 0.7  | 0.5  | 0.7  | 0.5  | 0.4  | 0.3  | 0.3  | 0.3  | 0.2  | 0.2  | 0.2  | 0.3  | 0.3  | 0.3  | 0.2  | 0.2  | 0.3  | 0.3  | 0.4  | 0.4  | 0.4  | 0.2  |         |
|                   |            |                       |                     | Uncertainty B (dB)        | 1.0  | 1.0  | 0.8  | 0.8  | 0.8  | 0.8  | 0.8  | 0.8  | 0.8  | 0.8  | 0.7  | 0.7  | 0.7  | 0.7  | 0.7  | 0.7  | 0.7  | 0.7  | 0.7  | 0.7  | 0.7  | 0.8  | 0.8  | 0.8  | 0.8  | 0.8  |         |
|                   |            |                       |                     | Combined Uncertainty (dB) | 1.5  | 1.4  | 1.1  | 0.9  | 1.1  | 1.0  | 1.0  | 0.9  | 0.9  | 0.9  | 0.7  | 0.8  | 0.7  | 0.7  | 0.7  | 0.7  | 0.7  | 0.7  | 0.7  | 0.7  | 0.7  | 0.9  | 0.9  | 0.9  | 0.9  | 0.8  |         |
|                   | Background | 12.05                 | 27                  | Average (dBA)             | 16.1 | 19.6 | 21.2 | 20.4 | 22.3 | 23.8 | 25.7 | 25.4 | 26.9 | 25.1 | 26.6 | 29.1 | 29.5 | 29.9 | 32.3 | 33.1 | 34.6 | 35.5 | 36.1 | 36.7 | 36.8 | 36.9 | 35.8 | 34.4 | 32.3 | 28.9 | 46.3    |
|                   |            |                       |                     | Uncertainty A (dB)        | 1.6  | 1.8  | 1.9  | 0.9  | 0.7  | 0.6  | 0.6  | 0.9  | 0.9  | 0.6  | 0.5  | 0.6  | 0.6  | 0.6  | 0.6  | 0.5  | 0.6  | 0.6  | 0.7  | 0.6  | 0.7  | 0.8  | 0.9  | 0.9  | 1.0  | 1.0  | 0.9     |
|                   |            |                       |                     | Uncertainty B (dB)        | 1.0  | 1.0  | 0.8  | 0.8  | 0.8  | 0.8  | 0.8  | 0.8  | 0.8  | 0.8  | 0.7  | 0.7  | 0.7  | 0.7  | 0.7  | 0.7  | 0.7  | 0.7  | 0.7  | 0.7  | 0.7  | 0.8  | 0.8  | 0.8  | 0.8  | 0.8  |         |
|                   |            |                       |                     | Combined Uncertainty (dB) | 1.9  | 2.1  | 2.0  | 1.2  | 1.1  | 1.0  | 1.0  | 1.2  | 1.2  | 1.0  | 0.9  | 0.9  | 0.9  | 0.9  | 0.9  | 0.9  | 0.9  | 0.9  | 1.0  | 1.0  | 1.2  | 1.2  | 1.3  | 1.3  | 1.3  | 1.2  |         |
| 12.5              | Turbine ON | 12.55                 | 21                  | Average (dBA)             | 18.7 | 21.6 | 25.3 | 30.0 | 30.3 | 31.0 | 34.3 | 33.0 | 36.3 | 37.2 | 39.0 | 44.4 | 43.2 | 43.7 | 44.9 | 44.8 | 44.3 | 43.3 | 42.8 | 42.0 | 41.5 | 40.8 | 39.6 | 38.1 | 36.4 | 36.0 | 54.7    |
|                   |            |                       |                     | Uncertainty A (dB)        | 1.3  | 1.2  | 1.1  | 0.7  | 0.8  | 0.5  | 0.8  | 0.5  | 0.4  | 0.6  | 0.3  | 0.4  | 0.3  | 0.3  | 0.2  | 0.2  | 0.2  | 0.2  | 0.3  | 0.3  | 0.4  | 0.4  | 0.4  | 0.4  | 0.4  | 0.2  |         |
|                   |            |                       |                     | Uncertainty B (dB)        | 1.0  | 1.0  | 0.8  | 0.8  | 0.8  | 0.8  | 0.8  | 0.8  | 0.8  | 0.8  | 0.7  | 0.7  | 0.7  | 0.7  | 0.7  | 0.7  | 0.7  | 0.7  | 0.7  | 0.7  | 0.7  | 0.8  | 0.8  | 0.8  | 0.8  | 0.8  |         |
|                   |            |                       |                     | Combined Uncertainty (dB) | 1.6  | 1.6  | 1.3  | 1.1  | 1.1  | 0.9  | 1.1  | 1.0  | 0.9  | 1.0  | 0.8  | 0.8  | 0.7  | 0.8  | 0.7  | 0.7  | 0.7  | 0.7  | 0.7  | 0.8  | 0.8  | 0.8  | 0.9  | 0.9  | 0.9  | 0.9  | 0.8     |
|                   | Background | 12.58                 | 24                  | Average (dBA)             | 21.0 | 24.5 | 26.3 | 28.6 | 26.4 | 26.6 | 27.6 | 26.8 | 27.4 | 26.5 | 28.4 | 29.7 | 30.5 | 30.8 | 32.5 | 33.3 | 35.1 | 35.6 | 36.5 | 37.0 | 37.2 | 37.4 | 36.5 | 35.2 | 33.2 | 29.4 | 47.0    |
|                   |            |                       |                     | Uncertainty A (dB)        | 2.1  | 2.1  | 2.0  | 1.9  | 1.1  | 0.9  | 0.9  | 0.9  | 0.7  | 0.6  | 0.6  | 0.4  | 0.5  | 0.5  | 0.4  | 0.5  | 0.5  | 0.5  | 0.5  | 0.6  | 0.7  | 0.8  | 0.8  | 0.9  | 0.9  | 0.9  |         |
|                   |            |                       |                     | Uncertainty B (dB)        | 1.0  | 1.0  | 0.8  | 0.8  | 0.8  | 0.8  | 0.8  | 0.8  | 0.8  | 0.8  | 0.7  | 0.7  | 0.7  | 0.7  | 0.7  | 0.7  | 0.7  | 0.7  | 0.7  | 0.7  | 0.7  | 0.8  | 0.8  | 0.8  | 0.8  | 0.8  |         |
|                   |            |                       |                     | Combined Uncertainty (dB) | 2.4  | 2.3  | 2.1  | 2.1  | 1.4  | 1.2  | 1.2  | 1.2  | 1.0  | 1.0  | 0.9  | 0.8  | 0.9  | 0.9  | 0.8  | 0.8  | 0.9  | 0.8  | 0.9  | 0.9  | 1.0  | 1.1  | 1.2  | 1.2  | 1.2  | 1.2  |         |
| 13.0              | Turbine ON | 12.97                 | 25                  | Average (dBA)             | 21.5 | 23.7 | 28.5 | 31.4 | 30.9 | 30.6 | 32.9 | 33.6 | 37.1 | 35.9 | 39.4 | 44.1 | 43.1 | 43.9 | 45.1 | 44.7 | 44.1 | 43.5 | 43.0 | 42.0 | 41.4 | 40.8 | 39.3 | 37.6 | 35.9 | 35.8 | 54.6    |
|                   |            |                       |                     | Uncertainty A (dB)        | 1.4  | 1.2  | 1.5  | 0.8  | 0.8  | 0.5  | 0.5  | 0.5  | 0.4  | 0.4  | 0.4  | 0.3  | 0.3  | 0.3  | 0.2  | 0.3  | 0.3  | 0.4  | 0.3  | 0.3  | 0.3  | 0.4  | 0.4  | 0.4  | 0.3  | 0.2  |         |
|                   |            |                       |                     | Uncertainty B (dB)        | 1.0  | 1.0  | 0.8  | 0.8  | 0.8  | 0.8  | 0.8  | 0.8  | 0.8  | 0.8  | 0.7  | 0.7  | 0.7  | 0.7  | 0.7  | 0.7  | 0.7  | 0.7  | 0.7  | 0.7  | 0.7  | 0.8  | 0.8  | 0.8  | 0.8  | 0.8  |         |
|                   |            |                       |                     | Combined Uncertainty (dB) | 1.7  | 1.6  | 1.7  | 1.1  | 1.1  | 0.9  | 0.9  | 0.9  | 0.9  | 0.9  | 0.8  | 0.8  | 0.7  | 0.7  | 0.7  | 0.7  | 0.8  | 0.8  | 0.8  | 0.8  | 0.8  | 0.9  | 0.9  | 0.9  | 0.9  | 0.8  |         |
|                   | Background | 12.95                 | 12                  | Average (dBA)             | 22.3 | 23.7 | 27.4 | 31.3 | 29.4 | 28.4 | 31.3 | 29.9 | 28.9 | 28.2 | 28.7 | 30.7 | 32.1 | 31.2 | 33.4 | 34.2 | 35.4 | 36.2 | 37.2 | 37.6 | 37.9 | 38.2 | 37.4 | 35.9 | 33.7 | 29.9 | 47.9    |
|                   |            |                       |                     | Uncertainty A (dB)        | 2.3  | 2.4  | 2.5  | 3.2  | 2.7  | 1.6  | 1.7  | 1.9  | 1.3  | 1.1  | 0.9  | 0.9  | 1.0  | 0.8  | 0.9  | 0.9  | 0.7  | 0.8  | 0.7  | 0.8  | 0.9  | 1.0  | 1.0  | 1.0  | 1.0  | 0.9  |         |
|                   |            |                       |                     | Uncertainty B (dB)        | 1.0  | 1.0  | 0.8  | 0.8  | 0.8  | 0.8  | 0.8  | 0.8  | 0.8  | 0.8  | 0.7  | 0.7  | 0.7  | 0.7  | 0.7  | 0.7  | 0.7  | 0.7  | 0.7  | 0.7  | 0.7  | 0.8  | 0.8  | 0.8  | 0.8  | 0.8  |         |
|                   |            |                       |                     | Combined Uncertainty (dB) | 2.6  | 2.6  | 2.6  | 3.3  | 2.8  | 1.8  | 1.9  | 2.1  | 1.5  | 1.3  | 1.1  | 1.1  | 1.2  | 1.1  | 1.1  | 1.1  | 1.0  | 1.0  | 1.0  | 1.1  | 1.1  | 1.3  | 1.3  | 1.3  | 1.3  | 1.2  |         |
| 13.5              | Turbine ON | 13.46                 | 28                  | Average (dBA)             | 23.0 | 26.5 | 28.9 | 32.4 | 31.1 | 32.3 | 34.6 | 34.1 | 37.3 | 36.2 | 38.9 | 43.9 | 42.8 | 43.1 | 45.2 | 45.0 | 45.2 | 44.4 | 43.9 | 42.8 | 42.4 | 41.9 | 40.8 | 39.3 | 37.3 | 36.5 | 55.1    |
|                   |            |                       |                     | Uncertainty A (dB)        | 1.6  | 1.8  | 1.4  | 0.8  | 0.6  | 0.6  | 0.7  | 0.5  | 0.5  | 0.3  | 0.3  | 0.4  | 0.3  | 0.2  | 0.2  | 0.3  | 0.3  | 0.3  | 0.3  | 0.3  | 0.3  | 0.3  | 0.4  | 0.4  | 0.3  | 0.2  |         |
|                   |            |                       |                     | Uncertainty B (dB)        | 1.0  | 1.0  | 0.8  | 0.8  | 0.8  | 0.8  | 0.8  | 0.8  | 0.8  | 0.8  | 0.7  | 0.7  | 0.7  | 0.7  | 0.7  | 0.7  | 0.7  | 0.7  | 0.7  | 0.7  | 0.7  | 0.8  | 0.8  | 0.8  | 0.8  | 0.8  |         |
|                   |            |                       |                     | Combined Uncertainty (dB) | 1.9  | 2.1  | 1.7  | 1.1  | 1.0  | 1.0  | 1.0  | 0.9  | 0.9  | 0.9  | 0.7  | 0.8  | 0.7  | 0.7  | 0.7  | 0.7  | 0.8  | 0.8  | 0.8  | 0.8  | 0.8  | 0.9  | 0.9  | 0.9  | 0.9  | 0.8  |         |
|                   | Background | 13.42                 | 10                  | Average (dBA)             | 21.4 | 22.8 | 31.9 | 28.0 | 27.1 | 27.0 | 27.0 | 27.8 | 30.6 | 28.5 | 29.4 | 30.7 | 32.0 | 32.3 | 33.4 | 35.2 | 36.5 | 36.4 | 37.5 | 37.7 | 37.8 | 38.0 | 37.5 | 36.3 | 34.0 | 30.4 | 48.0    |
|                   |            |                       |                     | Uncertainty A (dB)        | 2.4  | 3.1  | 4.4  | 2.6  | 1.8  | 1.4  | 0.8  | 1.2  | 1.9  | 1.3  | 1.2  | 0.8  | 1.0  | 0.9  | 0.7  | 1.2  | 0.9  | 0.7  | 0.9  | 1.0  | 1.1  | 1.3  | 1.5  | 1.6  | 1.6  | 1.6  |         |
|                   |            |                       |                     | Uncertainty B (dB)        | 1.0  | 1.0  | 0.8  | 0.8  | 0.8  | 0.8  | 0.8  | 0.8  | 0.8  | 0.8  | 0.7  | 0.7  | 0.7  | 0.7  | 0.7  | 0.7  | 0.7  | 0.7  | 0.7  | 0.7  | 0.7  | 0.8  | 0.8  | 0.8  | 0.8  |      |         |
|                   |            |                       |                     | Combined Uncertainty (dB) | 2.6  | 3.3  | 4.4  | 2.7  | 2.0  | 1.6  | 1.2  | 1.5  | 2.1  | 1.5  | 1.4  | 1.1  | 1.2  | 1.2  | 1.0  | 1.3  | 1.2  | 1.0  | 1.1  | 1.3  | 1.3  | 1.6  | 1.7  | 1.8  | 1.8  | 1.8  |         |

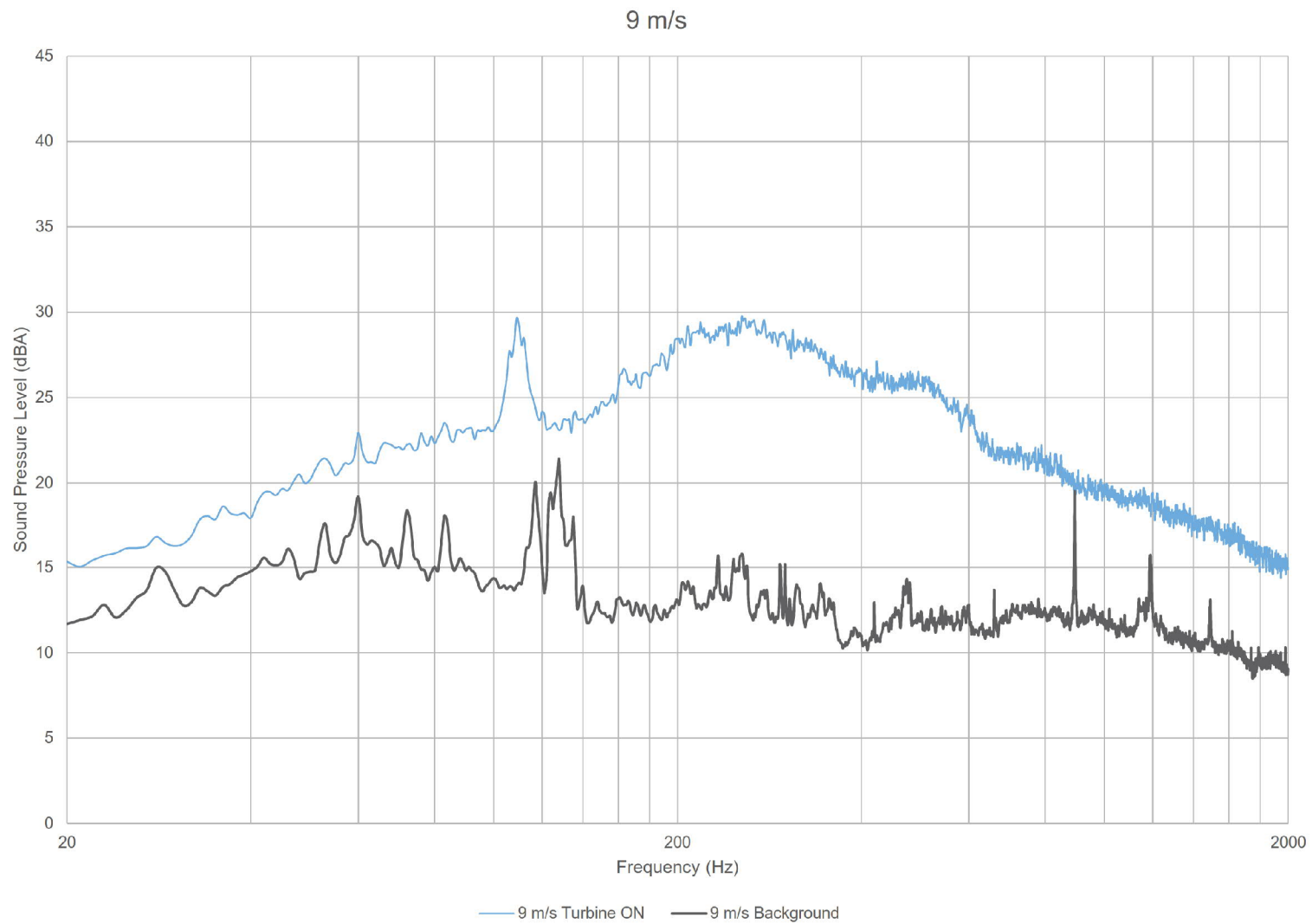
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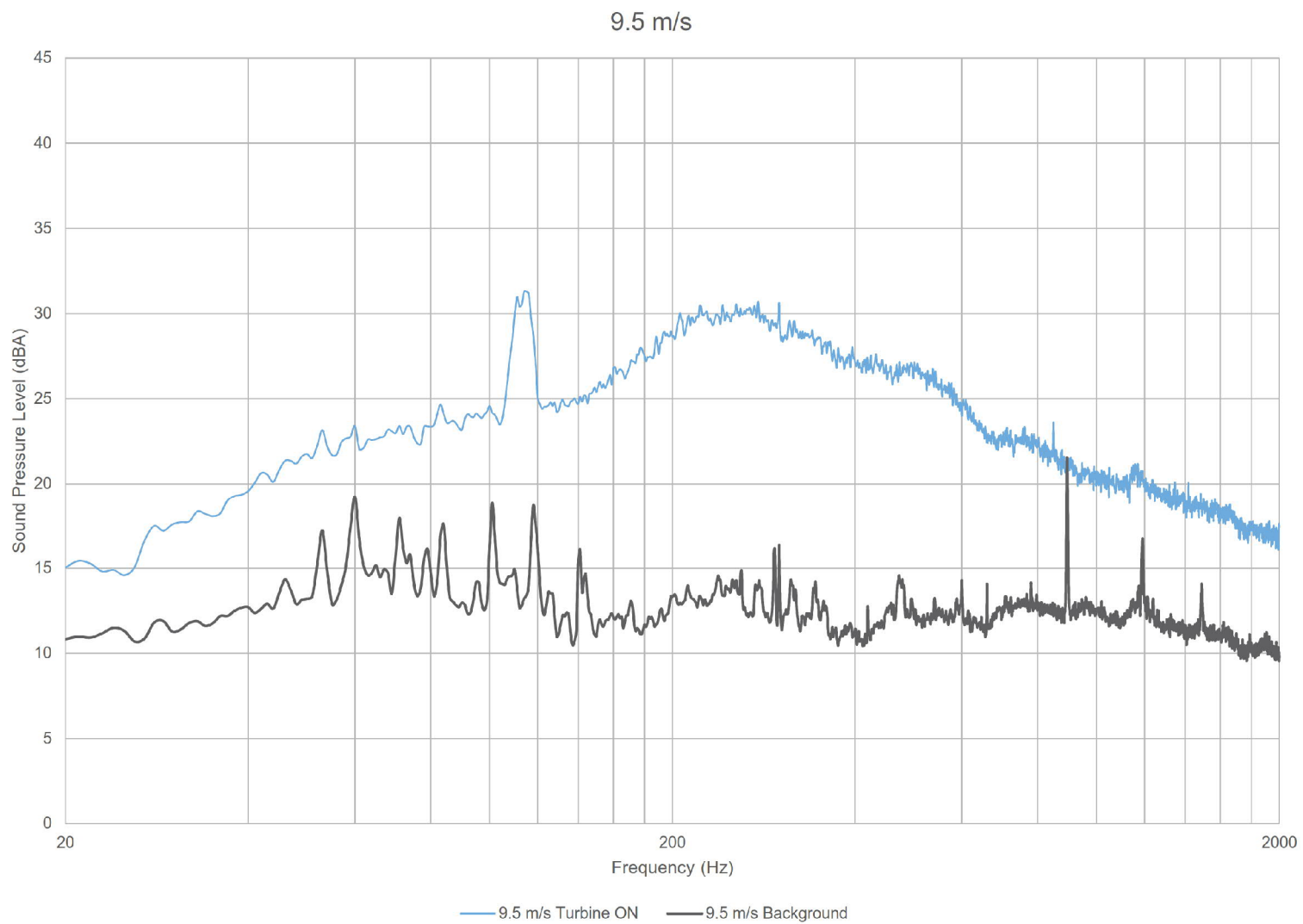
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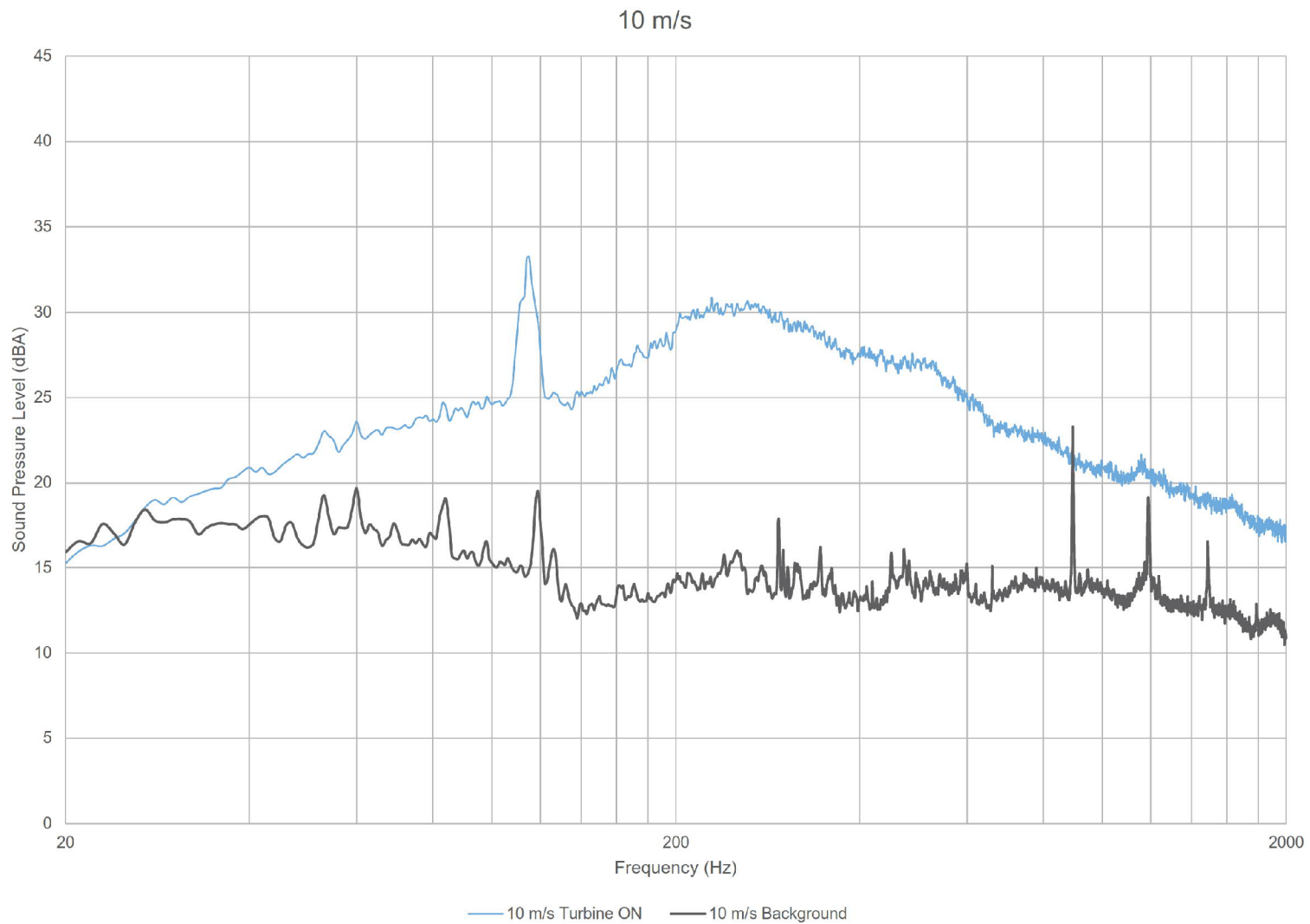
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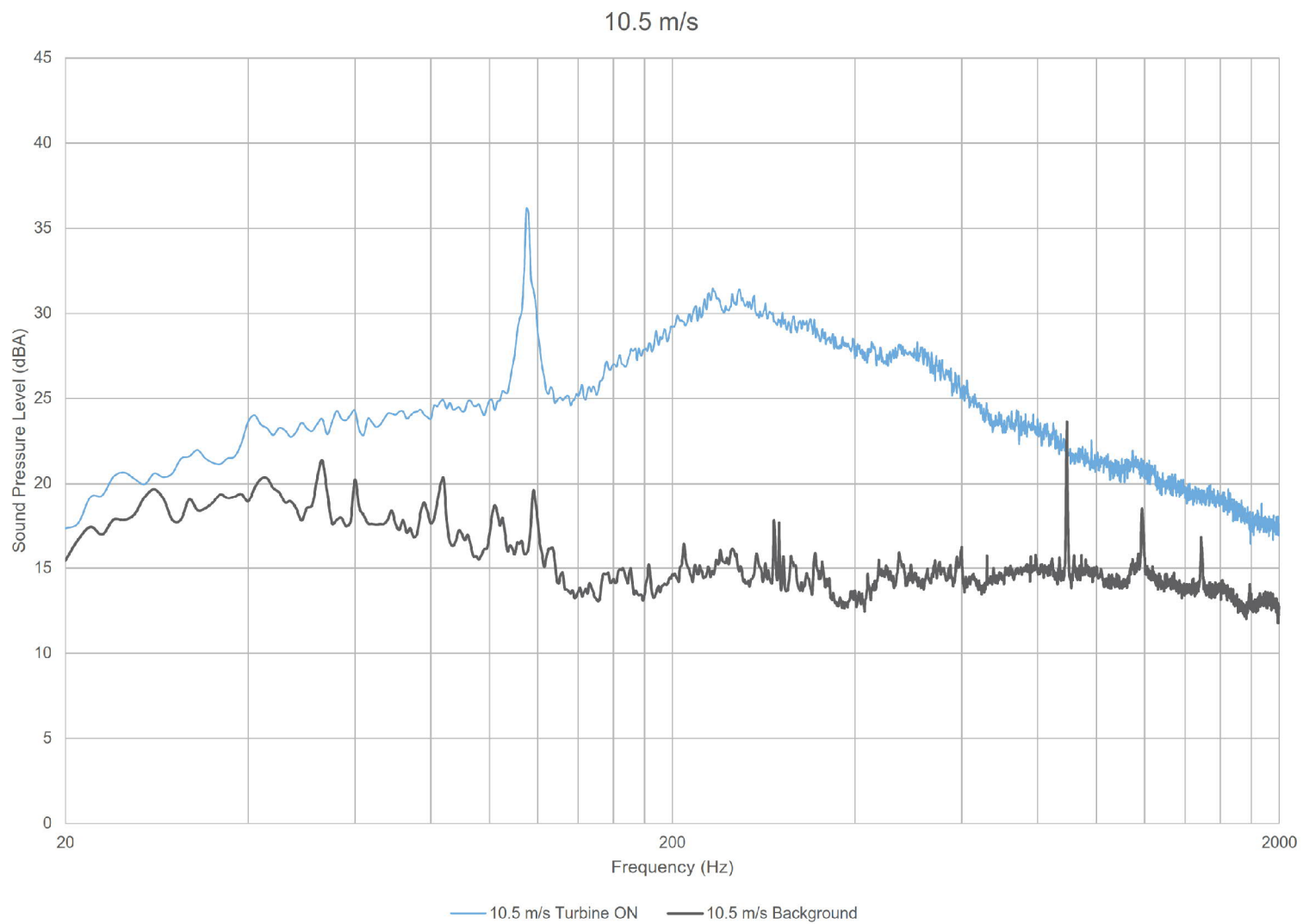


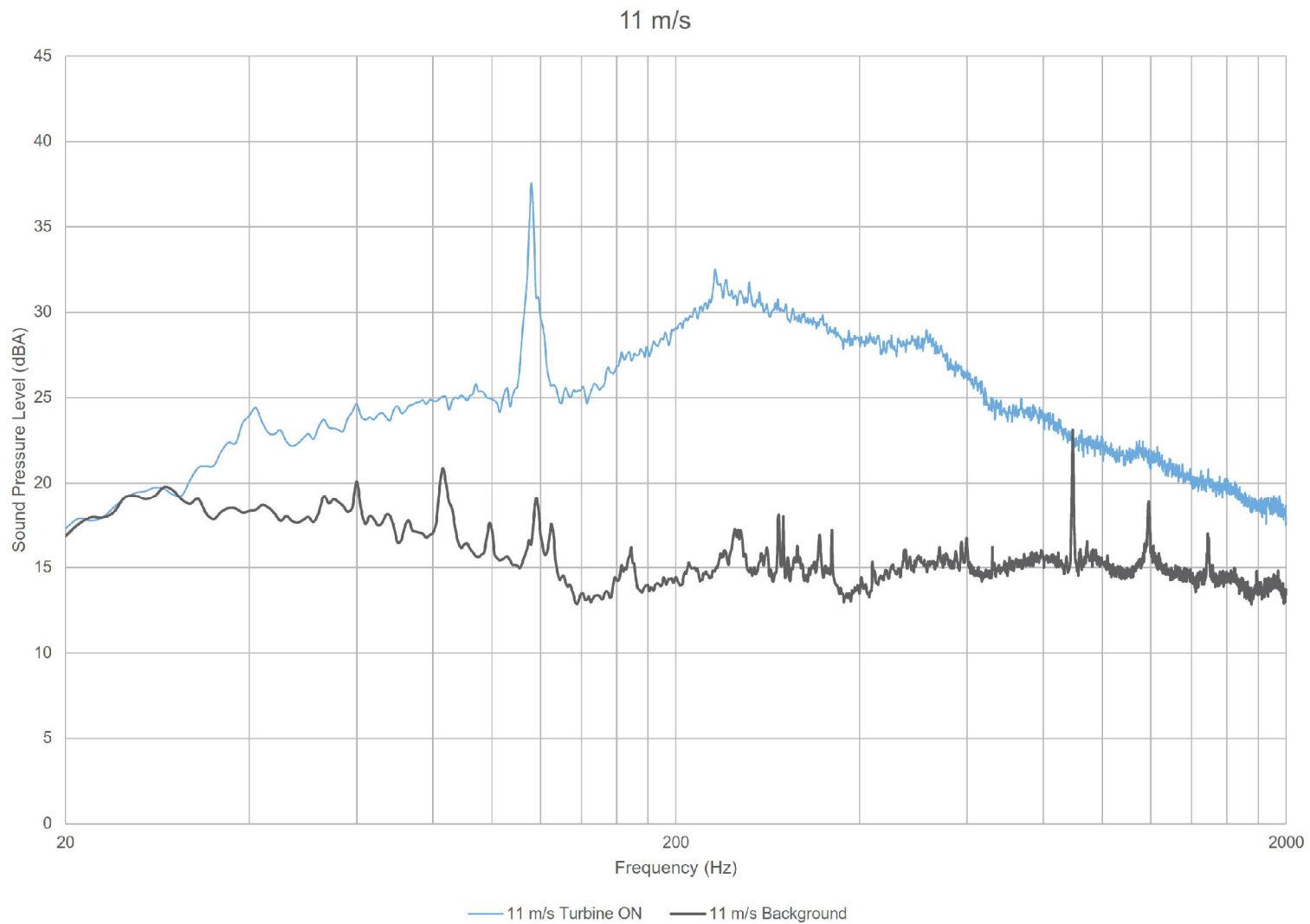


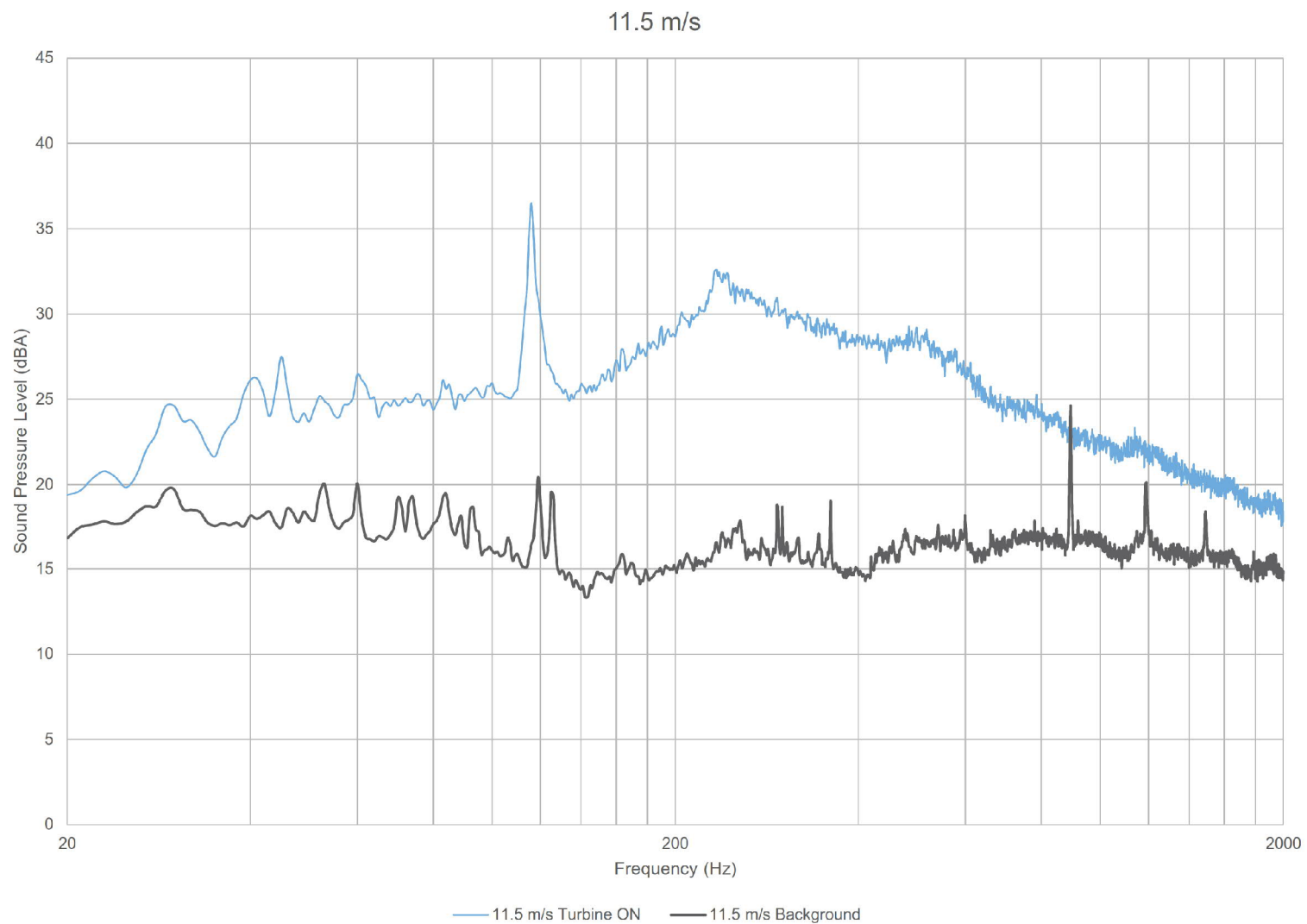




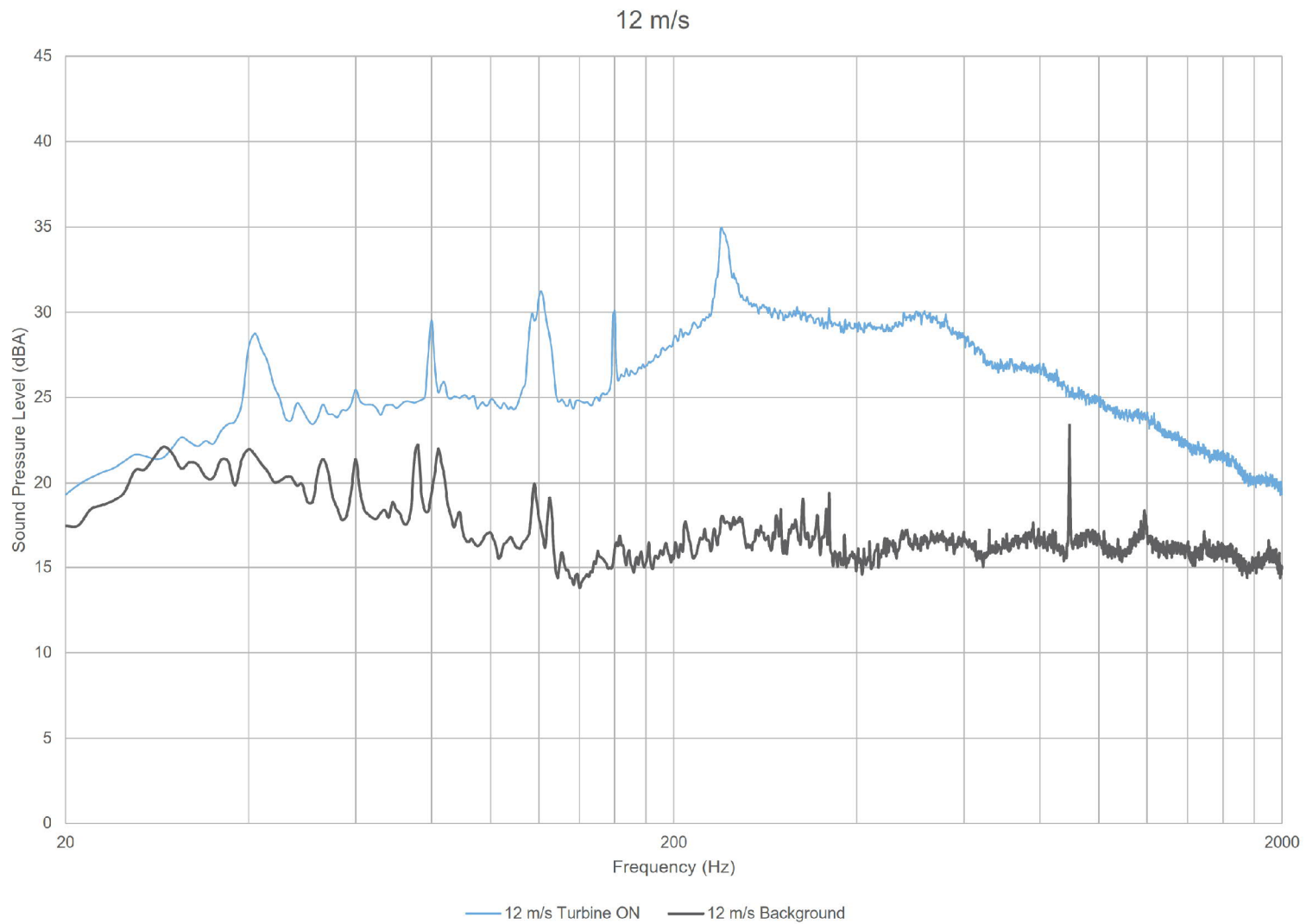


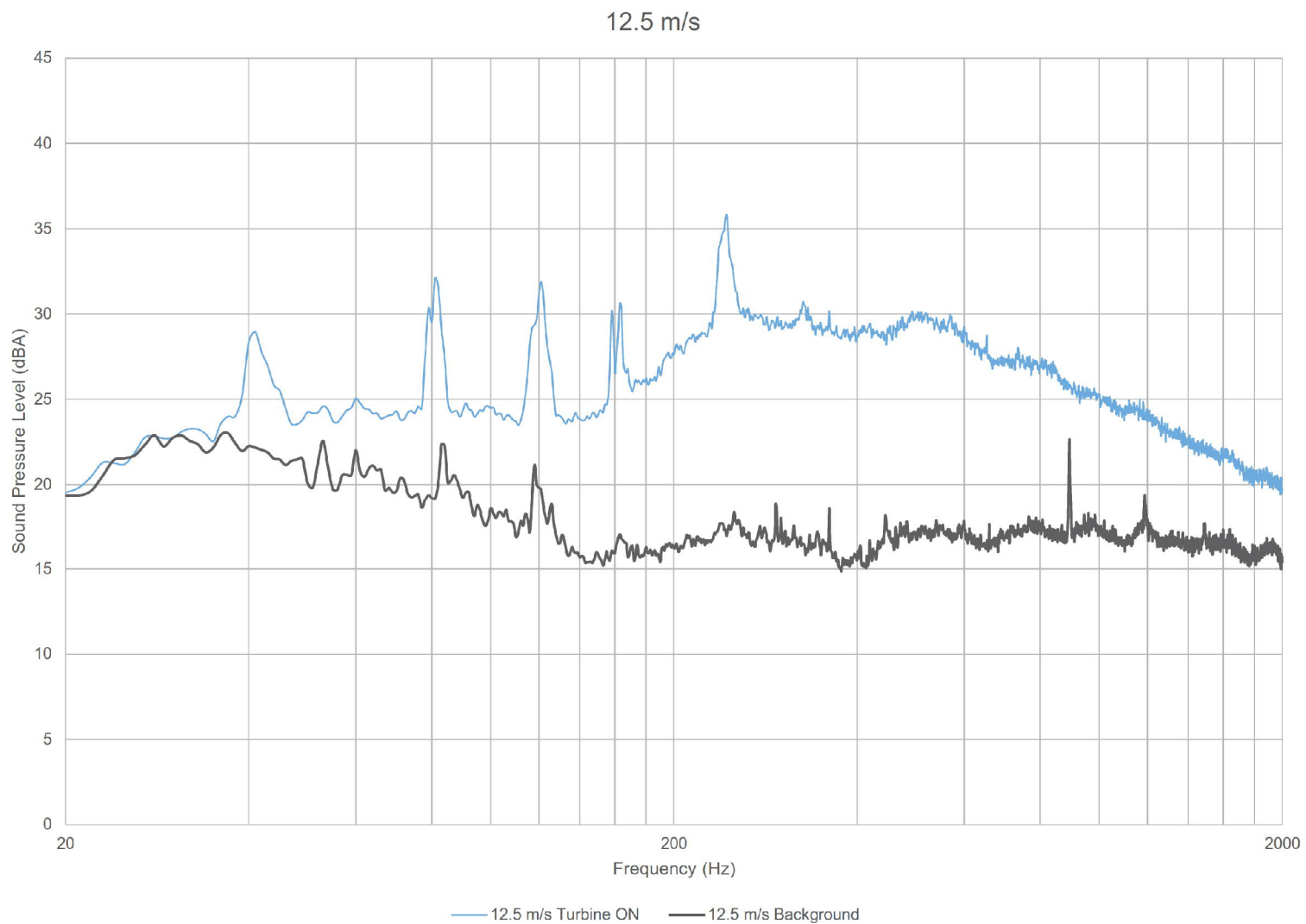


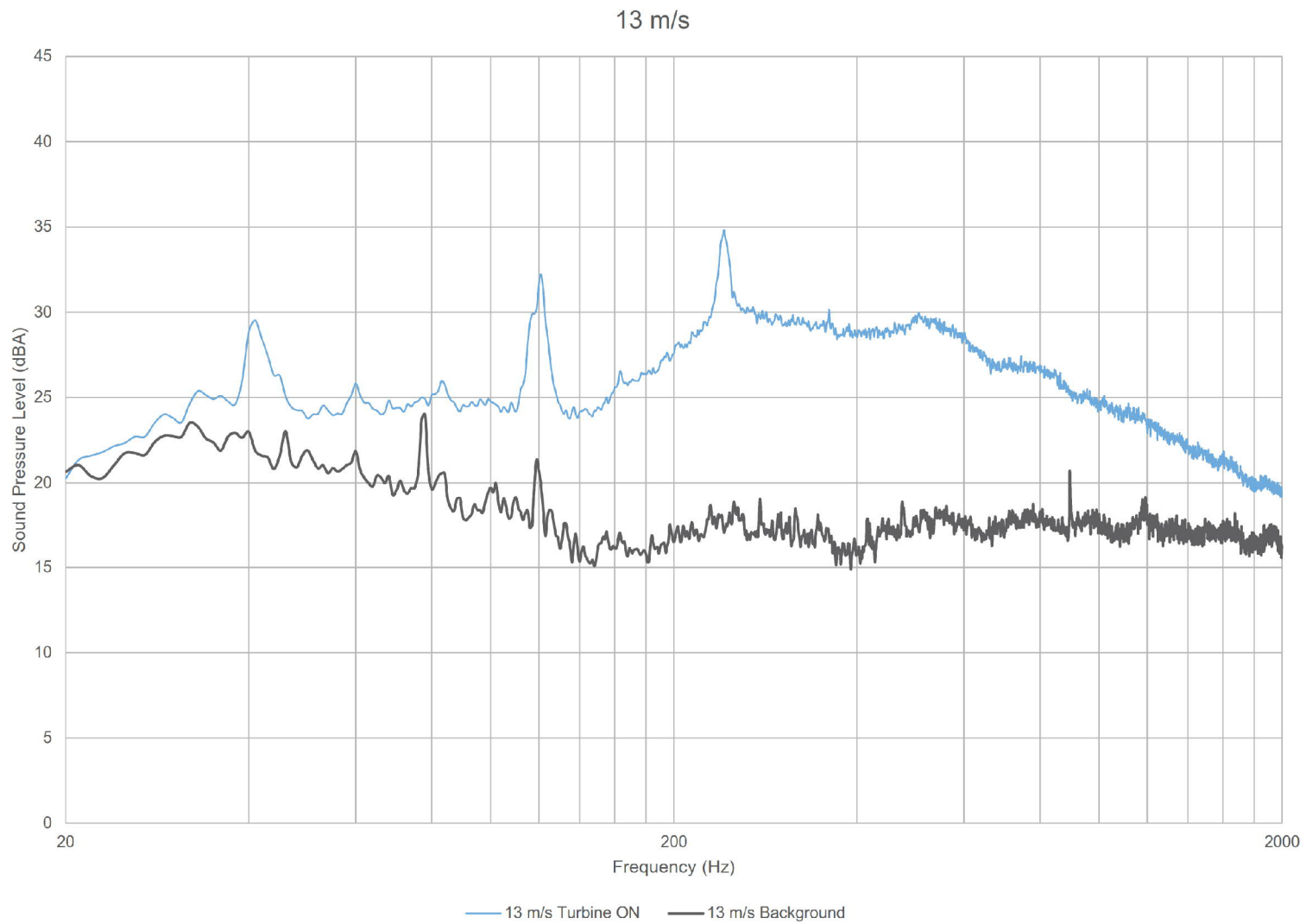


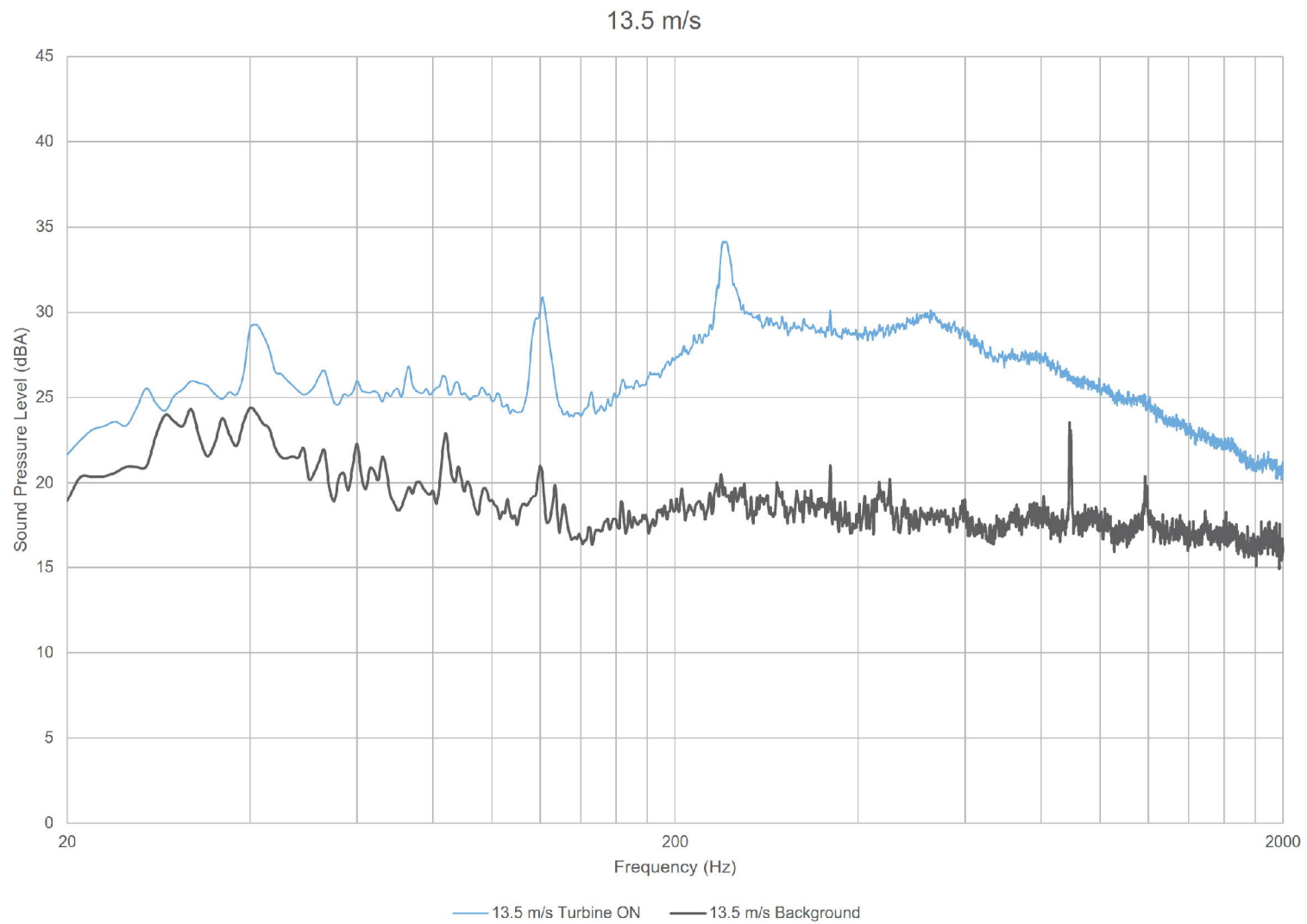












## Table D.01 Tonality Assessment Table - 8.5 m/s

Project: Niagara Region Wind Farm- Turbine T35 - IEC 61400-11 Measurement  
Report ID: 16227.00.T35.RP1

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Created on: 10/30/2017

| Measurement #       | Centre frequency (Hz) | Energy average of all masking lines (dB) | Background (dB) | Background adjusted criterion level (dB) | Masking level (dB) | Tone level (dB) | Determination of tonality (dB) | Frequency dependent audibility criterion (dB) | Tonal Audibility (dB) |
|---------------------|-----------------------|------------------------------------------|-----------------|------------------------------------------|--------------------|-----------------|--------------------------------|-----------------------------------------------|-----------------------|
| No Reportable Tones |                       |                                          |                 |                                          |                    |                 |                                |                                               |                       |

## Table D.02 Tonality Assessment Table - 9 m/s

Project: Niagara Region Wind Farm- Turbine T35 - IEC 61400-11 Measurement

Report ID: 16227.00.T35.RP1

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Created on: 10/30/2017

| Measurement #       | Centre frequency (Hz) | Energy average of all masking lines (dB) | Background (dB) | Background adjusted criterion level (dB) | Masking level (dB) | Tone level (dB) | Determination of tonality (dB) | Frequency dependent audibility criterion (dB) | Tonal Audibility (dB) |
|---------------------|-----------------------|------------------------------------------|-----------------|------------------------------------------|--------------------|-----------------|--------------------------------|-----------------------------------------------|-----------------------|
| No Reportable Tones |                       |                                          |                 |                                          |                    |                 |                                |                                               |                       |

## Table D.03 Tonality Assessment Table - 9.5 m/s

Project: Niagara Region Wind Farm- Turbine T35 - IEC 61400-11 Measurement

Report ID: 16227.00.T35.RP1

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Created on: 10/30/2017

| Measurement #       | Centre frequency (Hz) | Energy average of all masking lines (dB) | Background (dB) | Background adjusted criterion level (dB) | Masking level (dB) | Tone level (dB) | Determination of tonality (dB) | Frequency dependent audibility criterion (dB) | Tonal Audibility (dB) |
|---------------------|-----------------------|------------------------------------------|-----------------|------------------------------------------|--------------------|-----------------|--------------------------------|-----------------------------------------------|-----------------------|
| No Reportable Tones |                       |                                          |                 |                                          |                    |                 |                                |                                               |                       |

## Table D.04 Tonality Assessment Table - 10 m/s

Project: Niagara Region Wind Farm- Turbine T35 - IEC 61400-11 Measurement

Report ID: 16227.00.T35.RP1

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Created on: 10/30/2017

| Measurement #       | Centre frequency (Hz) | Energy average of all masking lines (dB) | Background (dB) | Background adjusted criterion level (dB) | Masking level (dB) | Tone level (dB) | Determination of tonality (dB) | Frequency dependent audibility criterion (dB) | Tonal Audibility (dB) |
|---------------------|-----------------------|------------------------------------------|-----------------|------------------------------------------|--------------------|-----------------|--------------------------------|-----------------------------------------------|-----------------------|
| No Reportable Tones |                       |                                          |                 |                                          |                    |                 |                                |                                               |                       |



## Table D.05 Tonality Assessment Table - 10.5 m/s

Project: Niagara Region Wind Farm- Turbine T35 - IEC 61400-11 Measurement

Report ID: 16227.00.T35.RP1

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Created on: 11/3/2017

| Measurement # | Centre frequency (Hz) | Energy average of all masking lines (dB) | Background (dB) | Background adjusted criterion level (dB) | Masking level (dB) | Tone level (dB) | Determination of tonality (dB) | Frequency dependent audibility criterion (dB) | Tonal Audibility (dB) |
|---------------|-----------------------|------------------------------------------|-----------------|------------------------------------------|--------------------|-----------------|--------------------------------|-----------------------------------------------|-----------------------|
| 311           | 115                   |                                          |                 | 24.7                                     | 43.0               | 40.3            | -2.7                           | -2.0                                          | -0.7                  |
| 379           | 115                   |                                          |                 | 25.7                                     | 43.9               | 42.2            | -1.7                           | -2.0                                          | 0.3                   |
| 57            | 115                   |                                          |                 | 25.5                                     | 43.8               | 40.0            | -3.9                           | -2.0                                          | -1.8                  |
| 302           | 115                   |                                          |                 | 24.7                                     | 43.0               | 37.7            | -5.3                           | -2.0                                          | -3.3                  |
| 268           | 115                   |                                          |                 | 25.4                                     | 43.7               | 39.0            | -4.7                           | -2.0                                          | -2.7                  |
| 344           | 116                   |                                          |                 | 25.3                                     | 43.6               | 33.0            | -10.6                          | -2.0                                          | -8.6                  |
| 391           | 116                   |                                          |                 | 25.2                                     | 43.5               | 36.6            | -6.9                           | -2.0                                          | -4.9                  |
| 381           | 116                   |                                          |                 | 25.9                                     | 44.2               | 33.8            | -10.3                          | -2.0                                          | -8.3                  |
| 351           | 116                   |                                          |                 | 25.7                                     | 44.0               | 39.1            | -5.0                           | -2.0                                          | -2.9                  |
| 64            | 116                   |                                          |                 | 27.3                                     | 45.6               | 39.7            | -5.8                           | -2.0                                          | -3.8                  |
| Average       | 115.5                 |                                          |                 |                                          |                    |                 | -4.9                           | -2.0                                          | -2.9                  |

## Table D.06 Tonality Assessment Table - 11 m/s

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| Measurement # | Centre frequency (Hz) | Energy average of all masking lines (dB) | Background (dB) | Background adjusted criterion level (dB) | Masking level (dB) | Tone level (dB) | Determination of tonality (dB) | Frequency dependent audibility criterion (dB) | Tonal Audibility (dB) |
|---------------|-----------------------|------------------------------------------|-----------------|------------------------------------------|--------------------|-----------------|--------------------------------|-----------------------------------------------|-----------------------|
| 65            | 115                   |                                          |                 | 26.3                                     | 44.6               | 41.2            | -3.3                           | -2.0                                          | -1.3                  |
| 312           | 116                   |                                          |                 | 25.6                                     | 43.9               | 40.8            | -3.0                           | -2.0                                          | -1.0                  |
| 61            | 116                   |                                          |                 | 27.0                                     | 45.3               | 39.9            | -5.4                           | -2.0                                          | -3.4                  |
| 372           | 116                   |                                          |                 | 25.5                                     | 43.8               | 41.9            | -1.9                           | -2.0                                          | 0.1                   |
| 276           | 116                   |                                          |                 | 25.1                                     | 43.4               | 39.6            | -3.7                           | -2.0                                          | -1.7                  |
| 271           | 116                   |                                          |                 | 25.6                                     | 43.9               | 40.8            | -3.1                           | -2.0                                          | -1.1                  |
| 62            | 116                   |                                          |                 | 27.2                                     | 45.5               | 39.0            | -6.5                           | -2.0                                          | -4.5                  |
| 342           | 116                   |                                          |                 | 25.8                                     | 44.1               | 39.5            | -4.6                           | -2.0                                          | -2.6                  |
| 24            | 116                   |                                          |                 | 25.8                                     | 44.1               | 40.6            | -3.5                           | -2.0                                          | -1.5                  |
| 270           | 116                   |                                          |                 | 24.9                                     | 43.1               | 33.6            | -9.6                           | -2.0                                          | -7.6                  |
| 370           | 116                   |                                          |                 | 25.7                                     | 44.0               | 39.7            | -4.3                           | -2.0                                          | -2.3                  |
| 349           | 116                   |                                          |                 | 24.7                                     | 43.0               | 37.2            | -5.8                           | -2.0                                          | -3.8                  |
| 303           | 116                   |                                          |                 | 25.2                                     | 43.5               | 40.2            | -3.3                           | -2.0                                          | -1.3                  |
| 51            | 116                   |                                          |                 | 26.0                                     | 44.3               | 38.2            | -6.1                           | -2.0                                          | -4.1                  |
| 237           | 116                   |                                          |                 | 25.6                                     | 43.9               | 33.7            | -10.2                          | -2.0                                          | -8.1                  |
| 277           | 117                   |                                          |                 | 25.8                                     | 44.1               | 39.8            | -4.3                           | -2.0                                          | -2.3                  |
| Average       | 116                   |                                          |                 |                                          |                    |                 | -4.4                           | -2.0                                          | -2.4                  |

## Table D.07 Tonality Assessment Table - 11.5 m/s

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| Measurement # | Centre frequency (Hz) | Energy average of all masking lines (dB) | Background (dB) | Background adjusted criterion level (dB) | Masking level (dB) | Tone level (dB) | Determination of tonality (dB) | Frequency dependent audibility criterion (dB) | Tonal Audibility (dB) |
|---------------|-----------------------|------------------------------------------|-----------------|------------------------------------------|--------------------|-----------------|--------------------------------|-----------------------------------------------|-----------------------|
| 63            | 115                   |                                          |                 | 28.4                                     | 46.7               | 38.1            | -8.6                           | -2.0                                          | -6.6                  |
| 265           | 115                   |                                          |                 | 26.2                                     | 44.4               | 38.9            | -5.6                           | -2.0                                          | -3.6                  |
| 88            | 116                   |                                          |                 | 26.2                                     | 44.5               | 34.3            | -10.2                          | -2.0                                          | -8.2                  |
| 193           | 116                   |                                          |                 | 26.4                                     | 44.7               | 34.0            | -10.6                          | -2.0                                          | -8.6                  |
| 275           | 116                   |                                          |                 | 25.1                                     | 43.3               | 39.9            | -3.5                           | -2.0                                          | -1.5                  |
| 285           | 116                   |                                          |                 | 25.2                                     | 43.5               | 40.0            | -3.5                           | -2.0                                          | -1.5                  |
| 371           | 116                   |                                          |                 | 25.5                                     | 43.8               | 36.7            | -7.0                           | -2.0                                          | -5.0                  |
| 272           | 116                   |                                          |                 | 25.5                                     | 43.8               | 41.2            | -2.6                           | -2.0                                          | -0.6                  |
| 284           | 116                   |                                          |                 | 25.6                                     | 43.9               | 42.3            | -1.6                           | -2.0                                          | 0.4                   |
| 300           | 118                   |                                          |                 | 25.0                                     | 43.3               | 37.2            | -6.1                           | -2.0                                          | -4.1                  |
| Average       | 116                   |                                          |                 |                                          |                    |                 | -5.0                           | -2.0                                          | -3.0                  |

## Table D.08 Tonality Assessment Table - 12 m/s

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| Measurement #       | Centre frequency (Hz) | Energy average of all masking lines (dB) | Background (dB) | Background adjusted criterion level (dB) | Masking level (dB) | Tone level (dB) | Determination of tonality (dB) | Frequency dependent audibility criterion (dB) | Tonal Audibility (dB) |
|---------------------|-----------------------|------------------------------------------|-----------------|------------------------------------------|--------------------|-----------------|--------------------------------|-----------------------------------------------|-----------------------|
| No Reportable Tones |                       |                                          |                 |                                          |                    |                 |                                |                                               |                       |

## Table D.09 Tonality Assessment Table - 12.5 m/s

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| Measurement #       | Centre frequency (Hz) | Energy average of all masking lines (dB) | Background (dB) | Background adjusted criterion level (dB) | Masking level (dB) | Tone level (dB) | Determination of tonality (dB) | Frequency dependent audibility criterion (dB) | Tonal Audibility (dB) |
|---------------------|-----------------------|------------------------------------------|-----------------|------------------------------------------|--------------------|-----------------|--------------------------------|-----------------------------------------------|-----------------------|
| No Reportable Tones |                       |                                          |                 |                                          |                    |                 |                                |                                               |                       |

## Table D.10 Tonality Assessment Table - 13 m/s

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| Measurement #       | Centre frequency (Hz) | Energy average of all masking lines (dB) | Background (dB) | Background adjusted criterion level (dB) | Masking level (dB) | Tone level (dB) | Determination of tonality (dB) | Frequency dependent audibility criterion (dB) | Tonal Audibility (dB) |
|---------------------|-----------------------|------------------------------------------|-----------------|------------------------------------------|--------------------|-----------------|--------------------------------|-----------------------------------------------|-----------------------|
| No Reportable Tones |                       |                                          |                 |                                          |                    |                 |                                |                                               |                       |

## Table D.11 Tonality Assessment Table - 13.5 m/s

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| Measurement #       | Centre frequency (Hz) | Energy average of all masking lines (dB) | Background (dB) | Background adjusted criterion level (dB) | Masking level (dB) | Tone level (dB) | Determination of tonality (dB) | Frequency dependent audibility criterion (dB) | Tonal Audibility (dB) |
|---------------------|-----------------------|------------------------------------------|-----------------|------------------------------------------|--------------------|-----------------|--------------------------------|-----------------------------------------------|-----------------------|
| No Reportable Tones |                       |                                          |                 |                                          |                    |                 |                                |                                               |                       |

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## Appendix E

## Measurement Data

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# Table E.01 Measurement data - Turbine ON

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\*\*\*Blank data denotes values that were omitted in the analysis due to an extraneous event during recording

| Data Point # | Standardized Wind Speed | Lidex | Turbine Power Output (kW) | Reference Yaw Angle (°) | Yaw Angle (°) | Pitch Angle (°) | Rotor RPM | Nacelle Anemometer Wind Speed (m/s) | 10m Anemometer Wind Speed (m/s) | Air Temperature (°C) | Pressure (Pa) | Relative Humidity (%) |
|--------------|-------------------------|-------|---------------------------|-------------------------|---------------|-----------------|-----------|-------------------------------------|---------------------------------|----------------------|---------------|-----------------------|
| 1            | 12.6                    | 55.7  | 2989                      | 209.0                   | 209.8         | 0.0             | 14.5      | 12.4                                | 12.4                            | 18                   | 99            | 65                    |
| 2            | 16.0                    | 54.9  | 2972                      | 209.0                   | 209.8         | 0.0             | 15.0      | 15.7                                | 11.8                            | 18                   | 99            | 65                    |
| 3            | 16.2                    | 56.4  | 2991                      | 209.0                   | 209.8         | 0.0             | 14.5      | 16.0                                | 11.1                            | 18                   | 99            | 65                    |
| 4            | 15.7                    | 54.1  | 3001                      | 209.0                   | 209.8         | 0.0             | 14.3      | 15.5                                | 11.5                            | 18                   | 99            | 65                    |
| 5            | 15.8                    | 55.4  | 2992                      | 209.0                   | 209.8         | 0.0             | 14.5      | 15.6                                | 9.2                             | 18                   | 99            | 65                    |
| 6            | 14.4                    | 54.0  | 2992                      | 209.0                   | 209.8         | 0.0             | 14.4      | 14.1                                | 10.8                            | 18                   | 99            | 65                    |
| 7            | 15.0                    | 55.5  | 2990                      | 209.0                   | 209.8         | 0.0             | 14.2      | 14.8                                | 10.1                            | 18                   | 99            | 65                    |
| 8            | 14.3                    | 54.4  | 2972                      | 209.0                   | 209.8         | 0.0             | 14.5      | 14.1                                | 12.6                            | 18                   | 99            | 65                    |
| 9            | 16.3                    | 55.8  | 3008                      | 209.0                   | 209.8         | 0.0             | 14.3      | 16.0                                | 11.8                            | 18                   | 99            | 65                    |
| 10           | 14.1                    | 55.9  | 3001                      | 209.0                   | 209.8         | 0.0             | 14.4      | 13.9                                | 8.0                             | 18                   | 99            | 65                    |
| 11           | 12.0                    | 56.6  | 3006                      | 209.0                   | 209.8         | 0.0             | 14.4      | 11.9                                | 11.8                            | 18                   | 99            | 1                     |
| 12           | 12.7                    | 54.7  | 3000                      | 209.0                   | 209.8         | 0.0             | 14.7      | 12.5                                | 12.0                            | 18                   | 99            | 65                    |
| 13           | 13.5                    | 55.7  | 2988                      | 209.0                   | 209.8         | 0.0             | 14.5      | 13.3                                | 12.3                            | 18                   | 99            | 64                    |
| 14           | 13.0                    | 55.2  | 3029                      | 209.0                   | 209.8         | 0.0             | 14.2      | 12.8                                | 11.8                            | 18                   | 99            | 64                    |
| 15           | 14.0                    | 54.2  | 3023                      | 209.0                   | 209.8         | 0.0             | 14.2      | 13.8                                | 12.3                            | 18                   | 99            | 64                    |
| 16           | 12.8                    | 55.9  | 3003                      | 209.0                   | 209.8         | 0.0             | 14.3      | 10.3                                | 18                              | 99                   | 64            |                       |
| 17           | 12.8                    | 54.2  | 2989                      | 209.0                   | 209.8         | 0.0             | 14.1      | 12.6                                | 10.8                            | 18                   | 99            | 64                    |
| 18           |                         |       | 2993                      | 209.0                   | 209.8         | 0.0             | 14.3      | 11.4                                | 10.1                            | 18                   | 99            | 64                    |
| 19           | 12.1                    | 54.1  | 3008                      | 209.0                   | 209.8         | 0.0             | 14.2      | 11.9                                | 12.4                            | 18                   | 99            | 64                    |
| 20           |                         |       | 2685                      | 209.0                   | 209.8         | 0.0             | 13.8      | 11.9                                | 11.8                            | 18                   | 99            | 64                    |
| 21           |                         |       | 2259                      | 209.0                   | 209.8         | 0.0             | 13.5      | 12.5                                | 12.1                            | 18                   | 99            | 64                    |
| 22           |                         |       | 2210                      | 209.0                   | 209.8         | 0.0             | 13.5      | 10.8                                | 11.8                            | 18                   | 99            | 64                    |
| 23           |                         |       | 2475                      | 209.0                   | 209.8         | 0.0             | 13.7      | 10.5                                | 11.2                            | 18                   | 99            | 64                    |
| 24           | 10.9                    | 53.7  | 2769                      | 209.0                   | 209.8         | 0.0             | 13.9      | 10.5                                | 10.5                            | 18                   | 99            | 64                    |
| 25           | 12.9                    | 55.5  | 2999                      | 209.0                   | 209.8         | 0.0             | 14.4      | 12.7                                | 12.4                            | 18                   | 99            | 64                    |
| 26           | 13.6                    | 54.4  | 2999                      | 209.0                   | 209.8         | 0.0             | 14.3      | 13.4                                | 14.5                            | 18                   | 99            | 64                    |
| 27           | 15.2                    | 56.7  | 3002                      | 209.0                   | 209.8         | 0.0             | 14.3      | 14.9                                | 13.4                            | 18                   | 99            | 64                    |
| 28           | 15.6                    | 56.5  | 3001                      | 209.0                   | 209.8         | 0.0             | 14.3      | 15.3                                | 11.8                            | 18                   | 99            | 64                    |
| 29           | 16.5                    | 56.2  | 2972                      | 209.0                   | 209.8         | 0.0             | 14.4      | 16.3                                | 11.0                            | 18                   | 99            | 64                    |
| 30           | 13.9                    | 55.8  | 2976                      | 209.0                   | 209.8         | 0.0             | 14.3      | 13.7                                | 13.0                            | 18                   | 99            | 64                    |
| 31           | 13.4                    | 55.4  | 2979                      | 209.0                   | 209.8         | 0.0             | 13.9      | 12.3                                | 11.7                            | 18                   | 99            | 63                    |
| 32           | 13.6                    | 55.9  | 2983                      | 209.0                   | 209.8         | 0.0             | 14.3      | 11.5                                | 18                              | 99                   | 63            |                       |
| 33           |                         |       | 2998                      | 209.0                   | 209.8         | 0.0             | 14.2      | 11.4                                | 13.0                            | 18                   | 99            | 63                    |
| 34           |                         |       | 2957                      | 209.0                   | 209.8         | 0.0             | 14.3      | 10.9                                | 12.7                            | 18                   | 99            | 63                    |
| 35           |                         |       | 3011                      | 209.0                   | 209.8         | 0.0             | 14.3      | 11.4                                | 12.0                            | 18                   | 99            | 63                    |
| 36           | 11.8                    | 55.5  | 2972                      | 209.0                   | 209.8         | 0.0             | 14.0      | 11.6                                | 12.1                            | 18                   | 99            | 63                    |
| 37           |                         |       | 3012                      | 209.0                   | 209.8         | 0.0             | 14.4      | 11.4                                | 11.8                            | 18                   | 99            | 64                    |
| 38           |                         |       | 3025                      | 209.0                   | 209.8         | 0.0             | 14.2      | 13.1                                | 10.3                            | 18                   | 99            | 64                    |
| 39           | 13.8                    | 54.5  | 2992                      | 209.0                   | 209.8         | 0.0             | 14.2      | 13.6                                | 8.2                             | 18                   | 99            | 64                    |
| 40           | 14.5                    | 55.8  | 3015                      | 209.0                   | 209.8         | 0.0             | 14.3      | 14.3                                | 12.1                            | 18                   | 99            | 64                    |
| 41           |                         |       | 3049                      | 209.0                   | 209.8         | 0.0             | 14.4      | 14.5                                | 11.1                            | 18                   | 99            | 64                    |
| 42           |                         |       | 3043                      | 209.0                   | 206.1         | 0.0             | 14.1      | 13.9                                | 12.3                            | 18                   | 99            | 64                    |
| 43           | 14.8                    | 54.9  | 2994                      | 209.0                   | 205.8         | 0.0             | 14.6      | 14.6                                | 12.1                            | 18                   | 99            | 64                    |
| 44           | 13.7                    | 54.0  | 2975                      | 209.0                   | 205.8         | 0.0             | 14.3      | 13.5                                | 10.9                            | 18                   | 99            | 64                    |
| 45           | 13.3                    | 54.3  | 2994                      | 209.0                   | 205.8         | 0.0             | 14.3      | 13.1                                | 10.3                            | 18                   | 99            | 64                    |
| 46           | 12.7                    | 54.6  | 3001                      | 209.0                   | 205.8         | 0.0             | 14.4      | 12.5                                | 8.6                             | 18                   | 99            | 64                    |
| 47           |                         |       | 2996                      | 209.0                   | 205.8         | 0.0             | 14.5      | 11.3                                | 9.5                             | 18                   | 99            | 64                    |
| 48           | 13.1                    | 54.7  | 3000                      | 209.0                   | 205.8         | 0.0             | 14.3      | 12.9                                | 8.0                             | 18                   | 99            | 64                    |
| 49           |                         |       | 3004                      | 209.0                   | 205.8         | 0.0             | 14.1      | 11.2                                | 8.0                             | 18                   | 99            | 65                    |
| 50           |                         |       | 2943                      | 209.0                   | 205.8         | 0.0             | 14.0      | 10.6                                | 8.3                             | 18                   | 99            | 65                    |
| 51           | 11.1                    | 54.2  | 2842                      | 209.0                   | 205.8         | 0.0             | 13.9      | 11.5                                | 8.2                             | 18                   | 99            | 65                    |
| 52           |                         |       | 2976                      | 209.0                   | 205.8         | 0.0             | 14.4      | 11.1                                | 10.6                            | 18                   | 99            | 65                    |
| 53           |                         |       | 2733                      | 209.0                   | 205.8         | 0.0             | 13.8      | 12.0                                | 12.7                            | 18                   | 99            | 65                    |
| 54           |                         |       | 2283                      | 209.0                   | 205.8         | 0.0             | 13.5      | 10.3                                | 11.8                            | 18                   | 99            | 65                    |
| 55           |                         |       | 2308                      | 209.0                   | 205.8         | 0.0             | 13.5      | 10.9                                | 12.1                            | 18                   | 99            | 64                    |
| 56           |                         |       | 2145                      | 209.0                   | 205.8         | 0.0             | 13.4      | 9.4                                 | 10.6                            | 18                   | 99            | 64                    |
| 57           | 10.4                    | 52.1  | 2521                      | 209.0                   | 205.8         | 0.0             | 13.7      | 10.8                                | 10.0                            | 18                   | 99            | 64                    |
| 58           | 9.6                     | 52.3  | 2067                      | 209.0                   | 205.8         | 0.0             | 13.4      | 9.6                                 | 9.4                             | 18                   | 99            | 64                    |
| 59           | 10.1                    | 53.3  | 2384                      | 209.0                   | 205.8         | 0.0             | 13.6      | 9.9                                 | 8.3                             | 18                   | 99            | 64                    |
| 60           |                         |       | 2284                      | 209.0                   | 205.8         | 0.0             | 13.5      | 10.9                                | 10.9                            | 18                   | 99            | 64                    |
| 61           | 10.8                    | 54.2  | 2715                      | 209.0                   | 205.8         | 0.0             | 13.8      | 11.1                                | 10.2                            | 18                   | 99            | 65                    |
| 62           | 10.8                    | 54.0  | 2748                      | 209.0                   | 205.8         | 0.0             | 13.9      | 10.7                                | 8.5                             | 18                   | 99            | 65                    |
| 63           | 11.4                    | 54.5  | 2890                      | 209.0                   | 205.8         | 0.0             | 13.9      | 10.8                                | 8.6                             | 18                   | 99            | 65                    |
| 64           | 10.7                    | 53.2  | 2693                      | 209.0                   | 205.8         | 0.0             | 13.8      | 11.6                                | 8.9                             | 18                   | 99            | 65                    |
| 65           | 10.8                    | 54.9  | 2746                      | 209.0                   | 205.8         | 0.0             | 13.8      | 10.8                                | 9.2                             | 18                   | 99            | 65                    |
| 66           | 13.0                    | 55.3  | 3031                      | 209.0                   | 205.8         | 0.0             | 14.3      | 12.8                                | 11.8                            | 18                   | 99            | 65                    |
| 67           |                         |       | 2959                      | 209.0                   | 205.8         | 0.0             | 14.0      | 10.6                                | 10.1                            | 18                   | 99            | 65                    |
| 68           | 14.0                    | 56.2  | 2983                      | 209.0                   | 205.8         | 0.0             | 14.7      | 13.8                                | 11.8                            | 18                   | 99            | 65                    |
| 69           | 12.8                    | 53.8  | 2973                      | 209.0                   | 205.8         | 0.0             | 14.6      | 12.6                                | 11.3                            | 18                   | 99            | 65                    |
| 70           | 12.2                    | 56.6  | 3001                      | 209.0                   | 205.8         | 0.0             | 14.5      | 12.0                                | 9.1                             | 18                   | 99            | 65                    |
| 71           | 15.5                    | 54.3  | 3020                      | 209.0                   | 205.8         | 0.0             | 14.1      | 15.3                                | 10.3                            | 18                   | 99            | 65                    |
| 72           | 15.4                    | 56.5  | 3002                      | 209.0                   | 205.8         | 0.0             | 14.3      | 15.2                                | 10.1                            | 18                   | 99            | 65                    |
| 73           | 13.9                    | 55.2  | 3021                      | 209.0                   | 205.8         | 0.0             | 14.5      | 13.7                                | 10.7                            | 18                   | 99            | 65                    |
| 74           | 15.1                    | 55.4  | 3030                      | 209.0                   | 205.8         | 0.0             | 14.3      | 14.9                                | 10.1                            | 18                   | 99            | 65                    |
| 75           | 15.3                    | 55.4  | 2998                      | 209.0                   | 205.8         | 0.0             | 14.4      | 15.1                                | 9.8                             | 18                   | 99            | 65                    |
| 76           |                         |       | 3001                      | 209.0                   | 205.8         | 0.0             | 14.4      | 11.2                                | 8.2                             | 18                   | 99            | 65                    |
| 77           | 12.8                    | 54.9  | 2976                      | 209.0                   | 205.8         | 0.0             | 14.8      | 12.6                                | 9.2                             | 18                   | 99            | 65                    |
| 78           | 13.1                    | 55.6  | 3004                      | 209.0                   | 205.8         | 0.0             | 14.2      | 13.0                                | 10.0                            | 18                   | 99            | 65                    |
| 79           |                         |       | 3020                      | 209.0                   | 205.8         | 0.0             | 14.0      | 11.4                                | 8.9                             | 18                   | 99            | 66                    |
| 80           | 14.0                    | 54.7  | 3008                      | 209.0                   | 205.8         | 0.0             | 14.3      | 13.8                                | 7.3                             | 18                   | 99            | 66                    |
| 81           | 15.1                    | 53.3  | 3006                      | 209.0                   | 205.8         | 0.0             | 14.3      | 14.9                                | 8.0                             | 18                   | 99            | 66                    |
| 82           |                         |       | 3019                      | 209.0                   | 205.8         | 0.0             | 14.4      | 11.5                                | 8.0                             | 18                   | 99            | 66                    |
| 83           | 14.8                    | 54.6  | 3007                      | 209.0                   | 205.8         | 0.0             | 14.4      | 14.6                                | 10.9                            | 18                   | 99            | 66                    |
| 84           |                         |       | 3020                      | 209.0                   | 205.8         | 0.0             | 14.3      | 11.5                                | 9.7                             | 18                   | 99            | 66                    |
| 85           | 13.0                    | 54.8  | 3004                      | 209.0                   | 205.8         | 0.0             | 14.5      | 12.8                                | 10.1                            | 18                   | 99            | 66                    |
| 86           | 14.3                    | 55.6  | 3002                      | 209.0                   | 205.8         | 0.0             | 14.5      | 14.1                                | 8.9                             | 18                   | 99            | 66                    |
| 87           |                         |       | 3020                      | 209.0                   | 205.8         | 0.0             | 14.0      | 10.8                                | 8.8                             | 18                   | 99            | 65                    |
| 88           | 11.3                    | 53.7  | 2869                      | 209.0                   | 205.8         | 0.0             | 13.9      | 10.5                                | 8.3                             | 18                   | 99            | 65                    |

\*\*\*Blank data denotes values that were omitted in the analysis due to an extraneous event during recording

| Data Point # | Standardized Wind Speed | Lidex | Turbine Power Output (kW) | Reference Yaw Angle (°) | Yaw Angle (°) | Pitch Angle (°) | Rotor RPM | Nacelle Anemometer Wind Speed (m/s) | 10m Anemometer Wind Speed (m/s) | Air Temperature (°C) | Pressure (Pa) | Relative Humidity (%) |
|--------------|-------------------------|-------|---------------------------|-------------------------|---------------|-----------------|-----------|-------------------------------------|---------------------------------|----------------------|---------------|-----------------------|
| 89           |                         |       | 3024                      | 209.0                   | 205.8         | 0.0             | 14.3      | 10.6                                | 7.7                             | 18                   | 99            | 65                    |
| 90           | 12.9                    | 54.2  | 2996                      | 209.0                   | 205.8         | 0.0             | 14.1      | 12.7                                | 7.0                             | 18                   | 99            | 66                    |
| 91           |                         |       | 3023                      | 209.0                   | 205.8         | 0.0             | 14.4      | 11.4                                | 10.5                            | 18                   | 99            | 66                    |
| 92           | 11.8                    | 54.7  | 3021                      | 209.0                   | 205.8         | 0.0             | 14.2      | 11.6                                | 8.3                             | 18                   | 99            | 66                    |
| 93           | 13.1                    | 53.9  | 3020                      | 209.0                   | 205.8         | 0.0             | 14.2      | 12.9                                | 9.2                             | 18                   | 99            | 66                    |
| 94           | 12.4                    | 53.9  | 3005                      | 209.0                   | 205.8         | 0.0             | 14.2      | 12.3                                | 7.4                             | 18                   | 99            | 66                    |
| 95           |                         |       | 2985                      | 209.0                   | 205.8         | 0.0             | 14.3      | 11.2                                | 8.9                             | 18                   | 99            | 66                    |
| 96           |                         |       | 2991                      | 209.0                   | 205.8         | 0.0             | 14.0      | 11.1                                | 8.3                             | 18                   | 99            | 66                    |
| 97           | 12.0                    | 54.5  | 2983                      | 209.0                   | 205.8         | 0.0             | 15.0      | 11.8                                | 10.1                            | 18                   | 99            | 66                    |
| 98           | 13.3                    | 54.9  | 2997                      | 209.0                   | 205.8         | 0.0             | 14.5      | 13.1                                | 12.1                            | 18                   | 99            | 66                    |
| 99           | 12.3                    | 54.7  | 3008                      | 209.0                   | 205.8         | 0.0             | 14.2      | 12.2                                | 12.4                            | 18                   | 99            | 66                    |
| 100          | 12.0                    | 54.6  | 3033                      | 209.0                   | 205.8         | 0.0             | 14.4      | 11.8                                | 12.0                            | 18                   | 99            | 66                    |
| 101          | 12.0                    | 54.1  | 2995                      | 209.0                   | 205.8         | 0.0             | 14.7      | 11.9                                | 9.5                             | 18                   | 99            | 66                    |
| 102          | 12.6                    | 55.5  | 3002                      | 209.0                   | 205.8         | 0.0             | 14.5      | 12.4                                | 9.1                             | 18                   | 99            | 66                    |
| 103          | 13.3                    | 56.0  | 3013                      | 209.0                   | 205.8         | 0.0             | 14.2      | 13.1                                | 8.3                             | 18                   | 99            | 65                    |
| 104          | 12.2                    | 55.8  | 3018                      | 209.0                   | 205.8         | 0.0             | 14.5      | 12.0                                | 12.0                            | 18                   | 99            | 65                    |
| 105          |                         |       | 2976                      | 209.0                   | 205.8         | 0.0             | 14.4      | 11.4                                | 13.9                            | 18                   | 99            | 65                    |
| 106          | 15.0                    | 52.8  | 2986                      | 209.0                   | 205.8         | 0.0             | 14.2      | 14.7                                | 10.8                            | 18                   | 99            | 65                    |
| 107          | 13.7                    | 54.2  | 2991                      | 209.0                   | 207.9         | 0.0             | 14.2      | 13.5                                |                                 |                      |               |                       |

# Table E.01 Measurement data - Turbine ON

Project: Niagara Wind Farm - Turbine T35 - IEC 61400-11 Measurement  
Report ID: 16227.00.T35.RP1

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\*\*\*Blank data denotes values that were omitted in the analysis due to an extraneous event during recording

| Data Point # | Standardized<br>Wind Speed<br>(m/s) | Lidex | Turbine Power<br>Output (kW) | Reference Yaw<br>Angle (°) | Yaw Angle<br>(°) | Pitch<br>Angle (°) | Rotor<br>RPM | Nacelle Anemometer<br>Wind Speed (m/s) | 10m Anemometer<br>Wind Speed (m/s) | Air Temperature<br>(°C) | Pressure<br>(hPa) | Relative<br>Humidity (%) |
|--------------|-------------------------------------|-------|------------------------------|----------------------------|------------------|--------------------|--------------|----------------------------------------|------------------------------------|-------------------------|-------------------|--------------------------|
| 177          | 14.0                                | 55.1  | 2977                         | 209.0                      | 211.8            | 0.0                | 14.6         | 13.8                                   | 11.3                               | 18                      | 99                | 66                       |
| 178          | 13.5                                | 55.4  | 2998                         | 209.0                      | 211.8            | 0.0                | 14.5         | 13.3                                   | 10.1                               | 18                      | 99                | 66                       |
| 179          | 13.7                                | 56.0  | 3007                         | 209.0                      | 211.8            | 0.0                | 14.3         | 13.5                                   | 11.3                               | 18                      | 99                | 66                       |
| 180          | 14.4                                | 54.7  | 2965                         | 209.0                      | 211.8            | 0.0                | 14.4         | 14.2                                   | 10.9                               | 18                      | 99                | 66                       |
| 181          | 13.3                                | 56.6  | 3009                         | 209.0                      | 211.8            | 0.0                | 14.3         | 13.1                                   | 11.5                               | 18                      | 99                | 66                       |
| 182          | 12.8                                | 54.2  | 3010                         | 209.0                      | 211.8            | 0.0                | 14.2         | 12.7                                   | 13.2                               | 18                      | 99                | 66                       |
| 183          | 12.5                                | 53.9  | 2993                         | 209.0                      | 211.8            | 0.0                | 14.2         | 12.3                                   | 10.3                               | 18                      | 99                | 66                       |
| 184          |                                     |       | 3018                         | 209.0                      | 211.8            | 0.0                | 14.3         | 11.3                                   | 10.6                               | 18                      | 99                | 66                       |
| 185          | 12.2                                | 55.7  | 2994                         | 209.0                      | 211.8            | 0.0                | 14.3         | 12.1                                   | 10.3                               | 18                      | 99                | 66                       |
| 186          | 13.1                                | 56.0  | 3000                         | 209.0                      | 211.8            | 0.0                | 14.3         | 12.9                                   | 10.1                               | 18                      | 99                | 66                       |
| 187          | 12.2                                | 56.8  | 3017                         | 209.0                      | 211.8            | 0.0                | 14.2         | 12.0                                   | 10.7                               | 18                      | 99                | 66                       |
| 188          | 13.3                                | 56.5  | 3025                         | 209.0                      | 211.8            | 0.0                | 14.4         | 13.1                                   | 10.8                               | 18                      | 99                | 66                       |
| 189          | 14.9                                | 55.0  | 2992                         | 209.0                      | 211.8            | 0.0                | 14.5         | 14.7                                   | 12.6                               | 18                      | 99                | 66                       |
| 190          | 14.7                                | 54.3  | 2953                         | 209.0                      | 211.8            | 0.0                | 14.2         | 14.5                                   | 12.0                               | 18                      | 99                | 66                       |
| 191          | 13.6                                | 53.2  | 2973                         | 209.0                      | 211.8            | 0.0                | 14.0         | 13.4                                   | 12.7                               | 18                      | 99                | 66                       |
| 192          | 13.9                                | 54.6  | 3028                         | 209.0                      | 210.7            | 0.0                | 14.4         | 13.7                                   | 10.9                               | 18                      | 99                | 66                       |
| 193          | 11.3                                | 54.7  | 2875                         | 207.9                      | 207.9            | 0.0                | 13.9         | 10.8                                   | 11.4                               | 18                      | 99                | 66                       |
| 194          |                                     |       | 2996                         | 209.0                      | 207.9            | 0.0                | 14.2         | 10.7                                   | 12.6                               | 18                      | 99                | 66                       |
| 195          | 12.5                                | 54.5  | 3034                         | 209.0                      | 207.9            | 0.0                | 14.1         | 12.3                                   | 10.4                               | 18                      | 99                | 66                       |
| 196          | 13.1                                | 52.8  | 3028                         | 209.0                      | 207.9            | 0.0                | 14.1         | 12.9                                   | 12.4                               | 18                      | 99                | 66                       |
| 197          | 15.5                                | 54.7  | 3012                         | 207.9                      | 207.9            | 0.0                | 14.2         | 15.3                                   | 11.6                               | 18                      | 99                | 66                       |
| 198          | 14.1                                | 55.3  | 3015                         | 209.0                      | 207.9            | 0.0                | 14.3         | 13.9                                   | 10.8                               | 18                      | 99                | 66                       |
| 199          | 12.6                                | 54.5  | 3035                         | 209.0                      | 207.9            | 0.0                | 14.2         | 12.4                                   | 10.9                               | 18                      | 99                | 67                       |
| 200          | 12.3                                | 54.5  | 2970                         | 209.0                      | 207.9            | 0.0                | 14.5         | 11.2                                   | 11.2                               | 18                      | 99                | 67                       |
| 201          | 13.4                                | 56.2  | 3013                         | 207.9                      | 207.9            | 0.0                | 14.6         | 13.2                                   | 11.5                               | 18                      | 99                | 67                       |
| 202          | 13.3                                | 54.7  | 3013                         | 209.0                      | 207.9            | 0.0                | 14.3         | 13.1                                   | 9.4                                | 18                      | 99                | 67                       |
| 203          | 12.7                                | 54.3  | 3034                         | 209.0                      | 207.9            | 0.0                | 14.2         | 12.5                                   | 8.3                                | 18                      | 99                | 67                       |
| 204          | 13.3                                | 55.3  | 3006                         | 209.0                      | 207.9            | 0.0                | 14.4         | 13.1                                   | 11.4                               | 18                      | 99                | 67                       |
| 205          | 12.0                                | 54.7  | 3013                         | 209.0                      | 207.9            | 0.0                | 14.4         | 11.8                                   | 9.8                                | 18                      | 99                | 66                       |
| 206          |                                     |       | 3019                         | 207.9                      | 207.9            | 0.0                | 14.3         | 10.9                                   | 11.7                               | 18                      | 99                | 66                       |
| 207          |                                     |       | 3017                         | 209.0                      | 207.9            | 0.0                | 14.3         | 11.5                                   | 12.2                               | 18                      | 99                | 66                       |
| 208          | 12.0                                | 55.9  | 3012                         | 209.0                      | 207.9            | 0.0                | 14.5         | 11.8                                   | 12.6                               | 18                      | 99                | 66                       |
| 209          | 12.2                                | 54.4  | 3005                         | 209.0                      | 207.9            | 0.0                | 14.5         | 12.0                                   | 10.8                               | 18                      | 99                | 66                       |
| 210          | 14.1                                | 54.1  | 3012                         | 209.0                      | 207.9            | 0.0                | 14.2         | 13.9                                   | 11.4                               | 18                      | 99                | 66                       |
| 211          | 12.4                                | 55.0  | 3020                         | 209.0                      | 207.9            | 0.0                | 14.1         | 12.2                                   | 11.4                               | 18                      | 99                | 67                       |
| 212          | 12.5                                | 55.3  | 3010                         | 209.0                      | 207.9            | 0.0                | 14.3         | 12.3                                   | 12.7                               | 18                      | 99                | 67                       |
| 213          | 11.9                                | 55.9  | 2990                         | 209.0                      | 207.9            | 0.0                | 14.5         | 11.7                                   | 10.7                               | 18                      | 99                | 67                       |
| 214          | 12.5                                | 54.5  | 3006                         | 209.0                      | 207.9            | 0.0                | 14.4         | 12.3                                   | 9.5                                | 18                      | 99                | 67                       |
| 215          | 15.9                                | 55.4  | 3009                         | 209.0                      | 207.9            | 0.0                | 14.0         | 15.6                                   | 10.5                               | 18                      | 99                | 67                       |
| 216          | 14.9                                | 54.8  | 2985                         | 209.0                      | 207.9            | 0.0                | 14.4         | 14.7                                   | 9.2                                | 18                      | 99                | 67                       |
| 217          | 15.6                                | 56.1  | 3009                         | 209.0                      | 207.9            | 0.0                | 14.5         | 15.4                                   | 12.0                               | 18                      | 99                | 67                       |
| 218          | 16.0                                | 55.8  | 2995                         | 209.0                      | 207.9            | 0.0                | 14.4         | 15.7                                   | 10.1                               | 18                      | 99                | 67                       |
| 219          | 14.6                                | 56.4  | 2997                         | 209.0                      | 207.9            | 0.0                | 14.4         | 14.4                                   | 13.3                               | 18                      | 99                | 67                       |
| 220          | 14.8                                | 55.6  | 3007                         | 209.0                      | 207.9            | 0.0                | 14.4         | 14.6                                   | 10.7                               | 18                      | 99                | 67                       |
| 221          | 15.5                                | 55.4  | 3000                         | 209.0                      | 207.9            | 0.0                | 14.2         | 15.3                                   | 10.8                               | 18                      | 99                | 67                       |
| 222          | 13.6                                | 55.2  | 3009                         | 209.0                      | 207.9            | 0.0                | 14.4         | 13.4                                   | 10.1                               | 18                      | 99                | 67                       |
| 223          |                                     |       | 3015                         | 209.0                      | 207.9            | 0.0                | 14.2         | 11.5                                   | 10.8                               | 18                      | 99                | 66                       |
| 224          | 13.8                                | 56.4  | 3006                         | 209.0                      | 207.9            | 0.0                | 14.4         | 13.6                                   | 10.1                               | 18                      | 99                | 66                       |
| 225          |                                     |       | 2980                         | 209.0                      | 207.9            | 0.0                | 14.8         | 13.5                                   | 11.5                               | 18                      | 99                | 66                       |
| 226          | 15.6                                | 54.8  | 3020                         | 207.9                      | 207.9            | 0.0                | 14.4         | 15.4                                   | 12.0                               | 18                      | 99                | 66                       |
| 227          | 15.5                                | 55.0  | 2984                         | 209.0                      | 207.9            | 0.0                | 14.4         | 15.2                                   | 10.4                               | 18                      | 99                | 66                       |
| 228          | 13.9                                | 55.5  | 2991                         | 209.0                      | 207.9            | 0.0                | 14.2         | 13.7                                   | 10.8                               | 18                      | 99                | 66                       |
| 229          |                                     |       | 3019                         | 209.0                      | 207.9            | 0.0                | 14.4         | 11.4                                   | 9.4                                | 18                      | 99                | 66                       |
| 230          | 14.5                                | 55.0  | 3000                         | 207.9                      | 207.9            | 0.0                | 14.3         | 14.3                                   | 9.4                                | 18                      | 99                | 66                       |
| 231          | 12.7                                | 54.0  | 2988                         | 209.0                      | 210.9            | 0.0                | 14.5         | 12.5                                   | 11.3                               | 18                      | 99                | 66                       |
| 232          |                                     |       | 3006                         | 209.0                      | 210.9            | 0.0                | 14.3         | 13.8                                   | 11.2                               | 18                      | 99                | 66                       |
| 233          | 13.0                                | 56.1  | 3008                         | 209.0                      | 210.9            | 0.0                | 14.5         | 12.8                                   | 14.5                               | 18                      | 99                | 66                       |
| 234          | 12.7                                | 55.3  | 3023                         | 209.0                      | 210.9            | 0.0                | 14.5         | 12.5                                   | 13.6                               | 18                      | 99                | 66                       |
| 235          | 11.9                                | 54.8  | 3044                         | 209.0                      | 210.9            | 0.0                | 14.2         | 11.7                                   | 12.0                               | 18                      | 99                | 65                       |
| 236          |                                     |       | 3011                         | 209.0                      | 210.9            | 0.0                | 14.1         | 11.6                                   | 13.3                               | 18                      | 99                | 65                       |
| 237          | 11.2                                | 54.1  | 2852                         | 209.0                      | 210.9            | 0.0                | 13.9         | 10.6                                   | 12.3                               | 18                      | 99                | 65                       |
| 238          |                                     |       | 2982                         | 210.9                      | 210.9            | 0.0                | 14.6         | 10.8                                   | 13.2                               | 18                      | 99                | 65                       |
| 239          | 12.4                                | 54.2  | 3009                         | 209.0                      | 210.9            | 0.0                | 14.1         | 12.3                                   | 11.5                               | 18                      | 99                | 65                       |
| 240          | 14.4                                | 56.7  | 3030                         | 209.0                      | 210.9            | 0.0                | 14.3         | 14.2                                   | 10.7                               | 18                      | 99                | 65                       |
| 241          | 15.1                                | 55.1  | 2991                         | 209.0                      | 210.9            | 0.0                | 14.4         | 14.9                                   | 11.2                               | 18                      | 99                | 65                       |
| 242          | 12.6                                | 55.1  | 2964                         | 209.0                      | 210.9            | 0.0                | 13.8         | 12.5                                   | 8.9                                | 18                      | 99                | 65                       |
| 243          | 13.1                                | 55.5  | 3008                         | 209.0                      | 210.9            | 0.0                | 14.1         | 12.9                                   | 9.2                                | 18                      | 99                | 65                       |
| 244          |                                     |       | 2971                         | 209.0                      | 210.9            | 0.0                | 14.4         | 10.4                                   | 8.5                                | 18                      | 99                | 65                       |
| 245          | 11.8                                | 56.2  | 2996                         | 209.0                      | 210.9            | 0.0                | 14.3         | 11.6                                   | 10.5                               | 18                      | 99                | 65                       |
| 246          | 13.7                                | 53.6  | 2987                         | 209.0                      | 210.9            | 0.0                | 14.2         | 13.5                                   | 12.1                               | 18                      | 99                | 65                       |
| 247          |                                     |       | 2497                         | 209.0                      | 210.9            | 0.0                | 13.6         | 12.5                                   | 12.1                               | 18                      | 99                | 65                       |
| 248          |                                     |       | 2399                         | 209.0                      | 210.9            | 0.0                | 13.6         | 12.3                                   | 10.1                               | 18                      | 99                | 65                       |
| 249          |                                     |       | 2179                         | 209.0                      | 210.9            | 0.0                | 13.4         | 12.1                                   | 10.6                               | 18                      | 99                | 65                       |
| 250          |                                     |       | 2311                         | 209.0                      | 210.9            | 0.0                | 13.6         | 11.1                                   | 11.8                               | 18                      | 99                | 65                       |
| 251          |                                     |       | 2607                         | 209.0                      | 209.8            | 0.0                | 13.8         | 11.8                                   | 11.5                               | 18                      | 99                | 65                       |
| 252          |                                     |       | 2290                         | 209.0                      | 205.0            | 0.0                | 13.5         | 8.5                                    | 10.1                               | 18                      | 99                | 65                       |
| 253          |                                     |       | 2493                         | 209.0                      | 203.8            | 0.0                | 13.7         | 10.7                                   | 10.9                               | 18                      | 99                | 66                       |
| 254          |                                     |       | 2318                         | 209.0                      | 203.8            | 0.0                | 13.5         | 12.1                                   | 11.5                               | 18                      | 99                | 66                       |
| 255          |                                     |       | 2964                         | 209.0                      | 203.8            | 0.0                | 14.2         | 11.5                                   | 10.7                               | 18                      | 99                | 66                       |
| 256          | 12.0                                | 54.4  | 2989                         | 209.0                      | 203.8            | 0.0                | 14.9         | 11.9                                   | 10.0                               | 18                      | 99                | 66                       |
| 257          | 13.3                                | 55.6  | 2992                         | 209.0                      | 203.8            | 0.0                | 14.7         | 13.1                                   | 8.9                                | 18                      | 99                | 66                       |
| 258          | 14.4                                | 54.9  | 3010                         | 209.0                      | 203.8            | 0.0                | 14.5         | 14.1                                   | 7.8                                | 18                      | 99                | 66                       |
| 259          | 13.8                                | 53.9  | 2994                         | 209.0                      | 203.8            | 0.0                | 14.4         | 13.6                                   | 7.8                                | 18                      | 99                | 67                       |
| 260          |                                     |       | 3020                         | 209.0                      | 203.8            | 0.0                | 14.6         | 11.1                                   | 7.8                                | 18                      | 99                | 67                       |
| 261          |                                     |       | 3012                         | 209.0                      | 203.8            | 0.0                | 14.2         | 12.1                                   | 10.9                               | 18                      | 99                | 67                       |
| 262          |                                     |       | 1819                         | 209.0                      | 210.9            | 0.0                | 13.1         | 10.3                                   | 11.0                               | 18                      | 99                | 65                       |
| 263          | 9.7                                 | 51.9  | 2135                         | 210.9                      | 210.9            | 0.0                | 13.4         | 10.4                                   | 9.1                                | 18                      | 99                | 65                       |
| 264          | 10.2                                | 53.1  | 2431                         | 209.0                      | 210.9            | 0.0                | 13.6         | 9.5                                    | 7.7                                | 18                      | 99                | 66                       |

\*\*\*Blank data denotes values that were omitted in the analysis due to an extraneous event during recording

| Data Point # | Standardized Wind Speed | LAnq  | Turbine Power Output (kW) | Reference Yaw Angle (°) | Yaw Angle (°) | Pitch Angle (°) | Rotor RPM | Nacelle Anemometer Wind Speed (m/s) | 10m Anemometer Wind Speed (m/s) | Air Temperature (°C) | Pressure (Pa) | Relative Humidity (%) |
|--------------|-------------------------|-------|---------------------------|-------------------------|---------------|-----------------|-----------|-------------------------------------|---------------------------------|----------------------|---------------|-----------------------|
| 265          | 11.5                    | 53.1  | 2996                      | 209.0                   | 210.9         | 0.0             | 13.9      | 12.4                                | 7.6                             | 18                   | 99            | 66                    |
| 266          | 13.6                    | 54.9  | 3005                      | 209.0                   | 208.8         | 0.0             | 13.9      | 13.4                                | 7.9                             | 18                   | 99            | 66                    |
| 267          | 9.8                     | 52.6  | 2183                      | 209.0                   | 206.8         | 0.0             | 14.1      | 10.2                                | 8.6                             | 18                   | 99            | 66                    |
| 268          | 10.6                    | 52.6  | 2605                      | 209.0                   | 206.8         | 0.0             | 13.8      | 10.3                                | 7.1                             | 18                   | 99            | 66                    |
| 269          | 12.9                    | 53.6  | 3030                      | 209.0                   | 206.8         | 0.0             | 14.4      | 12.7                                | 6.0                             | 18                   | 99            | 66                    |
| 270          | 10.9                    | 52.4  | 2797                      | 209.0                   | 206.8         | 0.0             | 13.8      | 10.8                                | 5.9                             | 18                   | 99            | 66                    |
| 271          | 10.8                    | 53.2  | 2736                      | 209.0                   | 206.8         | 0.0             | 13.8      | 10.2                                | 6.4                             | 18                   | 99            | 66                    |
| 272          | 11.7                    | 53.4  | 2928                      | 209.0                   | 206.8         | 0.0             | 13.9      | 11.0                                | 6.8                             | 18                   | 99            | 66                    |
| 273          | 11.8                    | 53.7  | 3020                      | 209.0                   | 206.8         | 0.0             | 14.4      | 11.6                                | 8.3                             | 18                   | 99            | 66                    |
| 274          |                         |       | 2993                      | 209.0                   | 206.8         | 0.0             | 14.2      | 10.9                                | 8.2                             | 18                   | 99            | 66                    |
| 275          | 11.5                    | 54.8  | 2898                      | 209.0                   | 206.8         | 0.0             | 13.9      | 10.1                                | 7.3                             | 18                   | 99            | 66                    |
| 276          | 10.8                    | 53.4  | 2729                      | 209.0                   | 206.8         | 0.0             | 13.8      | 10.9                                | 6.8                             | 18                   | 99            | 66                    |
| 277          | 11.2                    | 55.4  | 2864                      | 209.0                   | 206.8         | 0.0             | 13.9      | 9.7                                 | 7.0                             | 18                   | 99            | 66                    |
| 278          | 12.2                    | 54.3  | 2964                      | 209.0                   | 206.8         | 0.0             | 14.0      | 12.0                                | 7.7                             | 18                   | 99            | 66                    |
| 279          | 13.1                    | 53.6  | 3007                      | 209.0                   | 206.8         | 0.0             | 14.1      | 12.9                                | 9.1                             | 18                   | 99            | 66                    |
| 280          |                         |       | 2988                      | 209.0                   | 206.8         | 0.0             | 14.4      | 10.5                                | 9.5                             | 18                   | 99            | 66                    |
| 281          |                         |       | 2988                      | 209.0                   | 206.8         | 0.0             | 14.6      | 11.0                                | 10.0                            | 18                   | 99            | 66                    |
| 282          |                         |       | 3006                      | 209.0                   | 206.8         | 0.0             | 14.4      | 9.8                                 | 8.8                             | 18                   | 99            | 64                    |
| 283          | 12.1                    | 52.8  | 2986                      | 209.0                   | 206.8         | 0.0             | 14.2      | 11.9                                | 8.0                             | 18                   | 99            | 64                    |
| 284          | 11.7                    | 53.9  | 2930                      | 209.0                   | 206.8         | 0.0             | 14.0      | 11.3                                | 7.6                             | 18                   | 99            | 64                    |
| 285          | 54.7                    | 51.6  | 2913                      | 209.0                   | 206.8         | 0.0             | 13.9      | 11.1                                | 8.3                             | 18                   | 99            | 64                    |
| 286          | 11.9                    | 55.2  | 2978                      | 209.0                   | 206.8         | 0.0             | 14.7      | 11.2                                | 8.2                             | 18                   | 99            | 64                    |
| 287          | 12.1                    | 55.3  | 2980                      | 209.0                   | 206.8         | 0.0             | 14.6      | 11.9                                | 8.8                             | 18                   | 99            | 64                    |
| 288          | 12.0                    | 53.3  | 2985                      | 209.0                   | 206.8         | 0.0             | 14.3      | 11.9                                | 6.4                             | 18                   | 99            | 65                    |
| 289          | 13.2                    | 53.4  | 2980                      | 209.0                   | 206.8         | 0.0             | 14.2      | 12.0                                | 9.5                             | 18                   | 99            | 65                    |
| 290          |                         |       | 3014                      | 209.0                   | 206.8         | 0.0             | 14.2      | 11.9                                | 9.4                             | 18                   | 99            | 65                    |
| 291          | 12.8                    | 52.2  | 3002                      | 209.0                   | 206.8         | 0.0             | 14.3      | 12.6                                | 8.8                             | 18                   | 99            | 65                    |
| 292          |                         |       | 2992                      | 209.0                   | 206.8         | 0.0             | 14.5      | 11.2                                | 7.9                             | 18                   | 99            | 65                    |
| 293          | 11.8                    | 55.3  | 3015                      | 209.0                   | 206.8         | 0.0             | 14.6      | 11.6                                | 7.1                             | 18                   | 99            | 65                    |
| 294          |                         |       | 3015                      | 209.0                   | 206.8         | 0.0             | 14.4      | 10.5                                | 8.3                             | 18                   | 99            | 65                    |
| 295          |                         |       | 3026                      | 209.0                   | 206.8         | 0.0             | 14.2      | 10.9                                | 7.8                             | 18                   | 99            | 65                    |
| 296          |                         |       | 3015                      | 209.0                   | 206.8         | 0.0             | 14.2      | 10.1                                | 8.5                             | 18                   | 99            | 65                    |
| 297          |                         |       | 2997                      | 209.0                   | 206.8         | 0.0             | 14.4      | 10.9                                | 8.8                             | 18                   | 99            | 65                    |
| 298          |                         |       | 3035                      | 209.0                   | 206.8         | 0.0             | 14.5      | 11.2                                | 8.9                             | 18                   | 99            | 65                    |
| 299          |                         |       | 3013                      | 209.0                   | 206.8         | 0.0             | 14.2      | 11.3                                | 9.4                             | 18                   | 99            | 65                    |
| 300          | 11.7                    | 53.3  | 2937                      | 209.0                   | 206.8         | 0.0             | 14.0      | 12.5                                | 8.2                             | 18                   | 99            | 65                    |
| 301          | 10.2                    | 51.8  | 2297                      | 209.0                   | 206.8         | 0.0             | 13.6      | 10.2                                | 7.1                             | 18                   | 99            | 65                    |
| 302          | 10.2                    | 52.2  | 2626                      | 209.0                   | 206.8         | 0.0             | 13.7      | 10.6                                | 7.8                             | 18                   | 99            | 65                    |
| 303          | 11.1                    | 53.2  | 2840                      | 209.0                   | 206.8         | 0.0             | 13.9      | 10.9                                | 9.5                             | 18                   | 99            | 65                    |
| 304          |                         |       | 3006                      | 209.0                   | 206.8         | 0.0             | 14.1      | 11.3                                | 8.6                             | 18                   | 99            | 65                    |
| 305          | 12.7                    | 53.3  | 2994                      | 209.0                   | 206.8         | 0.0             | 14.6      | 12.5                                | 9.3                             | 18                   | 99            | 65                    |
| 306          | 13.2                    | 54.2  | 2997                      | 209.0                   | 206.8         | 0.0             | 14.5      | 12.0                                | 7.2                             | 18                   | 99            | 65                    |
| 307          | 13.0                    | 54.4  | 3022                      | 209.0                   | 206.8         | 0.0             | 14.5      | 12.8                                | 7.7                             | 18                   | 99            | 65                    |
| 308          |                         |       | 3026                      | 209.0                   | 206.8         | 0.0             | 14.1      | 11.5                                | 7.7                             | 18                   | 99            | 65                    |
| 309          |                         |       | 2976                      | 209.0                   | 206.8         | 0.0             | 14.0      | 10.9                                | 10.5                            | 18                   | 99            | 65                    |
| 310          |                         |       | 2997                      | 209.0                   | 206.8         | 0.0             | 14.2      | 10.5                                | 9.8                             | 18                   | 99            | 65                    |
| 311          | 10.3                    | 51.4  | 2489                      | 209.0                   | 206.8         | 0.0             | 13.7      | 11.6                                | 8.2                             | 18                   | 99            | 65                    |
| 312          | 10.8                    | 53.5  | 2714                      | 209.0                   | 206.8         | 0.0             | 13.8      | 11.1                                | 8.5                             | 18                   | 99            | 65                    |
| 313          | 9.7                     | 53.7  | 2151                      | 209.0                   | 206.8         | 0.0             | 13.4      | 9.4                                 | 8.6                             | 18                   | 99            | 65                    |
| 314          | 50.8                    | 187.2 | 1872                      | 209.0                   | 206.8         | 0.0             | 13.2      | 11.9                                | 7.6                             | 18                   | 99            | 65                    |
| 315          | 9.8                     | 51.8  | 2201                      | 209.0                   | 206.8         | 0.0             | 13.5      | 9.6                                 | 6.4                             | 18                   | 99            | 66                    |
| 316          | 10.2                    | 52.8  | 2399                      | 209.0                   | 206.8         | 0.0             | 13.6      | 10.6                                | 8.9                             | 18                   | 99            | 66                    |
| 317          | 10.1                    | 53.5  | 2388                      | 209.0                   | 206.8         | 0.0             | 13.6      | 11.5                                | 8.3                             | 18                   | 99            | 66                    |
| 318          | 9.8                     | 53.1  | 2177                      | 209.0                   | 206.8         | 0.0             | 13.5      | 9.3                                 | 7.6                             | 18                   | 99            | 66                    |
| 319          |                         |       | 1863                      | 209.0                   | 206.8         | 0.0             | 13.1      | 9.9                                 | 9.7                             | 18                   | 99            | 66                    |
| 320          | 9.3                     | 51.7  | 1906                      | 209.0                   | 206.8         | 0.0             | 13.2      | 10.1                                | 8.6                             | 18                   | 99            | 66                    |
| 321          | 9.1                     | 51.1  | 1761                      | 209.0                   | 206.8         | 0.0             | 13.0      | 9.2                                 | 7.3                             | 18                   | 99            | 66                    |
| 322          | 8.9                     | 50.5  | 1655                      | 209.0                   | 206.8         | 0.0             | 12.8      | 8.2                                 | 7.2                             | 18                   | 99            | 66                    |
| 323          | 8.8                     | 50.8  | 1595                      | 209.0                   | 206.8         | 0.0             | 12.6      | 8.7                                 | 7.3                             | 18                   | 99            | 66                    |
| 324          | 9.2                     | 51.0  | 1815                      | 209.0                   | 206.8         | 0.0             | 13.1      | 7.5                                 | 7.2                             | 18                   | 99            | 66                    |
| 325          | 8.9                     | 50.1  | 1645                      | 209.0                   | 206.8         | 0.0             | 12.8      | 8.7                                 | 6.7                             | 18                   | 99            | 66                    |
| 326          | 50.8                    | 9.176 | 9176                      | 209.0                   | 206.8         | 0.0             | 12.9      | 10.0                                | 8.6                             | 18                   | 99            | 66                    |
| 327          | 9.1                     | 51.8  | 1769                      | 209.0                   | 206.8         | 0.0             | 13.0      | 8.7                                 | 8.9                             | 18                   | 99            | 65                    |
| 328          | 9.1                     | 50.3  | 1777                      | 209.0                   | 206.8         | 0.0             | 13.0      | 9.6                                 | 7.9                             | 18                   | 99            | 65                    |
| 329          | 9.7                     | 50.9  | 2132                      | 209.0                   | 206.8         | 0.0             | 13.4      | 10.0                                | 8.5                             | 18                   | 99            | 65                    |
| 330          | 52.2                    | 9.8   | 9224                      | 209.0                   | 206.8         | 0.0             | 13.5      | 10.7                                | 7.9                             | 18                   | 99            | 65                    |
| 331          | 10.2                    | 51.6  | 2441                      | 209.0                   | 206.8         | 0.0             | 13.7      | 10.7                                | 7.7                             | 18                   | 99            | 65                    |
| 332          | 9.9                     | 52.9  | 2258                      | 209.0                   | 206.8         | 0.0             | 13.5      | 10.1                                | 9.3                             | 18                   | 99            | 65                    |
| 333          | 9.5                     | 52.3  | 1994                      | 209.0                   | 206.8         | 0.0             | 13.3      | 7.4                                 | 7.8                             | 18                   | 99            | 64                    |
| 334          |                         |       | 2186                      | 209.0                   | 206.8         | 0.0             | 13.5      | 9.5                                 | 10.1                            | 18                   | 99            | 64                    |
| 335          | 8.9                     | 51.3  | 1672                      | 209.0                   | 207.9         | 0.0             | 12.9      | 6.6                                 | 8.8                             | 18                   | 99            | 64                    |
| 336          |                         |       | 1523                      | 209.0                   | 212.4         | 0.0             | 12.6      | 9.5                                 | 11.4                            | 18                   | 99            | 64                    |
| 337          |                         |       | 1272                      | 209.0                   | 216.9         | 0.0             | 11.9      | 8.7                                 | 11.1                            | 18                   | 99            | 64                    |
| 338          |                         |       | 1170                      | 209.0                   | 217.8         | 0.0             | 11.6      | 8.0                                 | 9.5                             | 18                   | 99            | 64                    |
| 339          |                         |       | 2883                      | 209.0                   | 217.8         | 0.0             | 12.0      | 10.6                                | 10.9                            | 18                   | 99            | 64                    |
| 340          | 10.1                    | 53.0  | 2364                      | 209.0                   | 213.9         | 0.0             | 13.6      | 11.0                                | 8.8                             | 18                   | 99            | 64                    |
| 341          | 10.2                    | 52.1  | 2423                      | 209.0                   | 213.9         | 0.0             | 13.6      | 10.9                                | 9.1                             | 18                   | 99            | 64                    |
| 342          | 52.7                    | 10.9  | 2766                      | 209.0                   | 213.9         | 0.0             | 13.9      | 12.4                                | 9.5                             | 18                   | 99            | 64                    |
| 343          | 51.6                    | 9.9   | 2237                      | 209.0                   | 213.9         | 0.0             | 13.5      | 8.4                                 | 9.5                             | 18                   | 99            | 65                    |
| 344          | 10.3                    | 54.2  | 2475                      | 209.0                   | 213.9         | 0.0             | 13.6      | 10.4                                | 7.6                             | 18                   | 99            | 65                    |
| 345          | 12.7                    | 54.1  | 3025                      | 209.0                   | 213.9         | 0.0             | 14.6      | 12.5                                | 8.3                             | 18                   | 99            | 65                    |
| 346          | 12.0                    | 53.9  | 3021                      | 209.0                   | 213.9         | 0.0             | 14.3      | 11.8                                | 7.4                             | 18                   | 99            | 65                    |
| 347          |                         |       | 3021                      | 209.0                   | 213.9         | 0.0             | 14.2      | 11.0                                | 6.3                             | 18                   | 99            | 65                    |
| 348          |                         |       | 2987                      | 209.0                   | 213.9         | 0.0             | 14.4      | 10.7                                | 7.1                             | 18                   | 99            | 65                    |
| 349          | 10.9                    | 52.7  | 2804                      | 209.0                   | 213.9         | 0.0             | 13.8      | 10.6                                | 10.7                            | 18                   | 99            | 64                    |
| 350          |                         |       | 2959                      | 209.0                   | 213.9         | 0.0             | 14.0      | 11.5                                | 8.0                             | 18                   | 99            | 64                    |
| 351          | 10.7                    | 52.4  | 2665                      | 209.0                   | 213.9         | 0.0             | 13.7      | 10.7                                | 8.0                             | 18                   | 99            | 64                    |
| 352          | 10.2                    | 53.6  | 2416                      | 209.0                   | 213.9         | 0.0             | 13.6      | 10.9                                | 9.7                             | 18                   | 99            | 64                    |

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\*\*\*Blank data denotes values that were omitted in the analysis due to an extraneous event during recording

| Blank data denotes values that were omitted in the analysis due to an extraneous event during recording |                  |      |             |           |       |                 |           |                                     |                                 |                      |               |                       |  |
|---------------------------------------------------------------------------------------------------------|------------------|------|-------------|-----------|-------|-----------------|-----------|-------------------------------------|---------------------------------|----------------------|---------------|-----------------------|--|
| Data Point #                                                                                            | Wind Speed (m/s) | Lat  | Output (kW) | Angle (°) | (°)   | Pitch Angle (°) | Rotor RPM | Nacelle Anemometer Wind Speed (m/s) | 10m Anemometer Wind Speed (m/s) | Air Temperature (°C) | Pressure (Pa) | Relative Humidity (%) |  |
| 353                                                                                                     | 9.7              | 52.7 | 2136        | 209.0     | 213.9 | 0.0             | 13.4      | 11.7                                | 8.9                             | 18                   | 99            | 64                    |  |
| 354                                                                                                     | 10.2             | 53.9 | 2040        | 209.0     | 213.9 | 0.0             | 13.7      | 10.8                                | 8.5                             | 18                   | 99            | 64                    |  |
| 355                                                                                                     | 9.9              | 52.6 | 2236        | 209.0     | 213.9 | 0.0             | 13.5      | 11.8                                | 9.4                             | 18                   | 99            | 65                    |  |
| 356                                                                                                     |                  |      | 1787        | 209.0     | 213.9 | 0.0             | 13.1      | 9.3                                 | 9.7                             | 18                   | 99            | 65                    |  |
| 357                                                                                                     |                  |      | 1854        | 209.0     | 213.9 | 0.0             | 13.1      | 9.1                                 | 9.4                             | 18                   | 99            | 65                    |  |
| 358                                                                                                     |                  |      | 1840        | 209.0     | 213.9 | 0.0             | 13.1      | 9.0                                 | 11.3                            | 18                   | 99            | 65                    |  |
| 359                                                                                                     |                  |      | 1747        | 209.0     | 213.9 | 0.0             | 13.0      | 8.4                                 | 11.0                            | 18                   | 99            | 65                    |  |
| 360                                                                                                     |                  |      | 1729        | 209.0     | 213.9 | 0.0             | 13.0      | 9.1                                 | 9.5                             | 18                   | 99            | 65                    |  |
| 361                                                                                                     | 9.0              | 53.0 | 1729        | 209.0     | 213.9 | 0.0             | 13.0      | 8.6                                 | 8.9                             | 18                   | 99            | 65                    |  |
| 362                                                                                                     | 8.7              | 50.7 | 1560        | 209.0     | 213.9 | 0.0             | 12.6      | 8.2                                 | 7.5                             | 18                   | 99            | 65                    |  |
| 363                                                                                                     |                  |      | 1512        | 209.0     | 213.9 | 0.0             | 12.5      | 9.1                                 | 10.4                            | 18                   | 99            | 65                    |  |
| 364                                                                                                     |                  |      | 1498        | 209.0     | 213.9 | 0.0             | 12.5      | 8.8                                 | 12.0                            | 18                   | 99            | 65                    |  |
| 365                                                                                                     |                  |      | 1516        | 209.0     | 213.9 | 0.0             | 12.6      | 9.7                                 | 10.3                            | 18                   | 99            | 65                    |  |
| 366                                                                                                     |                  |      | 1560        | 209.0     | 213.9 | 0.0             | 12.7      | 9.0                                 | 9.8                             | 18                   | 99            | 65                    |  |
| 367                                                                                                     |                  |      | 1840        | 209.0     | 213.9 | 0.0             | 13.1      | 9.1                                 | 10.8                            | 18                   | 99            | 65                    |  |
| 368                                                                                                     |                  |      | 2792        | 209.0     | 213.9 | 0.0             | 13.9      | 11.1                                | 12.0                            | 18                   | 99            | 65                    |  |
| 369                                                                                                     |                  |      | 2988        | 209.0     | 213.9 | 0.0             | 14.0      | 11.0                                | 11.7                            | 18                   | 99            | 65                    |  |
| 370                                                                                                     | 10.9             | 54.6 | 2799        | 209.0     | 213.9 | 0.0             | 13.9      | 10.4                                | 10.6                            | 18                   | 99            | 65                    |  |
| 371                                                                                                     | 11.6             | 54.0 | 2922        | 209.0     | 213.9 | 0.0             | 13.9      | 11.3                                | 9.8                             | 18                   | 99            | 65                    |  |
| 372                                                                                                     | 10.8             | 53.6 | 2725        | 209.0     | 213.9 | 0.0             | 13.8      | 10.3                                | 9.5                             | 18                   | 99            | 65                    |  |
| 373                                                                                                     | 10.8             | 52.8 | 2207        | 209.0     | 213.9 | 0.0             | 13.5      | 11.1                                | 9.8                             | 18                   | 99            | 65                    |  |
| 374                                                                                                     | 9.4              | 52.6 | 1951        | 209.0     | 213.9 | 0.0             | 13.2      | 10.1                                | 8.6                             | 18                   | 99            | 65                    |  |
| 375                                                                                                     |                  |      | 1657        | 209.0     | 213.9 | 0.0             | 12.8      | 9.3                                 | 9.3                             | 18                   | 99            | 65                    |  |
| 376                                                                                                     | 8.5              | 51.3 | 1465        | 209.0     | 213.9 | 0.0             | 12.5      | 9.2                                 | 7.3                             | 18                   | 99            | 65                    |  |
| 377                                                                                                     |                  |      | 2107        | 209.0     | 213.9 | 0.0             | 13.4      | 11.7                                | 9.8                             | 18                   | 99            | 65                    |  |
| 378                                                                                                     |                  |      | 2244        | 209.0     | 211.8 | 0.0             | 13.5      | 11.3                                | 10.6                            | 18                   | 99            | 65                    |  |
| 379                                                                                                     | 10.4             | 54.3 | 2510        | 209.0     | 205.9 | 0.0             | 13.7      | 10.3                                | 10.1                            | 18                   | 99            | 65                    |  |
| 380                                                                                                     | 9.9              | 51.5 | 2248        | 209.0     | 205.9 | 0.0             | 13.5      | 9.0                                 | 8.5                             | 18                   | 99            | 65                    |  |
| 381                                                                                                     | 10.4             | 53.2 | 2524        | 209.0     | 205.9 | 0.0             | 13.7      | 8.7                                 | 8.5                             | 18                   | 99            | 65                    |  |
| 382                                                                                                     | 11.8             | 55.4 | 3014        | 209.0     | 208.7 | 0.0             | 14.5      | 11.7                                | 9.2                             | 18                   | 99            | 65                    |  |
| 383                                                                                                     | 12.2             | 55.3 | 3024        | 209.0     | 208.8 | 0.0             | 14.3      | 12.0                                | 9.5                             | 18                   | 99            | 66                    |  |
| 384                                                                                                     | 12.1             | 54.2 | 3008        | 209.0     | 208.8 | 0.0             | 14.4      | 11.9                                | 11.9                            | 18                   | 99            | 66                    |  |
| 385                                                                                                     | 11.8             | 54.9 | 2987        | 209.0     | 208.8 | 0.0             | 14.6      | 11.6                                | 9.8                             | 18                   | 99            | 66                    |  |
| 386                                                                                                     |                  |      | 2990        | 209.0     | 208.8 | 0.0             | 14.4      | 11.1                                | 9.3                             | 18                   | 99            | 66                    |  |
| 387                                                                                                     |                  |      | 2659        | 209.0     | 208.8 | 0.0             | 13.8      | 11.4                                | 12.0                            | 18                   | 99            | 66                    |  |
| 388                                                                                                     |                  |      | 2698        | 209.0     | 208.8 | 0.0             | 13.8      | 11.2                                | 10.9                            | 18                   | 99            | 66                    |  |
| 389                                                                                                     |                  |      | 3027        | 209.0     | 208.8 | 0.0             | 14.4      | 11.5                                | 11.5                            | 18                   | 99            | 66                    |  |
| 390                                                                                                     |                  |      | 2994        | 209.0     | 208.8 | 0.0             | 14.4      | 11.1                                | 10.8                            | 18                   | 99            | 66                    |  |
| 391                                                                                                     |                  | 53.0 | 2503        | 209.0     | 208.8 | 0.0             | 13.6      | 10.6                                | 10.8                            | 18                   | 99            | 66                    |  |
| 392                                                                                                     |                  |      | 2204        | 209.0     | 208.8 | 0.0             | 13.5      | 11.9                                | 9.2                             | 18                   | 99            | 66                    |  |
| 393                                                                                                     |                  |      | 1985        | 209.0     | 208.8 | 0.0             | 13.3      | 10.7                                | 12.0                            | 18                   | 99            | 66                    |  |
| 394                                                                                                     |                  |      | 1987        | 209.0     | 208.8 | 0.0             | 13.3      | 9.6                                 | 10.9                            | 18                   | 99            | 66                    |  |
| 395                                                                                                     |                  |      | 1626        | 209.0     | 208.8 | 0.0             | 12.8      | 8.7                                 | 10.1                            | 18                   | 99            | 66                    |  |
| 396                                                                                                     |                  |      | 1509        | 209.0     | 208.8 | 0.0             | 12.5      | 8.8                                 | 8.8                             | 18                   | 99            | 66                    |  |
| 397                                                                                                     | 8.6              | 52.7 | 1528        | 209.0     | 208.8 | 0.0             | 12.7      | 10.5                                | 11.0                            | 18                   | 99            | 66                    |  |
| 398                                                                                                     | 8.6              | 51.4 | 1289        | 209.0     | 208.8 | 0.0             | 12.0      | 7.4                                 | 10.3                            | 18                   | 99            | 66                    |  |
| 399                                                                                                     |                  |      | 1309        | 209.0     | 208.8 | 0.0             | 12.0      | 8.0                                 | 9.1                             | 18                   | 99            | 66                    |  |
| 400                                                                                                     |                  |      | 1627        | 209.0     | 208.8 | 0.0             | 12.9      | 8.4                                 | 10.4                            | 18                   | 99            | 66                    |  |
| 401                                                                                                     |                  |      | 1618        | 209.0     | 208.8 | 0.0             | 12.9      | 7.6                                 | 11.9                            | 18                   | 99            | 66                    |  |
| 402                                                                                                     |                  |      | 1940        | 209.0     | 208.8 | 0.0             | 13.3      | 9.4                                 | 11.1                            | 18                   | 99            | 66                    |  |
| 403                                                                                                     |                  |      | 2043        | 209.0     | 208.8 | 0.0             | 13.4      | 9.3                                 | 10.3                            | 18                   | 99            | 66                    |  |
| 404                                                                                                     |                  |      | 1645        | 209.0     | 208.8 | 0.0             | 12.8      | 7.5                                 | 10.6                            | 18                   | 99            | 66                    |  |
| 405                                                                                                     | 8.4              | 48.7 | 1426        | 209.0     | 208.8 | 0.0             | 12.4      | 8.4                                 | 10.1                            | 18                   | 99            | 66                    |  |
| 406                                                                                                     |                  |      | 1315        | 209.0     | 208.8 | 0.0             | 12.1      | 9.0                                 | 11.1                            | 18                   | 99            | 66                    |  |
| 407                                                                                                     |                  |      | 1277        | 209.0     | 208.8 | 0.0             | 12.0      | 7.6                                 | 11.8                            | 18                   | 99            | 66                    |  |
| 408                                                                                                     |                  |      | 1184        | 209.0     | 208.9 | 0.0             | 11.7      | 9.1                                 | 11.6                            | 18                   | 99            | 66                    |  |
| 409                                                                                                     |                  |      | 1316        | 209.0     | 208.8 | 0.0             | 12.1      | 8.8                                 | 11.6                            | 18                   | 99            | 66                    |  |
| 410                                                                                                     |                  |      | 1234        | 209.0     | 208.8 | 0.0             | 11.8      | 8.1                                 | 10.4                            | 18                   | 99            | 66                    |  |
| 411                                                                                                     |                  |      | 1307        | 209.0     | 208.8 | 0.0             | 12.0      | 7.5                                 | 10.7                            | 18                   | 99            | 66                    |  |
| 412                                                                                                     | 8.6              | 51.1 | 1481        | 209.0     | 208.8 | 0.0             | 12.5      | 9.5                                 | 8.8                             | 18                   | 99            | 66                    |  |
| 413                                                                                                     | 8.4              | 50.8 | 1394        | 209.0     | 208.8 | 0.0             | 12.3      | 7.4                                 | 9.2                             | 18                   | 99            | 66                    |  |
| 414                                                                                                     |                  |      | 1126        | 209.0     | 208.9 | 0.0             | 11.5      | 7.4                                 | 10.0                            | 18                   | 99            | 66                    |  |
| 415                                                                                                     |                  |      | 1321        | 209.0     | 208.8 | 0.0             | 12.1      | 10.7                                | 10.3                            | 18                   | 99            | 66                    |  |
| 416                                                                                                     |                  | 51.2 | 1574        | 209.0     | 208.8 | 0.0             | 12.7      | 8.6                                 | 10.3                            | 18                   | 99            | 66                    |  |
| 417                                                                                                     |                  |      | 2274        | 209.0     | 208.8 | 0.0             | 13.5      | 9.5                                 | 10.1                            | 18                   | 99            | 66                    |  |
| 418                                                                                                     |                  |      | 2342        | 209.0     | 208.8 | 0.0             | 13.6      | 10.0                                | 9.8                             | 18                   | 99            | 67                    |  |
| 419                                                                                                     |                  |      | 1906        | 209.0     | 208.8 | 0.0             | 13.2      | 8.9                                 | 10.8                            | 18                   | 99            | 67                    |  |
| 420                                                                                                     |                  |      | 1872        | 209.0     | 208.8 | 0.0             | 13.2      | 9.5                                 | 11.7                            | 18                   | 99            | 67                    |  |
| 421                                                                                                     |                  |      | 1910        | 209.0     | 208.8 | 0.0             | 13.2      | 9.6                                 | 8.9                             | 18                   | 99            | 67                    |  |
| 422                                                                                                     | 9.3              | 51.5 | 2218        | 209.0     | 208.8 | 0.0             | 13.5      | 10.5                                | 10.8                            | 18                   | 99            | 67                    |  |
| 423                                                                                                     |                  |      | 2123        | 209.0     | 208.8 | 0.0             | 13.4      | 10.1                                | 10.9                            | 18                   | 99            | 67                    |  |
| 424                                                                                                     |                  |      | 1865        | 209.0     | 208.8 | 0.0             | 13.2      | 10.5                                | 9.7                             | 18                   | 99            | 67                    |  |
| 425                                                                                                     |                  |      | 1949        | 209.0     | 208.8 | 0.0             | 13.3      | 9.4                                 | 9.5                             | 18                   | 99            | 67                    |  |
| 426                                                                                                     |                  |      | 1806        | 209.0     | 208.9 | 0.0             | 13.1      | 9.4                                 | 9.4                             | 18                   | 99            | 67                    |  |
| 427                                                                                                     | 8.5              | 50.3 | 1439        | 209.0     | 208.8 | 0.0             | 12.4      | 7.5                                 | 10.8                            | 18                   | 99            | 67                    |  |
| 428                                                                                                     |                  |      | 1296        | 209.0     | 208.9 | 0.0             | 12.0      | 8.7                                 | 11.6                            | 18                   | 99            | 67                    |  |
| 429                                                                                                     | 8.7              | 51.6 | 1566        | 209.0     | 208.8 | 0.0             | 12.6      | 9.1                                 | 9.7                             | 18                   | 99            | 66                    |  |
| 430                                                                                                     | 9.9              | 53.8 | 2247        | 209.0     | 208.8 | 0.0             | 13.5      | 9.3                                 | 9.7                             | 18                   | 99            | 66                    |  |
| 431                                                                                                     |                  |      | 2722        | 209.0     | 208.8 | 0.0             | 13.8      | 10.7                                | 8.0                             | 18                   | 99            | 66                    |  |

\*\*\*Blank data denotes values that were omitted in the analysis due to an extraneous event during recording.

| Data Point # | Yaw Angle (°) | Pitch Angle (°) | Rotor RPM | Nacelle Anemometer Wind Speed (m/s) | 10m Anemometer Wind Speed (m/s) | Air Temperature (°C) | Pressure (Pa) | Relative Humidity (%) |
|--------------|---------------|-----------------|-----------|-------------------------------------|---------------------------------|----------------------|---------------|-----------------------|
| 441          |               |                 |           |                                     |                                 |                      |               |                       |
| 442          |               |                 |           |                                     |                                 |                      |               |                       |
| 443          |               |                 |           |                                     |                                 |                      |               |                       |
| 444          |               |                 |           |                                     |                                 |                      |               |                       |
| 445          |               |                 |           |                                     |                                 |                      |               |                       |
| 446          |               |                 |           |                                     |                                 |                      |               |                       |
| 447          |               |                 |           |                                     |                                 |                      |               |                       |
| 448          |               |                 |           |                                     |                                 |                      |               |                       |
| 449          |               |                 |           |                                     |                                 |                      |               |                       |
| 450          |               |                 |           |                                     |                                 |                      |               |                       |
| 451          |               |                 |           |                                     |                                 |                      |               |                       |
| 452          |               |                 |           |                                     |                                 |                      |               |                       |
| 453          |               |                 |           |                                     |                                 |                      |               |                       |
| 454          |               |                 |           |                                     |                                 |                      |               |                       |
| 455          |               |                 |           |                                     |                                 |                      |               |                       |
| 456          |               |                 |           |                                     |                                 |                      |               |                       |
| 457          |               |                 |           |                                     |                                 |                      |               |                       |
| 458          |               |                 |           |                                     |                                 |                      |               |                       |
| 459          |               |                 |           |                                     |                                 |                      |               |                       |
| 460          |               |                 |           |                                     |                                 |                      |               |                       |
| 461          |               |                 |           |                                     |                                 |                      |               |                       |
| 462          |               |                 |           |                                     |                                 |                      |               |                       |
| 463          |               |                 |           |                                     |                                 |                      |               |                       |
| 464          |               |                 |           |                                     |                                 |                      |               |                       |
| 465          |               |                 |           |                                     |                                 |                      |               |                       |
| 466          |               |                 |           |                                     |                                 |                      |               |                       |
| 467          |               |                 |           |                                     |                                 |                      |               |                       |
| 468          |               |                 |           |                                     |                                 |                      |               |                       |
| 469          |               |                 |           |                                     |                                 |                      |               |                       |
| 470          |               |                 |           |                                     |                                 |                      |               |                       |
| 471          |               |                 |           |                                     |                                 |                      |               |                       |
| 472          |               |                 |           |                                     |                                 |                      |               |                       |
| 473          |               |                 |           |                                     |                                 |                      |               |                       |
| 474          |               |                 |           |                                     |                                 |                      |               |                       |
| 475          |               |                 |           |                                     |                                 |                      |               |                       |
| 476          |               |                 |           |                                     |                                 |                      |               |                       |
| 477          |               |                 |           |                                     |                                 |                      |               |                       |
| 478          |               |                 |           |                                     |                                 |                      |               |                       |
| 479          |               |                 |           |                                     |                                 |                      |               |                       |
| 480          |               |                 |           |                                     |                                 |                      |               |                       |
| 481          |               |                 |           |                                     |                                 |                      |               |                       |
| 482          |               |                 |           |                                     |                                 |                      |               |                       |
| 483          |               |                 |           |                                     |                                 |                      |               |                       |
| 484          |               |                 |           |                                     |                                 |                      |               |                       |
| 485          |               |                 |           |                                     |                                 |                      |               |                       |
| 486          |               |                 |           |                                     |                                 |                      |               |                       |
| 487          |               |                 |           |                                     |                                 |                      |               |                       |
| 488          |               |                 |           |                                     |                                 |                      |               |                       |
| 489          |               |                 |           |                                     |                                 |                      |               |                       |
| 490          |               |                 |           |                                     |                                 |                      |               |                       |
| 491          |               |                 |           |                                     |                                 |                      |               |                       |
| 492          |               |                 |           |                                     |                                 |                      |               |                       |
| 493          |               |                 |           |                                     |                                 |                      |               |                       |
| 494          |               |                 |           |                                     |                                 |                      |               |                       |
| 495          |               |                 |           |                                     |                                 |                      |               |                       |
| 496          |               |                 |           |                                     |                                 |                      |               |                       |
| 497          |               |                 |           |                                     |                                 |                      |               |                       |
| 498          |               |                 |           |                                     |                                 |                      |               |                       |
| 499          |               |                 |           |                                     |                                 |                      |               |                       |
| 500          |               |                 |           |                                     |                                 |                      |               |                       |
| 501          |               |                 |           |                                     |                                 |                      |               |                       |
| 502          |               |                 |           |                                     |                                 |                      |               |                       |
| 503          |               |                 |           |                                     |                                 |                      |               |                       |
| 504          |               |                 |           |                                     |                                 |                      |               |                       |
| 505          |               |                 |           |                                     |                                 |                      |               |                       |
| 506          |               |                 |           |                                     |                                 |                      |               |                       |
| 507          |               |                 |           |                                     |                                 |                      |               |                       |
| 508          |               |                 |           |                                     |                                 |                      |               |                       |
| 509          |               |                 |           |                                     |                                 |                      |               |                       |
| 510          |               |                 |           |                                     |                                 |                      |               |                       |
| 511          |               |                 |           |                                     |                                 |                      |               |                       |
| 512          |               |                 |           |                                     |                                 |                      |               |                       |
| 513          |               |                 |           |                                     |                                 |                      |               |                       |
| 514          |               |                 |           |                                     |                                 |                      |               |                       |
| 515          |               |                 |           |                                     |                                 |                      |               |                       |
| 516          |               |                 |           |                                     |                                 |                      |               |                       |
| 517          |               |                 |           |                                     |                                 |                      |               |                       |
| 518          |               |                 |           |                                     |                                 |                      |               |                       |
| 519          |               |                 |           |                                     |                                 |                      |               |                       |

# Table E.02 Measurement data - Background

Project: Niagara Wind Farm - Turbine T35 - IEC 61400-11 Measurement  
Report ID: 16227.00.T35.RP1

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Created on: 11/3/2017

\*\*\*Blank data denotes values that were omitted in the analysis due to an extraneous event during recording.

| Data Point # | Standardized Wind Speed | LAEq | Rotor RPM | 10m Anemometer Wind Speed (m/s) | Air Temperature (°C) | Pressure (Pa) | Relative Humidity (%) |
|--------------|-------------------------|------|-----------|---------------------------------|----------------------|---------------|-----------------------|
| 1            | 12.3                    | 46.1 | 0.0       | 10.4                            | 18                   | 99            | 65                    |
| 2            | 12.0                    | 48.6 | 0.0       | 10.1                            | 18                   | 99            | 65                    |
| 3            | 10.8                    | 50.2 | 0.0       | 9.1                             | 18                   | 99            | 65                    |
| 4            | 11.3                    | 51.8 | 0.0       | 9.5                             | 18                   | 99            | 66                    |
| 5            | 11.3                    | 51.2 | 0.0       | 9.5                             | 18                   | 99            | 66                    |
| 6            | 11.3                    | 49.6 | 0.0       | 9.5                             | 18                   | 99            | 66                    |
| 7            | 9.2                     | 48.2 | 0.0       | 7.8                             | 18                   | 99            | 66                    |
| 8            |                         |      |           |                                 |                      |               |                       |
| 9            | 13.3                    | 51.6 | 0.2       | 11.2                            | 18                   | 99            | 66                    |
| 10           | 12.2                    | 52.7 | 0.1       | 10.3                            | 18                   | 99            | 66                    |
| 11           | 12.6                    | 50.8 | 0.0       | 10.6                            | 18                   | 99            | 66                    |
| 12           | 13.1                    | 49.3 | 0.0       | 10.9                            | 18                   | 99            | 66                    |
| 13           | 11.4                    | 47.3 | 0.0       | 9.5                             | 18                   | 99            | 66                    |
| 14           | 12.1                    | 50.3 | 0.0       | 10.1                            | 18                   | 99            | 66                    |
| 15           | 14.3                    | 47.3 | 0.0       | 12.0                            | 18                   | 99            | 66                    |
| 16           | 15.6                    | 46.8 | 0.2       | 13.1                            | 18                   | 99            | 65                    |
| 17           | 15.0                    | 49.5 | 0.1       | 12.6                            | 18                   | 99            | 65                    |
| 18           | 12.5                    | 50.8 | 0.3       | 10.5                            | 18                   | 99            | 65                    |
| 19           |                         |      |           |                                 |                      |               |                       |
| 20           | 10.3                    | 48.4 | 0.0       | 8.6                             | 18                   | 99            | 65                    |
| 21           | 10.3                    | 46.1 | 0.0       | 8.6                             | 18                   | 99            | 65                    |
| 22           |                         |      |           |                                 |                      |               |                       |
| 23           | 11.4                    | 46.1 | 0.0       | 8.9                             | 18                   | 99            | 66                    |
| 24           | 8.8                     | 45.9 | 0.0       | 7.4                             | 18                   | 99            | 66                    |
| 25           | 12.1                    | 47.5 | 0.3       | 10.1                            | 18                   | 99            | 66                    |
| 26           | 12.2                    | 45.1 | 0.4       | 10.3                            | 18                   | 99            | 66                    |
| 27           | 10.2                    | 49.8 | 0.4       | 8.6                             | 18                   | 99            | 66                    |
| 28           | 10.1                    | 47.5 | 0.1       | 8.6                             | 18                   | 99            | 66                    |
| 29           | 10.1                    | 49.5 | 0.0       | 8.5                             | 18                   | 99            | 66                    |
| 30           | 10.3                    | 47.3 | 0.1       | 8.6                             | 18                   | 99            | 66                    |
| 31           | 10.1                    | 44.0 | 0.0       | 8.5                             | 18                   | 99            | 66                    |
| 32           | 13.2                    | 46.1 | 0.0       | 11.1                            | 18                   | 99            | 66                    |
| 33           | 11.9                    | 45.8 | 0.0       | 10.6                            | 18                   | 99            | 66                    |
| 34           | 11.9                    | 44.1 | 0.0       | 10.0                            | 18                   | 99            | 65                    |
| 35           | 10.3                    | 44.1 | 0.0       | 8.6                             | 18                   | 99            | 65                    |
| 36           | 10.2                    | 44.6 | 0.0       | 8.6                             | 18                   | 99            | 65                    |
| 37           | 11.5                    | 49.2 | 0.0       | 9.7                             | 18                   | 99            | 65                    |
| 38           | 10.8                    | 50.5 | 0.1       | 9.1                             | 18                   | 99            | 65                    |
| 39           | 13.1                    | 46.4 | 0.0       | 10.9                            | 18                   | 99            | 65                    |
| 40           | 11.2                    | 47.9 | 0.0       | 9.4                             | 18                   | 99            | 65                    |
| 41           | 12.8                    | 46.6 | 0.0       | 10.8                            | 18                   | 99            | 65                    |
| 42           | 12.8                    | 46.1 | 0.0       | 10.8                            | 18                   | 99            | 65                    |
| 43           | 12.1                    | 47.3 | 0.0       | 10.6                            | 18                   | 99            | 65                    |
| 44           | 14.0                    | 47.2 | 0.0       | 11.8                            | 18                   | 99            | 65                    |
| 45           | 15.9                    | 46.5 | 0.0       | 13.3                            | 18                   | 99            | 65                    |
| 46           | 15.9                    | 49.4 | 0.0       | 13.3                            | 18                   | 99            | 65                    |
| 47           | 14.9                    | 46.5 | 0.0       | 12.5                            | 18                   | 99            | 65                    |
| 48           | 12.2                    | 45.8 | 0.0       | 10.3                            | 18                   | 99            | 65                    |
| 49           | 15.9                    | 47.3 | 0.0       | 13.3                            | 18                   | 99            | 65                    |
| 50           | 16.1                    | 51.5 | 0.0       | 13.5                            | 18                   | 99            | 65                    |
| 51           | 14.5                    | 50.7 | 0.0       | 12.2                            | 18                   | 99            | 65                    |
| 52           | 12.7                    | 51.0 | 0.0       | 10.7                            | 18                   | 99            | 65                    |
| 53           | 13.2                    | 51.5 | 0.0       | 11.2                            | 18                   | 99            | 65                    |
| 54           | 12.1                    | 47.6 | 0.0       | 10.1                            | 18                   | 99            | 65                    |
| 55           | 15.9                    | 48.1 | 0.0       | 13.3                            | 18                   | 99            | 65                    |
| 56           | 14.3                    | 44.1 | 0.0       | 12.0                            | 18                   | 99            | 65                    |
| 57           | 14.4                    | 46.4 | 0.0       | 12.1                            | 18                   | 99            | 65                    |
| 58           | 14.4                    | 43.4 | 0.0       | 12.1                            | 18                   | 99            | 64                    |
| 59           | 14.7                    | 44.5 | 0.1       | 12.4                            | 18                   | 99            | 64                    |
| 60           | 12.7                    | 46.2 | 0.1       | 10.7                            | 18                   | 99            | 64                    |
| 61           | 11.3                    | 45.9 | 0.1       | 9.5                             | 18                   | 99            | 64                    |
| 62           | 10.2                    | 48.1 | 0.1       | 8.6                             | 18                   | 99            | 64                    |
| 63           | 13.3                    | 48.0 | 0.0       | 11.2                            | 18                   | 99            | 64                    |
| 64           | 12.2                    | 47.8 | 0.0       | 10.3                            | 18                   | 99            | 65                    |
| 65           | 12.8                    | 48.5 | 0.0       | 10.8                            | 18                   | 99            | 65                    |
| 66           | 13.7                    | 47.6 | 0.0       | 11.5                            | 18                   | 99            | 65                    |
| 67           | 10.6                    | 43.8 | 0.0       | 8.9                             | 18                   | 99            | 65                    |
| 68           | 12.7                    | 43.8 | 0.0       | 8.9                             | 18                   | 99            | 65                    |
| 69           | 13.3                    | 46.4 | 0.0       | 11.2                            | 18                   | 99            | 65                    |
| 70           | 11.5                    | 46.3 | 0.0       | 9.7                             | 18                   | 99            | 65                    |
| 71           | 10.2                    | 45.0 | 0.0       | 8.6                             | 18                   | 99            | 65                    |
| 72           | 12.9                    | 45.5 | 0.0       | 10.9                            | 18                   | 99            | 65                    |
| 73           | 10.8                    | 45.2 | 0.0       | 9.1                             | 18                   | 99            | 65                    |
| 74           | 12.6                    | 46.8 | 0.2       | 10.6                            | 18                   | 99            | 65                    |
| 75           | 11.4                    | 46.6 | 0.1       | 9.5                             | 18                   | 99            | 65                    |
| 76           | 11.6                    | 45.7 | 0.1       | 9.8                             | 18                   | 99            | 66                    |
| 77           | 12.7                    | 48.2 | 0.1       | 10.7                            | 18                   | 99            | 66                    |
| 78           | 12.6                    | 48.7 | 0.1       | 10.6                            | 18                   | 99            | 66                    |
| 79           | 13.3                    | 47.7 | 0.1       | 11.2                            | 18                   | 99            | 66                    |
| 80           | 10.7                    | 49.3 | 0.4       | 8.9                             | 18                   | 99            | 66                    |
| 81           | 12.6                    | 45.8 | 0.5       | 10.6                            | 18                   | 99            | 66                    |
| 82           | 10.4                    | 45.4 | 0.5       | 8.8                             | 18                   | 99            | 65                    |
| 83           | 12.6                    | 44.6 | 0.1       | 10.6                            | 18                   | 99            | 65                    |

\*\*\*Blank data denotes values that were omitted in the analysis due to an extraneous event during recording.

| Data Point # | Standardized Wind Speed | LAEq | Rotor RPM | 10m Anemometer Wind Speed (m/s) | Air Temperature (°C) | Pressure (Pa) | Relative Humidity (%) |
|--------------|-------------------------|------|-----------|---------------------------------|----------------------|---------------|-----------------------|
| 84           | 14.3                    | 44.8 | 0.1       | 12.0                            | 18                   | 99            | 65                    |
| 85           | 15.1                    | 42.7 | 0.0       | 12.7                            | 18                   | 99            | 65                    |
| 86           | 10.9                    | 44.0 | 0.0       | 9.2                             | 18                   | 99            | 65                    |
| 87           | 14.6                    | 43.0 | 0.0       | 12.3                            | 18                   | 99            | 65                    |
| 88           | 14.1                    | 45.1 | 0.0       | 11.9                            | 18                   | 99            | 65                    |
| 89           | 12.7                    | 43.0 | 0.1       | 10.7                            | 18                   | 99            | 65                    |
| 90           | 10.6                    | 42.3 | 0.1       | 8.9                             | 18                   | 99            | 65                    |
| 91           | 10.3                    | 41.6 | 0.1       | 8.6                             | 18                   | 99            | 65                    |
| 92           | 8.8                     | 44.7 | 0.1       | 7.4                             | 18                   | 99            | 65                    |
| 93           | 10.9                    | 45.0 | 0.1       | 9.2                             | 18                   | 99            | 65                    |
| 94           | 11.3                    | 43.3 | 0.0       | 9.5                             | 18                   | 99            | 64                    |
| 95           | 10.8                    | 42.1 | 0.0       | 9.1                             | 18                   | 99            | 64                    |
| 96           | 9.5                     | 42.1 | 0.0       | 8.6                             | 18                   | 99            | 64                    |
| 97           | 11.5                    | 45.5 | 0.0       | 9.7                             | 18                   | 99            | 64                    |
| 98           | 10.8                    | 45.1 | 0.0       | 9.1                             | 18                   | 99            | 64                    |
| 99           | 12.2                    | 46.0 | 0.0       | 10.3                            | 18                   | 99            | 64                    |
| 100          | 12.6                    | 44.0 | 0.0       | 10.6                            | 18                   | 99            | 64                    |
| 101          | 12.8                    | 47.1 | 0.0       | 10.8                            | 18                   | 99            | 64                    |
| 102          | 13.6                    | 43.4 | 0.0       | 11.4                            | 18                   | 99            | 64                    |
| 103          | 13.7                    | 42.2 | 0.1       | 11.5                            | 18                   | 99            | 64                    |
| 104          | 11.4                    | 42.7 | 0.1       | 9.5                             | 18                   | 99            | 64                    |
| 105          | 10.6                    | 42.8 | 0.0       | 8.9                             | 18                   | 99            | 64                    |
| 106          | 9.5                     | 40.4 | 0.0       | 8.6                             | 18                   | 99            | 64                    |
| 107          | 11.2                    | 43.3 | 0.0       | 9.4                             | 18                   | 99            | 65                    |
| 108          | 9.8                     | 46.0 | 0.0       | 8.3                             | 18                   | 99            | 65                    |
| 109          | 12.0                    | 43.3 | 0.1       | 10.1                            | 18                   | 99            | 65                    |
| 110          | 10.7                    | 43.0 | 0.1       | 8.9                             | 18                   | 99            | 65                    |
| 111          | 8.5                     | 45.6 | 0.1       | 8.0                             | 18                   | 99            | 65                    |
| 112          | 9.2                     | 49.4 | 0.3       | 7.8                             | 18                   | 99            | 65                    |
| 113          | 8.4                     | 48.1 | 0.1       | 7.1                             | 18                   | 99            | 65                    |
| 114          | 11.7                    | 47.8 | 0.1       | 9.8                             | 18                   | 99            | 65                    |
| 115          | 10.8                    | 48.2 | 0.0       | 9.1                             | 18                   | 99            | 65                    |
| 116          | 10.9                    | 46.4 | 0.0       | 10.0                            | 18                   | 99            | 65                    |
| 117          | 12.1                    | 47.9 | 0.0       | 10.1                            | 18                   | 99            | 65                    |
| 118          | 11.9                    | 46.5 | 0.0       | 10.0                            | 18                   | 99            | 64                    |
| 119          |                         |      |           |                                 |                      |               |                       |
| 120          | 11.0                    | 48.4 | 0.0       | 8.5                             | 18                   | 99            | 64                    |
| 121          | 12.2                    | 47.4 | 0.0       | 9.4                             | 18                   | 99            | 64                    |
| 122          | 13.8                    | 48.6 | 0.0       | 11.6                            | 18                   | 99            | 64                    |
| 123          | 14.4                    | 49.9 | 0.0       | 12.1                            | 18                   | 99            | 64                    |
| 124          | 12.3                    | 45.9 | 0.0       | 10.4                            | 18                   | 99            | 63                    |
| 125          | 13.9                    | 46.6 | 0.0       | 11.7                            | 18                   | 99            | 63                    |
| 126          | 10.5                    | 46.9 | 0.0       | 10.5                            | 18                   | 99            | 63                    |
| 127          | 10.9                    | 44.4 | 0.0       | 9.2                             | 18                   | 99            | 63                    |
| 128          | 12.3                    | 47.1 | 0.0       | 10.4                            | 18                   | 99            | 63                    |
| 129          | 10.7                    | 45.0 | 0.0       | 8.9                             | 18                   | 99            | 63                    |
| 130          | 11.5                    | 48.5 | 0.0       | 9.7                             | 18                   | 99            | 63                    |
| 131          | 11.3                    | 48.3 | 0.0       | 9.5                             | 18                   | 99            | 64                    |
| 132          | 12.6                    | 47.5 | 0.0       | 10.6                            | 18                   | 99            | 64                    |
| 133          | 11.6                    | 48.6 | 0.0       | 9.8                             | 18                   | 99            | 64                    |
| 134          | 13.1                    | 49.7 | 0.0       | 10.9                            | 18                   | 99            | 64                    |
| 135          | 12.8                    | 52.4 | 0.0       | 10.8                            | 18                   | 99            | 64                    |
| 136          | 12.8                    | 46.7 | 0.0       | 10.8                            | 18                   | 99            | 63                    |
| 137          | 11.5                    | 48.0 | 0.2       | 9.7                             | 18                   | 99            | 63                    |
| 138          | 12.7                    | 48.0 | 0.1       | 10.7                            | 18                   | 99            | 63                    |
| 139          | 11.4                    | 48.8 | 0.0       | 9.5                             | 18                   | 99            | 63                    |
| 140          | 10.8                    | 49.0 | 0.2       | 9.1                             | 18                   | 99            | 63                    |
| 141          | 11.7                    | 46.8 | 0.1       | 9.8                             | 18                   | 99            | 63                    |
| 142          | 14.4                    | 46.3 | 0.0       | 12.1                            | 18                   | 99            | 64                    |
| 143          | 13.4                    | 43.5 | 0.0       | 11.3                            | 18                   | 99            | 64                    |
| 144          | 12.7                    | 42.1 | 0.0       | 10.7                            | 18                   | 99            | 64                    |
| 145          | 11.0                    | 42.1 | 0.0       | 9.3                             | 18                   | 99            | 64                    |
| 146          | 11.2                    | 41.6 | 0.0       | 9.4                             | 18                   | 99            | 64                    |
| 147          | 9.7                     | 41.8 | 0.0       | 8.2                             | 18                   | 99            | 64                    |
| 148          | 9.4                     | 42.3 | 0.0       | 7.9                             | 18                   | 99            | 65                    |
| 149          | 9.6                     | 46.0 | 0.0       | 8.0                             | 18                   | 99            | 65                    |
| 150          | 8.7                     | 42.3 | 0.0       | 7.3                             | 18                   | 99            | 65                    |
| 151          | 10.7                    | 41.0 | 0.0       | 8.3                             | 18                   | 99            | 65                    |
| 152          | 11.0                    | 42.5 | 0.0       | 9.3                             | 18                   | 99            | 65                    |
| 153          | 9.0                     | 40.3 | 0.0       | 7.6                             | 18                   | 99            | 65                    |
| 154          | 9.0                     | 43.5 | 0.0       | 7.6                             | 18                   | 99            | 65                    |
| 155          | 10.1                    | 41.7 | 0.0       | 8.5                             | 18                   | 99            | 65                    |
| 156          | 9.2                     | 41.5 | 0.1       | 9.7                             | 18                   | 99            | 65                    |
| 157          | 8.8                     | 43.5 | 0.0       | 7.4                             | 18                   | 99            | 65                    |
| 158          | 10.0                    | 44.9 | 0.0       | 8.3                             | 18                   | 99            | 65                    |
| 159          | 10.8                    | 44.2 | 0.0       | 9.1                             | 18                   | 99            | 65                    |
| 160          | 10.7                    | 43.2 | 0.0       | 8.9                             | 18                   | 99            | 65                    |
| 161          | 10.6                    | 41.5 | 0.0       | 9.7                             | 18                   | 99            | 65                    |
| 162          | 9.5                     | 44.9 | 0.1       | 8.0                             | 18                   | 99            | 65                    |
| 163          | 8.5                     | 44.5 | 0.1       | 7.2                             | 18                   | 99            | 65                    |
| 164          | 9.6                     | 42.6 | 0.0       | 8.0                             | 18                   | 99            | 65                    |
| 165          | 9.2                     | 40.1 | 0.0       | 7.8                             | 18                   | 99            | 65                    |
| 166          | 9.8                     | 41.0 | 0.0       | 8.3                             | 18                   | 99            | 65                    |

\*\*\*Blank data denotes values that were omitted in the analysis due to an extraneous event during recording.

| Data Point # | Standardized Wind Speed | LAeq | Rotor Wind Speed | 10m Anemometer Wind Speed (m/s) | Air Temperature (°C) | Pressure (Pa) | Relative Humidity (%) |
|--------------|-------------------------|------|------------------|---------------------------------|----------------------|---------------|-----------------------|
| 167          | 11.5                    | 41.0 | 0.0              | 9.7                             | 18                   | 99            | 65                    |
| 168          | 12.2                    | 41.8 | 0.0              | 10.3                            | 18                   | 99            | 65                    |
| 169          | 12.7                    | 44.2 | 0.0              | 10.7                            | 18                   | 99            | 65                    |
| 170          | 10.0                    | 46.9 | 0.0              | 8.3                             | 18                   | 99            | 65                    |
| 171          | 9.6                     | 46.5 | 0.0              | 8.0                             | 18                   | 99            | 65                    |
| 172          | 10.8                    | 44.0 | 0.0              | 9.1                             | 18                   | 99            | 66                    |
| 173          | 11.0                    | 45.0 | 0.0              | 9.3                             | 18                   | 99            | 66                    |
| 174          | 10.2                    | 45.0 | 0.1              | 8.6                             | 18                   | 99            | 66                    |
| 175          | 9.5                     | 45.5 | 0.0              | 8.0                             | 18                   | 99            | 66                    |
| 176          | 11.0                    | 47.4 | 0.0              | 9.3                             | 18                   | 99            | 66                    |
| 177          | 12.7                    | 45.6 | 0.0              | 10.7                            | 18                   | 99            | 66                    |
| 178          | 13.8                    | 46.8 | 0.1              | 11.6                            | 18                   | 99            | 64                    |
| 179          | 13.3                    | 48.1 | 0.1              | 11.2                            | 18                   | 99            | 64                    |
| 180          | 12.6                    | 44.1 | 0.0              | 10.6                            | 18                   | 99            | 64                    |
| 181          | 11.7                    | 48.6 | 0.0              | 9.8                             | 18                   | 99            | 64                    |
| 182          | 46.1                    | 0.0  | 0.5              | 9.5                             | 17                   | 99            | 65                    |
| 183          | 10.9                    | 48.0 | 0.0              | 9.2                             | 17                   | 99            | 68                    |
| 184          | 11.9                    | 47.0 | 0.0              | 9.9                             | 17                   | 99            | 68                    |
| 185          | 11.1                    | 44.6 | 0.0              | 9.3                             | 17                   | 99            | 68                    |
| 186          | 9.8                     | 42.3 | 0.0              | 8.2                             | 17                   | 99            | 68                    |
| 187          | 9.1                     | 42.5 | 0.0              | 7.6                             | 17                   | 99            | 68                    |
| 188          | 10.8                    | 44.0 | 0.0              | 9.0                             | 17                   | 99            | 68                    |
| 189          | 9.6                     | 45.8 | 0.0              | 8.0                             | 17                   | 99            | 68                    |
| 190          | 10.6                    | 45.7 | 0.0              | 8.9                             | 17                   | 99            | 68                    |
| 191          | 10.6                    | 46.2 | 0.0              | 8.9                             | 17                   | 99            | 68                    |
| 192          | 12.0                    | 44.7 | 0.0              | 10.1                            | 17                   | 99            | 68                    |
| 193          | 10.4                    | 43.1 | 0.0              | 8.7                             | 17                   | 99            | 68                    |
| 194          | 8.5                     | 44.4 | 0.0              | 7.1                             | 17                   | 99            | 68                    |
| 195          | 10.9                    | 43.4 | 0.0              | 9.1                             | 17                   | 99            | 68                    |
| 196          | 11.1                    | 43.0 | 0.0              | 9.3                             | 17                   | 99            | 68                    |
| 197          | 11.8                    | 41.5 | 0.0              | 9.9                             | 17                   | 99            | 68                    |
| 198          | 13.0                    | 40.3 | 0.0              | 10.9                            | 17                   | 99            | 68                    |
| 199          | 12.2                    | 40.7 | 0.0              | 10.3                            | 17                   | 99            | 68                    |
| 200          | 11.5                    | 42.4 | 0.0              | 9.6                             | 17                   | 99            | 67                    |
| 201          | 9.1                     | 40.7 | 0.0              | 7.6                             | 17                   | 99            | 67                    |
| 202          | 12.5                    | 40.6 | 0.0              | 10.4                            | 17                   | 99            | 67                    |
| 203          | 11.6                    | 39.2 | 0.0              | 8.7                             | 17                   | 99            | 67                    |
| 204          | 11.9                    | 39.5 | 0.0              | 9.9                             | 17                   | 99            | 67                    |
| 205          | 12.2                    | 40.4 | 0.0              | 10.2                            | 17                   | 99            | 67                    |
| 206          | 10.2                    | 39.1 | 0.0              | 8.5                             | 17                   | 99            | 67                    |
| 207          | 11.1                    | 38.8 | 0.0              | 9.3                             | 17                   | 99            | 67                    |
| 208          | 10.1                    | 38.8 | 0.0              | 8.5                             | 17                   | 99            | 67                    |
| 209          | 10.1                    | 42.4 | 0.0              | 8.5                             | 17                   | 99            | 67                    |
| 210          | 10.3                    | 41.6 | 0.0              | 8.6                             | 17                   | 99            | 67                    |
| 211          | 10.0                    | 39.6 | 0.0              | 8.4                             | 17                   | 99            | 67                    |
| 212          | 8.7                     | 38.4 | 0.0              | 7.3                             | 17                   | 99            | 67                    |
| 213          | 11.1                    | 41.1 | 0.0              | 9.3                             | 17                   | 99            | 67                    |
| 214          | 10.2                    | 39.0 | 0.0              | 8.5                             | 17                   | 99            | 67                    |
| 215          | 8.8                     | 41.4 | 0.0              | 7.4                             | 17                   | 99            | 67                    |
| 216          | 10.5                    | 39.9 | 0.0              | 8.8                             | 17                   | 99            | 67                    |
| 217          | 11.3                    | 38.6 | 0.0              | 9.4                             | 17                   | 99            | 67                    |
| 218          | 9.8                     | 40.2 | 0.0              | 8.2                             | 17                   | 99            | 68                    |
| 219          | 9.3                     | 39.6 | 0.0              | 7.8                             | 17                   | 99            | 68                    |
| 220          | 10.6                    | 39.0 | 0.0              | 8.9                             | 17                   | 99            | 68                    |
| 221          | 11.0                    | 41.5 | 0.0              | 9.2                             | 17                   | 99            | 68                    |
| 222          | 10.0                    | 39.7 | 0.0              | 8.4                             | 17                   | 99            | 68                    |
| 223          | 10.9                    | 40.0 | 0.1              | 9.2                             | 17                   | 99            | 68                    |
| 224          | 10.8                    | 42.3 | 0.0              | 9.1                             | 17                   | 99            | 68                    |
| 225          | 12.0                    | 41.7 | 0.0              | 10.0                            | 17                   | 99            | 68                    |
| 226          | 11.2                    | 42.2 | 0.0              | 9.4                             | 17                   | 99            | 68                    |
| 227          | 11.9                    | 43.9 | 0.0              | 10.0                            | 17                   | 99            | 68                    |
| 228          | 10.1                    | 42.3 | 0.0              | 8.5                             | 17                   | 99            | 68                    |
| 229          | 9.7                     | 39.9 | 0.0              | 8.2                             | 17                   | 99            | 68                    |
| 230          | 9.8                     | 38.8 | 0.0              | 8.2                             | 17                   | 99            | 68                    |
| 231          | 8.8                     | 39.3 | 0.0              | 7.3                             | 17                   | 99            | 68                    |
| 232          | 9.4                     | 43.6 | 0.0              | 7.9                             | 17                   | 99            | 68                    |
| 233          | 9.8                     | 43.0 | 0.0              | 8.2                             | 17                   | 99            | 68                    |
| 234          | 9.8                     | 39.6 | 0.0              | 8.2                             | 17                   | 99            | 68                    |
| 235          | 10.7                    | 38.7 | 0.0              | 9.0                             | 17                   | 99            | 68                    |
| 236          | 9.9                     | 38.2 | 0.0              | 8.3                             | 17                   | 99            | 68                    |
| 237          | 8.8                     | 37.5 | 0.0              | 7.4                             | 17                   | 99            | 68                    |
| 238          | 9.3                     | 38.3 | 0.0              | 7.8                             | 17                   | 99            | 68                    |
| 239          | 9.8                     | 38.4 | 0.0              | 7.2                             | 17                   | 99            | 68                    |
| 240          | 7.1                     | 38.4 | 0.0              | 6.0                             | 17                   | 99            | 68                    |
| 241          | 8.0                     | 36.5 | 0.0              | 6.7                             | 17                   | 99            | 68                    |
| 242          | 7.5                     | 37.7 | 0.0              | 6.3                             | 17                   | 99            | 68                    |
| 243          | 7.3                     | 36.3 | 0.0              | 6.1                             | 17                   | 99            | 68                    |
| 244          | 7.0                     | 38.6 | 0.0              | 5.9                             | 17                   | 99            | 68                    |
| 245          | 6.0                     | 39.4 | 0.0              | 5.0                             | 17                   | 99            | 68                    |
| 246          | 7.2                     | 40.1 | 0.0              | 6.0                             | 17                   | 99            | 68                    |
| 247          | 6.6                     | 40.2 | 0.0              | 5.5                             | 17                   | 99            | 68                    |
| 248          | 7.2                     | 42.8 | 0.0              | 6.0                             | 17                   | 99            | 69                    |
| 249          | 8.4                     | 40.2 | 0.0              | 7.0                             | 17                   | 99            | 69                    |

# Table E.02 Measurement data - Background

Project: Niagara Wind Farm - Turbine T35 - IEC 61400-11 Measurement

Report ID: 16227.00.T35.RP1

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Created on: 11/3/2017

\*\*\*Blank data denotes values that were omitted in the analysis due to an extraneous event during recording.

| Data Point # | Standardized Wind Speed | LAeq | Rotor RPM | 10m Anemometer Wind Speed (m/s) | Air Temperature (°C) | Pressure (Pa) | Relative Humidity (%) |
|--------------|-------------------------|------|-----------|---------------------------------|----------------------|---------------|-----------------------|
| 250          | 8.8                     | 41.4 | 0.0       | 7.4                             | 17                   | 99            | 69                    |
| 251          | 7.4                     | 40.7 | 0.0       | 6.2                             | 17                   | 99            | 69                    |
| 252          | 6.7                     | 41.0 | 0.0       | 5.6                             | 17                   | 99            | 69                    |
| 253          | 8.7                     | 39.1 | 0.0       | 7.3                             | 17                   | 99            | 69                    |
| 254          | 7.6                     | 40.5 | 0.0       | 6.3                             | 17                   | 99            | 69                    |
| 255          | 9.5                     | 39.0 | 0.0       | 7.9                             | 17                   | 99            | 69                    |
| 256          | 9.0                     | 39.1 | 0.0       | 7.5                             | 17                   | 99            | 69                    |
| 257          | 8.9                     | 40.2 | 0.0       | 7.4                             | 17                   | 99            | 69                    |
| 258          | 8.9                     | 38.9 | 0.0       | 7.5                             | 17                   | 99            | 69                    |
| 259          | 9.2                     | 40.3 | 0.0       | 7.7                             | 17                   | 99            | 69                    |
| 260          | 9.4                     | 41.0 | 0.0       | 7.8                             | 17                   | 99            | 68                    |
| 261          | 8.8                     | 40.4 | 0.0       | 7.4                             | 17                   | 99            | 68                    |
| 262          | 9.0                     | 43.4 | 0.0       | 9.7                             | 17                   | 99            | 68                    |
| 263          | 9.1                     | 41.9 | 0.0       | 7.7                             | 17                   | 99            | 68                    |
| 264          | 8.2                     | 38.5 | 0.0       | 6.9                             | 17                   | 99            | 68                    |
| 265          | 9.1                     | 39.3 | 0.0       | 7.6                             | 17                   | 99            | 68                    |
| 266          | 7.9                     | 39.3 | 0.0       | 6.6                             | 17                   | 99            | 68                    |
| 267          | 7.9                     | 38.1 | 0.0       | 6.5                             | 17                   | 99            | 68                    |
| 268          | 7.9                     | 37.8 | 0.0       | 6.6                             | 17                   | 99            | 68                    |
| 269          | 9.6                     | 39.7 | 0.0       | 8.0                             | 17                   | 99            | 68                    |
| 270          | 11.0                    | 42.4 | 0.0       | 9.2                             | 17                   | 99            | 68                    |
| 271          | 10.0                    | 41.3 | 0.0       | 8.4                             | 17                   | 99            | 68                    |
| 272          | 9.6                     | 39.2 | 0.0       | 8.0                             | 17                   | 99            | 68                    |
| 273          | 9.3                     | 39.5 | 0.0       | 7.8                             | 17                   | 99            | 68                    |
| 274          | 10.1                    | 37.5 | 0.0       | 8.5                             | 17                   | 99            | 68                    |
| 275          | 10.7                    | 37.2 | 0.0       | 9.0                             | 17                   | 99            | 68                    |
| 276          | 9.1                     | 38.1 | 0.0       | 7.6                             | 17                   | 99            | 68                    |
| 277          | 11.0                    | 40.2 | 0.0       | 9.2                             | 17                   | 99            | 68                    |
| 278          | 9.7                     | 41.2 | 0.0       | 8.1                             | 17                   | 99            | 68                    |
| 279          | 10.0                    | 43.2 | 0.0       | 8.4                             | 17                   | 99            | 68                    |
| 280          | 8.9                     | 42.8 | 0.0       | 7.5                             | 17                   | 99            | 68                    |
| 281          | 7.8                     | 40.6 | 0.0       | 6.5                             | 17                   | 99            | 68                    |
| 282          | 10.8                    | 45.5 | 0.0       | 9.6                             | 17                   | 99            | 68                    |
| 283          | 10.1                    | 39.8 | 0.1       | 8.5                             | 17                   | 99            | 68                    |
| 284          | 9.6                     | 39.4 | 0.0       | 8.1                             | 17                   | 99            | 68                    |
| 285          | 10.5                    | 40.4 | 0.0       | 8.8                             | 17                   | 99            | 68                    |
| 286          | 11.2                    | 40.4 | 0.0       | 9.4                             | 17                   | 99            | 68                    |
| 287          | 10.6                    | 40.5 | 0.0       | 8.8                             | 17                   | 99            | 68                    |
| 288          | 10.0                    | 39.8 | 0.0       | 8.3                             | 17                   | 99            | 68                    |
| 289          | 10.7                    | 41.2 | 0.0       | 9.0                             | 17                   | 99            | 68                    |
| 290          | 11.6                    | 42.1 | 0.0       | 9.7                             | 17                   | 99            | 68                    |
| 291          | 10.9                    | 40.6 | 0.0       | 9.2                             | 17                   | 99            | 68                    |
| 292          | 11.6                    | 41.0 | 0.0       | 9.2                             | 17                   | 99            | 68                    |
| 293          | 11.3                    | 40.6 | 0.0       | 9.5                             | 17                   | 99            | 68                    |
| 294          | 9.6                     | 40.5 | 0.1       | 8.0                             | 17                   | 99            | 68                    |
| 295          | 8.4                     | 38.1 | 0.0       | 7.0                             | 17                   | 99            | 68                    |
| 296          | 9.5                     | 37.6 | 0.0       | 7.9                             | 17                   | 99            | 68                    |
| 297          | 8.5                     | 37.5 | 0.0       | 7.1                             | 17                   | 99            | 68                    |
| 298          | 9.2                     | 36.9 | 0.0       | 7.7                             | 17                   | 99            | 68                    |
| 299          | 9.6                     | 38.4 | 0.0       | 8.0                             | 17                   | 99            | 68                    |
| 300          | 8.6                     | 42.4 | 0.0       | 7.2                             | 17                   | 99            | 68                    |
| 301          | 8.4                     | 42.3 | 0.0       | 7.0                             | 17                   | 99            | 68                    |
| 302          | 9.6                     | 40.9 | 0.0       | 8.1                             | 17                   | 99            | 68                    |
| 303          | 8.2                     | 40.2 | 0.0       | 6.9                             | 17                   | 99            | 68                    |
| 304          | 8.2                     | 40.6 | 0.0       | 6.8                             | 17                   | 99            | 68                    |
| 305          | 9.2                     | 42.9 | 0.0       | 7.7                             | 17                   | 99            | 68                    |
| 306          | 8.4                     | 40.2 | 0.0       | 7.0                             | 17                   | 99            | 68                    |
| 307          | 6.9                     | 39.9 | 0.0       | 5.8                             | 17                   | 99            | 68                    |
| 308          | 7.0                     | 40.5 | 0.0       | 5.9                             | 17                   | 99            | 69                    |
| 309          | 8.4                     | 41.0 | 0.0       | 7.1                             | 17                   | 99            | 69                    |
| 310          | 8.6                     | 43.6 | 0.0       | 7.2                             | 17                   | 99            | 69                    |
| 311          | 8.2                     | 44.6 | 0.0       | 6.9                             | 17                   | 99            | 69                    |
| 312          | 7.1                     | 44.5 | 0.0       | 6.0                             | 17                   | 99            | 69                    |
| 313          | 6.9                     | 43.7 | 0.0       | 5.8                             | 17                   | 99            | 69                    |
| 314          | 8.5                     | 42.2 | 0.0       | 7.1                             | 17                   | 99            | 69                    |
| 315          | 9.0                     | 42.6 | 0.0       | 7.5                             | 17                   | 99            | 69                    |
| 316          | 10.0                    | 41.6 | 0.0       | 8.4                             | 17                   | 99            | 69                    |
| 317          | 9.8                     | 41.4 | 0.0       | 8.2                             | 17                   | 99            | 69                    |
| 318          | 8.9                     | 41.1 | 0.0       | 7.5                             | 17                   | 99            | 69                    |
| 319          | 7.7                     | 41.2 | 0.0       | 6.5                             | 17                   | 99            | 69                    |
| 320          | 8.0                     | 39.1 | 0.0       | 6.7                             | 17                   | 99            | 69                    |
| 321          | 8.1                     | 38.3 | 0.1       | 6.8                             | 17                   | 99            | 69                    |
| 322          | 9.8                     | 39.7 | 0.0       | 7.4                             | 17                   | 99            | 69                    |
| 323          | 9.9                     | 39.3 | 0.0       | 8.3                             | 17                   | 99            | 69                    |
| 324          | 12.0                    | 40.2 | 0.0       | 10.1                            | 17                   | 99            | 69                    |
| 325          | 10.7                    | 38.3 | 0.0       | 9.0                             | 17                   | 99            | 69                    |
| 326          | 10.6                    | 38.6 | 0.0       | 8.9                             | 17                   | 99            | 68                    |
| 327          | 9.8                     | 38.9 | 0.0       | 8.2                             | 17                   | 99            | 68                    |
| 328          | 8.8                     | 38.6 | 0.0       | 7.4                             | 17                   | 99            | 68                    |
| 329          | 9.4                     | 41.3 | 0.0       | 7.9                             | 17                   | 99            | 68                    |
| 330          | 8.9                     | 39.5 | 0.0       | 7.5                             | 17                   | 99            | 68                    |
| 331          | 9.7                     | 40.3 | 0.1       | 8.1                             | 17                   | 99            | 68                    |
| 332          | 8.8                     | 39.4 | 0.0       | 7.4                             | 17                   | 99            | 69                    |

\*\*\*Blank data denotes values that were omitted in the analysis due to an extraneous event during recording.

| Data Point # | Standardized Wind Speed | LAeq | Rotor RPM | 10m Anemometer Wind Speed (m/s) | Air Temperature (°C) | Pressure (Pa) | Relative Humidity (%) |
|--------------|-------------------------|------|-----------|---------------------------------|----------------------|---------------|-----------------------|
| 333          | 10.2                    | 40.2 | 0.0       | 8.5                             | 17                   | 99            | 69                    |
| 334          | 7.5                     | 42.6 | 0.0       | 6.3                             | 17                   | 99            | 69                    |
| 335          | 7.7                     | 41.7 | 0.0       | 6.7                             | 17                   | 99            | 69                    |
| 336          | 7.7                     | 38.8 | 0.0       | 6.4                             | 17                   | 99            | 69                    |
| 337          | 7.4                     | 37.6 | 0.0       | 6.2                             | 17                   | 99            | 69                    |
| 338          | 6.9                     | 36.9 | 0.0       | 5.8                             | 17                   | 99            | 69                    |
| 339          | 8.6                     | 39.7 | 0.0       | 7.2                             | 17                   | 99            | 69                    |
| 340          | 9.4                     | 43.0 | 0.0       | 7.9                             | 17                   | 99            | 69                    |
| 341          | 9.9                     | 39.7 | 0.0       | 8.3                             | 17                   | 99            | 69                    |
| 342          | 7.9                     | 40.0 | 0.0       | 6.6                             | 17                   | 99            | 69                    |
| 343          | 8.1                     | 40.0 | 0.0       | 6.8                             | 17                   | 99            | 69                    |
| 344          | 9.6                     | 39.4 | 0.0       | 8.0                             | 17                   | 99            | 69                    |
| 345          | 7.6                     | 41.6 | 0.0       | 6.3                             | 17                   | 99            | 69                    |
| 346          | 7.1                     | 40.6 | 0.0       | 5.9                             | 17                   | 99            | 69                    |
| 347          | 7.6                     | 40.6 | 0.0       | 6.4                             | 17                   | 99            | 69                    |
| 348          | 7.0                     | 41.7 | 0.0       | 5.9                             | 17                   | 99            | 69                    |
| 349          | 9.1                     | 40.6 | 0.0       | 7.6                             | 17                   | 99            | 70                    |
| 350          | 9.1                     | 40.5 | 0.0       | 7.6                             | 17                   | 99            | 70                    |
| 351          | 9.0                     | 41.4 | 0.0       | 7.6                             | 17                   | 99            | 70                    |
| 352          | 7.9                     | 40.0 | 0.0       | 6.6                             | 17                   | 99            | 70                    |
| 353          | 8.8                     | 40.2 | 0.0       | 7.4                             | 17                   | 99            | 70                    |
| 354          | 8.4                     | 41.4 | 0.0       | 7.0                             | 17                   | 99            | 70                    |
| 355          | 8.2                     | 45.1 | 0.0       | 7.0                             | 17                   | 99            | 70                    |
| 356          | 8.9                     | 43.1 | 0.0       | 7.4                             | 17                   | 99            | 70                    |
| 357          | 7.6                     | 45.8 | 0.0       | 6.4                             | 17                   | 99            | 70                    |
| 358          | 5.7                     | 41.0 | 0.0       | 4.8                             | 17                   | 99            | 70                    |
| 359          | 7.1                     | 38.9 | 0.0       | 5.9                             | 17                   | 99            | 70                    |
| 360          | 7.8                     | 38.1 | 0.0       | 6.5                             | 17                   | 99            | 71                    |
| 361          | 8.5                     | 37.9 | 0.0       | 7.1                             | 17                   | 99            | 71                    |
| 362          | 8.0                     | 37.0 | 0.0       | 6.7                             | 17                   | 99            | 71                    |
| 363          | 7.2                     | 38.7 | 0.0       | 6.1                             | 17                   | 99            | 71                    |
| 364          | 6.0                     | 39.2 | 0.0       | 5.0                             | 17                   | 99            | 71                    |
| 365          | 8.3                     | 38.2 | 0.0       | 5.3                             | 17                   | 99            | 71                    |
| 366          | 7.1                     | 38.7 | 0.0       | 6.0                             | 17                   | 99            | 71                    |
| 367          | 7.8                     | 43.4 | 0.0       | 6.6                             | 17                   | 99            | 71                    |
| 368          | 8.3                     | 42.5 | 0.0       | 7.0                             | 17                   | 99            | 71                    |
| 369          | 7.6                     | 44.7 | 0.0       | 6.4                             | 17                   | 99            | 71                    |
| 370          | 8.0                     | 43.1 | 0.0       | 6.7                             | 17                   | 99            | 71                    |
| 371          | 7.4                     | 42.1 | 0.0       | 6.2                             | 17                   | 99            | 71                    |
| 372          | 6.3                     | 39.8 | 0.0       | 5.3                             | 17                   | 99            | 71                    |
| 373          | 7.3                     | 43.9 | 0.0       | 6.1                             | 17                   | 99            | 71                    |
| 374          | 7.1                     | 39.5 | 0.0       | 6.0                             | 17                   | 99            | 71                    |
| 375          | 9.1                     | 39.1 | 0.0       | 5.4                             | 17                   | 99            | 71                    |
| 376          | 5.8                     | 41.3 | 0.0       | 4.9                             | 17                   | 99            | 71                    |
| 377          | 7.4                     | 42.7 | 0.0       | 6.2                             | 17                   | 99            | 71                    |
| 378          | 7.7                     | 39.7 | 0.0       | 6.5                             | 17                   | 99            | 71                    |
| 379          | 10.2                    | 39.9 | 0.0       | 8.6                             | 17                   | 99            | 71                    |
| 380          | 7.1                     | 10.5 | 0.0       | 8.8                             | 17                   | 99            | 71                    |
| 381          | 9.5                     | 40.3 | 0.0       | 8.0                             | 17                   | 99            | 71                    |
| 382          | 9.2                     | 38.6 | 0.0       | 7.7                             | 17                   | 99            | 71                    |
| 383          | 9.4                     | 39.6 | 0.0       | 7.9                             | 17                   | 99            | 71                    |
| 384          | 8.5                     | 39.1 | 0.0       | 7.1                             | 17                   | 99            | 71                    |
| 385          | 7.5                     | 38.6 | 0.0       | 6.3                             | 17                   | 99            | 71                    |
| 386          | 7.9                     | 37.1 | 0.0       | 6.6                             | 17                   | 99            | 71                    |
| 387          | 8.2                     | 38.7 | 0.0       | 6.8                             | 17                   | 99            | 71                    |
| 388          | 8.9                     | 38.0 | 0.0       | 7.4                             | 17                   | 99            | 71                    |
| 389          | 8.9                     | 37.2 | 0.0       | 7.5                             | 17                   | 99            | 71                    |
| 390          | 7.7                     | 38.2 | 0.0       | 6.4                             | 17                   | 99            | 71                    |
| 391          | 7.4                     | 40.0 | 0.0       | 6.2                             | 17                   | 99            | 71                    |
| 392          | 6.7                     | 38.0 | 0.0       | 5.6                             | 17                   | 99            | 71                    |
| 393          | 6.9                     | 38.9 | 0.0       | 5.8                             | 17                   | 99            | 71                    |
| 394          | 7.1                     | 39.6 | 0.0       | 5.9                             | 17                   | 99            | 71                    |
| 395          | 6.6                     | 39.3 | 0.0       | 5.6                             | 17                   | 99            | 71                    |
| 396          | 6.2                     | 40.7 | 0.0       | 5.2                             | 17                   | 100           | 72                    |
| 397          | 5.9                     | 35.7 | 0.0       | 4.9                             | 17                   | 100           | 72                    |
| 398          | 7.2                     | 36.9 | 0.0       | 6.0                             | 17                   | 100           | 72                    |
| 399          | 8.0                     | 37.0 | 0.0       | 6.7                             | 17                   | 100           | 72                    |
| 400          | 7.1                     | 39.6 | 0.0       | 5.9                             | 17                   | 100           | 72                    |
| 401          | 9.0                     | 38.4 | 0.0       | 7.5                             | 17                   | 100           | 72                    |
| 402          | 6.9                     | 38.9 | 0.0       | 5.8                             | 17                   | 100           | 72                    |
| 403          | 7.2                     | 41.6 | 0.0       | 6.1                             | 17                   | 100           | 72                    |
| 404          | 8.2                     | 40.7 | 0.0       | 6.9                             | 17                   | 100           | 72                    |
| 405          | 9.4                     | 40.2 | 0.0       | 7.9                             | 17                   | 100           | 72                    |
| 406          | 9.2                     | 42.6 | 0.0       | 7.7                             | 17                   | 100           | 72                    |
| 407          | 8.7                     | 38.3 | 0.0       | 7.3                             | 17                   | 100           | 72                    |
| 408          | 8.2                     | 37.3 | 0.0       | 6.9                             | 17                   | 100           | 72                    |
| 409          | 7.7                     | 37.1 | 0.0       | 6.5                             | 17                   | 100           | 72                    |
| 410          | 7.1                     | 37.8 | 0.1       | 6.0                             | 17                   | 100           | 72                    |
| 411          | 8.1                     | 42.3 | 0.0       | 6.8                             | 17                   | 100           | 72                    |
| 412          | 6.8                     | 42.6 | 0.0       | 5.7                             | 17                   | 100           | 72                    |
| 413          | 7.9                     | 43.2 | 0.0       | 6.6                             | 17                   | 100           | 72                    |
| 414          | 7.6                     | 45.6 | 0.0       | 6.4                             | 17                   | 100           | 72                    |
| 415          | 6.2                     | 46.2 | 0.0       | 5.2                             | 17                   | 100           | 72                    |

\*\*\*Blank data denotes values that were omitted in the analysis due to an extraneous event during recording.

| Data Point # | Standard Wind Speed | LAeq | Rotor Speed | 10m Anemometer Wind Speed (m/s) | Air Temperature (°C) | Pressure (Pa) | Relative Humidity (%) |
|--------------|---------------------|------|-------------|---------------------------------|----------------------|---------------|-----------------------|
| 416          | 6.5                 | 42.5 | 0.0         | 5.5                             | 17                   | 100           | 72                    |
| 417          | 6.1                 | 42.7 | 0.0         | 5.1                             | 17                   | 100           | 72                    |
| 418          | 5.4                 | 41.5 | 0.1         | 4.5                             | 17                   | 100           | 72                    |
| 419          | 6.3                 | 41.5 | 0.0         | 5.3                             | 17                   | 100           | 72                    |
| 420          | 9.2                 | 40.8 | 0.0         | 7.7                             | 17                   | 100           | 72                    |
| 421          | 9.9                 | 38.5 | 0.0         | 8.3                             | 17                   | 100           | 72                    |
| 422          | 8.7                 | 38.1 | 0.0         | 7.3                             | 17                   | 100           | 72                    |
| 423          | 7.9                 | 39.8 | 0.0         | 6.6                             | 17                   | 100           | 72                    |
| 424          | 7.3                 | 38.9 | 0.0         | 6.1                             | 17                   | 100           | 72                    |
| 425          | 7.1                 | 38.4 | 0.0         | 6.0                             | 17                   | 100           | 72                    |
| 426          | 9.2                 | 38.3 | 0.0         | 7.4                             | 17                   | 100           | 72                    |
| 427          | 8.8                 | 38.5 | 0.0         | 7.4                             | 17                   | 100           | 72                    |
| 428          | 7.6                 | 36.5 | 0.0         | 6.4                             | 17                   | 100           | 72                    |
| 429          | 8.1                 | 36.8 | 0.0         | 6.8                             | 17                   | 100           | 72                    |
| 430          | 8.5                 | 37.5 | 0.0         | 7.1                             | 17                   | 100           | 72                    |
| 431          | 8.8                 | 38.7 | 0.0         | 7.4                             | 17                   | 100           | 72                    |
| 432          | 8.1                 | 41.2 | 0.0         | 6.8                             | 17                   | 100           | 72                    |
| 433          | 8.1                 | 40.0 | 0.0         | 6.8                             | 17                   | 100           | 72                    |
| 434          | 7.5                 | 41.8 | 0.0         | 6.3                             | 17                   | 100           | 72                    |
| 435          | 6.9                 | 38.4 | 0.0         | 5.8                             | 17                   | 100           | 72                    |
| 436          | 8.0                 | 40.4 | 0.0         | 6.7                             | 17                   | 100           | 72                    |
| 437          | 8.0                 | 40.5 | 0.0         | 6.7                             | 17                   | 100           | 72                    |
| 438          | 7.5                 | 37.2 | 0.0         | 6.3                             | 17                   | 100           | 72                    |
| 439          | 7.8                 | 38.4 | 0.0         | 6.6                             | 17                   | 100           | 72                    |
| 440          | 7.0                 | 39.4 | 0.0         | 5.9                             | 17                   | 100           | 72                    |
| 441          | 8.3                 | 39.6 | 0.0         | 6.9                             | 17                   | 100           | 72                    |
| 442          | 8.0                 | 38.6 | 0.0         | 6.7                             | 17                   | 100           | 72                    |
| 443          | 7.5                 | 39.2 | 0.0         | 6.3                             | 17                   | 100           | 72                    |
| 444          | 7.9                 | 37.7 | 0.0         | 6.6                             | 17                   | 100           | 72                    |
| 445          | 7.5                 | 36.5 | 0.0         | 6.3                             | 17                   | 100           | 72                    |
| 446          | 6.9                 | 38.1 | 0.0         | 5.8                             | 17                   | 100           | 72                    |
| 447          | 8.2                 | 39.6 | 0.0         | 6.9                             | 17                   | 100           | 72                    |
| 448          | 8.3                 | 38.1 | 0.0         | 6.9                             | 17                   | 100           | 72                    |
| 449          | 8.6                 | 38.0 | 0.0         | 7.2                             | 17                   | 100           | 72                    |
| 450          | 8.5                 | 36.1 | 0.0         | 7.1                             | 17                   | 100           | 72                    |
| 451          | 8.9                 | 38.4 | 0.0         | 7.4                             | 17                   | 100           | 72                    |
| 452          | 9.2                 | 36.8 | 0.0         | 7.5                             | 17                   | 100           | 72                    |
| 453          | 7.3                 | 38.3 | 0.0         | 6.1                             | 17                   | 100           | 72                    |
| 454          | 8.0                 | 37.6 | 0.0         | 6.7                             | 17                   | 100           | 72                    |
| 455          | 8.5                 | 37.3 | 0.0         | 7.1                             | 17                   | 100           | 72                    |
| 456          | 8.1                 | 37.5 | 0.0         | 6.8                             | 17                   | 100           | 72                    |
| 457          | 8.8                 | 35.8 | 0.0         | 7.4                             | 17                   | 100           | 72                    |
| 458          | 7.5                 | 37.0 | 0.0         | 6.3                             | 17                   | 100           | 72                    |
| 459          | 7.8                 | 37.3 | 0.0         | 6.5                             | 17                   | 100           | 72                    |
| 460          | 8.1                 | 40.8 | 0.0         | 6.8                             | 17                   | 100           | 72                    |
| 461          | 6.8                 | 47.8 | 0.0         | 5.7                             | 17                   | 100           | 72                    |
| 462          | 8.2                 | 40.1 | 0.0         | 6.8                             | 17                   | 100           | 72                    |
| 463          | 7.1                 | 37.6 | 0.0         | 6.0                             | 17                   | 100           | 73                    |
| 464          | 8.6                 | 38.9 | 0.0         | 7.2                             | 17                   | 100           | 73                    |
| 465          | 8.4                 | 37.2 | 0.0         | 7.1                             | 17                   | 100           | 73                    |
| 466          | 8.4                 | 39.0 | 0.0         | 7.0                             | 17                   | 100           | 73                    |
| 467          | 7.0                 | 41.6 | 0.0         | 5.9                             | 17                   | 100           | 73                    |
| 468          | 8.3                 | 40.1 | 0.0         | 7.0                             | 17                   | 100           | 73                    |
| 469          | 9.9                 | 40.0 | 0.0         | 8.3                             | 17                   | 100           | 73                    |
| 470          | 8.9                 | 39.7 | 0.0         | 7.5                             | 17                   | 100           | 73                    |
| 471          | 8.5                 | 41.1 | 0.0         | 7.1                             | 17                   | 100           | 73                    |
| 472          | 6.2                 | 41.8 | 0.0         | 5.0                             | 17                   | 100           | 73                    |
| 473          | 7.2                 | 39.2 | 0.0         | 6.1                             | 17                   | 100           | 73                    |
| 474          | 8.4                 | 38.4 | 0.0         | 7.0                             | 17                   | 100           | 73                    |
| 475          | 8.1                 | 39.4 | 0.0         | 6.8                             | 17                   | 100           | 73                    |
| 476          | 7.5                 | 40.9 | 0.0         | 6.3                             | 17                   | 100           | 73                    |
| 477          | 7.9                 | 41.2 | 0.0         | 6.6                             | 17                   | 100           | 73                    |
| 478          | 6.1                 | 42.3 | 0.0         | 5.1                             | 17                   | 100           | 73                    |
| 479          | 7.4                 | 42.3 | 0.0         | 6.2                             | 17                   | 100           | 73                    |
| 480          | 6.8                 | 40.8 | 0.0         | 5.7                             | 17                   | 100           | 73                    |
| 481          | 6.4                 | 40.8 | 0.0         | 5.3                             | 17                   | 100           | 73                    |
| 482          | 5.7                 | 41.9 | 0.0         | 4.8                             | 17                   | 100           | 73                    |
| 483          | 6.6                 | 40.7 | 0.1         | 5.5                             | 17                   | 100           | 73                    |
| 484          | 7.7                 | 37.9 | 0.1         | 6.5                             | 17                   | 100           | 73                    |
| 485          | 6.6                 | 37.7 | 0.1         | 5.5                             | 17                   | 100           | 73                    |
| 486          | 6.9                 | 37.6 | 0.1         | 5.8                             | 17                   | 100           | 73                    |
| 487          | 5.8                 | 39.5 | 0.0         | 4.9                             | 17                   | 100           | 73                    |
| 488          | 8.0                 | 39.3 | 0.1         | 6.7                             | 17                   | 100           | 73                    |
| 489          | 9.2                 | 39.8 | 0.1         | 7.7                             | 17                   | 100           | 73                    |
| 490          | 8.7                 | 39.9 | 0.0         | 7.3                             | 17                   | 100           | 73                    |
| 491          | 8.1                 | 39.9 | 0.0         | 6.8                             | 17                   | 100           | 73                    |
| 492          | 8.2                 | 40.7 | 0.0         | 6.9                             | 17                   | 100           | 73                    |
| 493          | 6.9                 | 39.6 | 0.0         | 5.8                             | 17                   | 100           | 73                    |
| 494          | 6.5                 | 40.9 | 0.0         | 5.5                             | 17                   | 100           | 73                    |
| 495          | 6.2                 | 40.5 | 0.0         | 5.2                             | 17                   | 100           | 73                    |
| 496          | 6.2                 | 39.4 | 0.0         | 5.2                             | 17                   | 100           | 73                    |
| 497          | 5.9                 | 40.3 | 0.0         | 5.0                             | 17                   | 100           | 73                    |
| 498          | 7.7                 | 40.0 | 0.0         | 6.4                             | 17                   | 100           | 73                    |

Table E.02 Measurement data - Background

Project: Niagara Wind Farm - Turbine T35 - IEC 61400-11 Measurement

Report ID: 16227.00.T35.RP1

\*\*\*Blank data denotes values that were omitted in the analysis due to an extraneous event during recording.

| Data Point # | Standardized Wind Speed | LAeq | Rotor RPM | 10m Anemometer Wind Speed (m/s) | Air Temperature (°C) | Pressure (Pa) | Relative Humidity (%) |
|--------------|-------------------------|------|-----------|---------------------------------|----------------------|---------------|-----------------------|
| 499          | 6.9                     | 40.3 | 0.0       | 5.8                             | 17                   | 100           | 73                    |
| 500          | 6.3                     | 37.1 | 0.0       | 5.3                             | 17                   | 100           | 73                    |
| 501          | 6.2                     | 40.0 | 0.0       | 5.2                             | 17                   | 100           | 73                    |
| 502          | 6.3                     | 37.2 | 0.0       | 5.3                             | 17                   | 100           | 73                    |
| 503          | 6.3                     | 36.6 | 0.0       | 5.3                             | 17                   | 100           | 73                    |
| 504          | 7.0                     | 38.1 | 0.0       | 5.8                             | 17                   | 100           | 73                    |
| 505          | 7.4                     | 36.0 | 0.0       | 6.2                             | 17                   | 100           | 73                    |
| 506          | 7.4                     | 35.7 | 0.0       | 6.2                             | 17                   | 100           | 73                    |
| 507          | 7.2                     | 36.6 | 0.0       | 6.0                             | 17                   | 100           | 73                    |
| 508          | 6.6                     | 35.8 | 0.0       | 5.6                             | 17                   | 100           | 73                    |
| 509          | 8.5                     | 35.7 | 0.0       | 7.1                             | 17                   | 100           | 73                    |
| 510          | 6.9                     | 36.1 | 0.0       | 5.8                             | 17                   | 100           | 73                    |
| 511          | 8.1                     | 37.9 | 0.0       | 6.8                             | 17                   | 100           | 73                    |
| 512          | 8.0                     | 36.4 | 0.0       | 6.7                             | 17                   | 100           | 73                    |
| 513          | 8.3                     | 36.9 | 0.0       | 7.0                             | 17                   | 100           | 73                    |
| 514          | 8.3                     | 36.7 | 0.0       | 6.9                             | 17                   | 100           | 73                    |
| 515          | 6.7                     | 37.8 | 0.0       | 5.6                             | 17                   | 100           | 73                    |
| 516          |                         |      |           |                                 |                      |               |                       |
| 517          |                         |      |           |                                 |                      |               |                       |
| 518          |                         |      |           |                                 |                      |               |                       |
| 519          |                         |      |           |                                 |                      |               |                       |
| 520          |                         |      |           |                                 |                      |               |                       |
| 521          |                         |      |           |                                 |                      |               |                       |
| 522          |                         |      |           |                                 |                      |               |                       |
| 523          |                         |      |           |                                 |                      |               |                       |
| 524          |                         |      |           |                                 |                      |               |                       |
| 525          |                         |      |           |                                 |                      |               |                       |
| 526          |                         |      |           |                                 |                      |               |                       |
| 527          |                         |      |           |                                 |                      |               |                       |
| 528          |                         |      |           |                                 |                      |               |                       |
| 529          |                         |      |           |                                 |                      |               |                       |
| 530          |                         |      |           |                                 |                      |               |                       |
| 531          |                         |      |           |                                 |                      |               |                       |
| 532          |                         |      |           |                                 |                      |               |                       |
| 533          |                         |      |           |                                 |                      |               |                       |
| 534          |                         |      |           |                                 |                      |               |                       |
| 535          |                         |      |           |                                 |                      |               |                       |
| 536          |                         |      |           |                                 |                      |               |                       |
| 537          |                         |      |           |                                 |                      |               |                       |
| 538          |                         |      |           |                                 |                      |               |                       |
| 539          |                         |      |           |                                 |                      |               |                       |
| 540          |                         |      |           |                                 |                      |               |                       |
| 541          |                         |      |           |                                 |                      |               |                       |
| 542          |                         |      |           |                                 |                      |               |                       |
| 543          |                         |      |           |                                 |                      |               |                       |
| 544          |                         |      |           |                                 |                      |               |                       |
| 545          |                         |      |           |                                 |                      |               |                       |
| 546          |                         |      |           |                                 |                      |               |                       |
| 547          |                         |      |           |                                 |                      |               |                       |
| 548          |                         |      |           |                                 |                      |               |                       |
| 549          |                         |      |           |                                 |                      |               |                       |
| 550          |                         |      |           |                                 |                      |               |                       |
| 551          |                         |      |           |                                 |                      |               |                       |
| 552          |                         |      |           |                                 |                      |               |                       |
| 553          |                         |      |           |                                 |                      |               |                       |
| 554          |                         |      |           |                                 |                      |               |                       |
| 555          |                         |      |           |                                 |                      |               |                       |
| 556          |                         |      |           |                                 |                      |               |                       |
| 557          |                         |      |           |                                 |                      |               |                       |
| 558          |                         |      |           |                                 |                      |               |                       |
| 559          |                         |      |           |                                 |                      |               |                       |
| 560          |                         |      |           |                                 |                      |               |                       |
| 561          |                         |      |           |                                 |                      |               |                       |
| 562          |                         |      |           |                                 |                      |               |                       |
| 563          |                         |      |           |                                 |                      |               |                       |
| 564          |                         |      |           |                                 |                      |               |                       |
| 565          |                         |      |           |                                 |                      |               |                       |
| 566          |                         |      |           |                                 |                      |               |                       |
| 567          |                         |      |           |                                 |                      |               |                       |
| 568          |                         |      |           |                                 |                      |               |                       |
| 569          |                         |      |           |                                 |                      |               |                       |
| 570          |                         |      |           |                                 |                      |               |                       |
| 571          |                         |      |           |                                 |                      |               |                       |
| 572          |                         |      |           |                                 |                      |               |                       |
| 573          |                         |      |           |                                 |                      |               |                       |
| 574          |                         |      |           |                                 |                      |               |                       |
| 575          |                         |      |           |                                 |                      |               |                       |
| 576          |                         |      |           |                                 |                      |               |                       |
| 577          |                         |      |           |                                 |                      |               |                       |
| 578          |                         |      |           |                                 |                      |               |                       |
| 579          |                         |      |           |                                 |                      |               |                       |
| 580          |                         |      |           |                                 |                      |               |                       |
| 581          |                         |      |           |                                 |                      |               |                       |

\*\*\*Blank data denotes values that were omitted in the analysis due to an extraneous event during recording.

| Data Point # | Standardized Wind Speed | LAeq | Rotor RPM | 10m Anemometer Wind Speed (m/s) | Air Temperature (°C) | Pressure (Pa) | Relative Humidity (%) |
|--------------|-------------------------|------|-----------|---------------------------------|----------------------|---------------|-----------------------|
| 582          |                         |      |           |                                 |                      |               |                       |
| 583          |                         |      |           |                                 |                      |               |                       |
| 584          |                         |      |           |                                 |                      |               |                       |
| 585          |                         |      |           |                                 |                      |               |                       |
| 586          |                         |      |           |                                 |                      |               |                       |
| 587          |                         |      |           |                                 |                      |               |                       |
| 588          |                         |      |           |                                 |                      |               |                       |
| 589          |                         |      |           |                                 |                      |               |                       |
| 590          |                         |      |           |                                 |                      |               |                       |
| 591          |                         |      |           |                                 |                      |               |                       |
| 592          |                         |      |           |                                 |                      |               |                       |
| 593          |                         |      |           |                                 |                      |               |                       |
| 594          |                         |      |           |                                 |                      |               |                       |
| 595          |                         |      |           |                                 |                      |               |                       |
| 596          |                         |      |           |                                 |                      |               |                       |
| 597          |                         |      |           |                                 |                      |               |                       |
| 598          |                         |      |           |                                 |                      |               |                       |
| 599          |                         |      |           |                                 |                      |               |                       |
| 600          |                         |      |           |                                 |                      |               |                       |
| 601          |                         |      |           |                                 |                      |               |                       |
| 602          |                         |      |           |                                 |                      |               |                       |
| 603          |                         |      |           |                                 |                      |               |                       |
| 604          |                         |      |           |                                 |                      |               |                       |
| 605          |                         |      |           |                                 |                      |               |                       |
| 606          |                         |      |           |                                 |                      |               |                       |
| 607          |                         |      |           |                                 |                      |               |                       |
| 608          |                         |      |           |                                 |                      |               |                       |
| 609          |                         |      |           |                                 |                      |               |                       |
| 610          |                         |      |           |                                 |                      |               |                       |
| 611          |                         |      |           |                                 |                      |               |                       |
| 612          |                         |      |           |                                 |                      |               |                       |
| 613          |                         |      |           |                                 |                      |               |                       |
| 614          |                         |      |           |                                 |                      |               |                       |
| 615          |                         |      |           |                                 |                      |               |                       |
| 616          |                         |      |           |                                 |                      |               |                       |
| 617          |                         |      |           |                                 |                      |               |                       |
| 618          |                         |      |           |                                 |                      |               |                       |
| 619          |                         |      |           |                                 |                      |               |                       |
| 620          |                         |      |           |                                 |                      |               |                       |
| 621          |                         |      |           |                                 |                      |               |                       |
| 622          |                         |      |           |                                 |                      |               |                       |
| 623          |                         |      |           |                                 |                      |               |                       |
| 624          |                         |      |           |                                 |                      |               |                       |
| 625          |                         |      |           |                                 |                      |               |                       |
| 626          |                         |      |           |                                 |                      |               |                       |
| 627          |                         |      |           |                                 |                      |               |                       |
| 628          |                         |      |           |                                 |                      |               |                       |
| 629          |                         |      |           |                                 |                      |               |                       |
| 630          |                         |      |           |                                 |                      |               |                       |
| 631          |                         |      |           |                                 |                      |               |                       |
| 632          |                         |      |           |                                 |                      |               |                       |
| 633          |                         |      |           |                                 |                      |               |                       |
| 634          |                         |      |           |                                 |                      |               |                       |
| 635          |                         |      |           |                                 |                      |               |                       |
| 636          |                         |      |           |                                 |                      |               |                       |
| 637          |                         |      |           |                                 |                      |               |                       |
| 638          |                         |      |           |                                 |                      |               |                       |
| 639          |                         |      |           |                                 |                      |               |                       |
| 640          |                         |      |           |                                 |                      |               |                       |
| 641          |                         |      |           |                                 |                      |               |                       |
| 642          |                         |      |           |                                 |                      |               |                       |
| 643          |                         |      |           |                                 |                      |               |                       |
| 644          |                         |      |           |                                 |                      |               |                       |
| 645          |                         |      |           |                                 |                      |               |                       |
| 646          |                         |      |           |                                 |                      |               |                       |
| 647          |                         |      |           |                                 |                      |               |                       |
| 648          |                         |      |           |                                 |                      |               |                       |
| 649          |                         |      |           |                                 |                      |               |                       |
| 650          |                         |      |           |                                 |                      |               |                       |
| 651          |                         |      |           |                                 |                      |               |                       |
| 652          |                         |      |           |                                 |                      |               |                       |
| 653          |                         |      |           |                                 |                      |               |                       |
| 654          |                         |      |           |                                 |                      |               |                       |
| 655          |                         |      |           |                                 |                      |               |                       |
| 656          |                         |      |           |                                 |                      |               |                       |
| 657          |                         |      |           |                                 |                      |               |                       |
| 658          |                         |      |           |                                 |                      |               |                       |
| 659          |                         |      |           |                                 |                      |               |                       |
| 660          |                         |      |           |                                 |                      |               |                       |
| 661          |                         |      |           |                                 |                      |               |                       |
| 662          |                         |      |           |                                 |                      |               |                       |
| 663          |                         |      |           |                                 |                      |               |                       |
| 664          |                         |      |           |                                 |                      |               |                       |

\*\*\*Blank data denotes values that were omitted in the analysis due to an extraneous event during recording.

| Data Point # | Standardized Wind Speed | LAeq | Rotor RPM | 10m Anemometer Wind Speed (m/s) | Air Temperature (°C) | Pressure (Pa) | Relative Humidity (%) |
|--------------|-------------------------|------|-----------|---------------------------------|----------------------|---------------|-----------------------|
| 665          |                         |      |           |                                 |                      |               |                       |
| 666          |                         |      |           |                                 |                      |               |                       |
| 667          |                         |      |           |                                 |                      |               |                       |
| 668          |                         |      |           |                                 |                      |               |                       |
| 669          |                         |      |           |                                 |                      |               |                       |
| 670          |                         |      |           |                                 |                      |               |                       |
| 671          |                         |      |           |                                 |                      |               |                       |
| 672          |                         |      |           |                                 |                      |               |                       |
| 673          |                         |      |           |                                 |                      |               |                       |
| 674          |                         |      |           |                                 |                      |               |                       |
| 675          |                         |      |           |                                 |                      |               |                       |
| 676          |                         |      |           |                                 |                      |               |                       |
| 677          |                         |      |           |                                 |                      |               |                       |
| 678          |                         |      |           |                                 |                      |               |                       |
| 679          |                         |      |           |                                 |                      |               |                       |
| 680          |                         |      |           |                                 |                      |               |                       |
| 681          |                         |      |           |                                 |                      |               |                       |
| 682          |                         |      |           |                                 |                      |               |                       |
| 683          |                         |      |           |                                 |                      |               |                       |
| 684          |                         |      |           |                                 |                      |               |                       |
| 685          |                         |      |           |                                 |                      |               |                       |
| 686          |                         |      |           |                                 |                      |               |                       |
| 687          |                         |      |           |                                 |                      |               |                       |
| 688          |                         |      |           |                                 |                      |               |                       |
| 689          |                         |      |           |                                 |                      |               |                       |
| 690          |                         |      |           |                                 |                      |               |                       |
| 691          |                         |      |           |                                 |                      |               |                       |
| 692          |                         |      |           |                                 |                      |               |                       |
| 693          |                         |      |           |                                 |                      |               |                       |
| 694          |                         |      |           |                                 |                      |               |                       |
| 695          |                         |      |           |                                 |                      |               |                       |
| 696          |                         |      |           |                                 |                      |               |                       |
| 697          |                         |      |           |                                 |                      |               |                       |
| 698          |                         |      |           |                                 |                      |               |                       |
| 699          |                         |      |           |                                 |                      |               |                       |
| 700          |                         |      |           |                                 |                      |               |                       |
| 701          |                         |      |           |                                 |                      |               |                       |
| 702          |                         |      |           |                                 |                      |               |                       |
| 703          |                         |      |           |                                 |                      |               |                       |
| 704          |                         |      |           |                                 |                      |               |                       |
| 705          |                         |      |           |                                 |                      |               |                       |
| 706          |                         |      |           |                                 |                      |               |                       |
| 707          |                         |      |           |                                 |                      |               |                       |
| 708          |                         |      |           |                                 |                      |               |                       |
| 709          |                         |      |           |                                 |                      |               |                       |
| 710          |                         |      |           |                                 |                      |               |                       |
| 711          |                         |      |           |                                 |                      |               |                       |
| 712          |                         |      |           |                                 |                      |               |                       |
| 713          |                         |      |           |                                 |                      |               |                       |
| 714          |                         |      |           |                                 |                      |               |                       |
| 715          |                         |      |           |                                 |                      |               |                       |
| 716          |                         |      |           |                                 |                      |               |                       |
| 717          |                         |      |           |                                 |                      |               |                       |
| 718          |                         |      |           |                                 |                      |               |                       |
| 719          |                         |      |           |                                 |                      |               |                       |
| 720          |                         |      |           |                                 |                      |               |                       |
| 721          |                         |      |           |                                 |                      |               |                       |
| 722          |                         |      |           |                                 |                      |               |                       |
| 723          |                         |      |           |                                 |                      |               |                       |
| 724          |                         |      |           |                                 |                      |               |                       |
| 725          |                         |      |           |                                 |                      |               |                       |
| 726          |                         |      |           |                                 |                      |               |                       |
| 727          |                         |      |           |                                 |                      |               |                       |
| 728          |                         |      |           |                                 |                      |               |                       |
| 729          |                         |      |           |                                 |                      |               |                       |
| 730          |                         |      |           |                                 |                      |               |                       |
| 731          |                         |      |           |                                 |                      |               |                       |
| 732          |                         |      |           |                                 |                      |               |                       |
| 733          |                         |      |           |                                 |                      |               |                       |
| 734          |                         |      |           |                                 |                      |               |                       |
| 735          |                         |      |           |                                 |                      |               |                       |
| 736          |                         |      |           |                                 |                      |               |                       |
| 737          |                         |      |           |                                 |                      |               |                       |
| 738          |                         |      |           |                                 |                      |               |                       |
| 739          |                         |      |           |                                 |                      |               |                       |
| 740          |                         |      |           |                                 |                      |               |                       |
| 741          |                         |      |           |                                 |                      |               |                       |
| 742          |                         |      |           |                                 |                      |               |                       |
| 743          |                         |      |           |                                 |                      |               |                       |
| 744          |                         |      |           |                                 |                      |               |                       |
| 745          |                         |      |           |                                 |                      |               |                       |
| 746          |                         |      |           |                                 |                      |               |                       |
| 747          |                         |      |           |                                 |                      |               |                       |

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## End of Report

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