

Report ID: 13228.02.T060.RP1

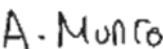
South Kent Wind / Turbine T060 IEC 61400-11 Edition 3.0 Measurement Report

Prepared for:

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March 29, 2021

Revision History

Version	Description	Author	Reviewed	Date
RP1	Initial Report	AM, SS	PA	March 29, 2021

This report in its entirety, including appendices contains 119 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 South Kent Wind LP to conduct acoustic measurements of the wind turbine T060, located in the South Kent Wind. Measurements were carried out in accordance with IEC 61400-11 (edition 3.0), “*Wind turbine generator systems – Part 11: Acoustic noise measurement techniques*”. The IEC 61400-11 (edition 3.0) test standard is referred to in this report by its citation reference, [1]. This report is specific only to turbine T060.

Aercoustics is an ISO/IEC 17025 test laboratory accredited for IEC 61400-11 testing.

2 Wind Turbine Information

2.1 Wind Turbine Equipment Details

Equipment information specific to turbine **T060** was provided by the manufacturer and is summarized in Table 1 to Table 5.

Table 1 - Wind Turbine Details

Wind Turbine Details	
Manufacturer	Siemens
Model Number	SWT-2.3-101 2.126MW derated to 1.745MW
Turbine ID (Serial Number)	P060 (2307012)

Table 2 - Operating Details

Operating Details	
Vertical or Horizontal axis wind turbine	Horizontal
Upwind or downwind rotor	Upwind
Hub height	100m
Horizontal distance from rotor centre to tower axis	3500mm
Diameter of rotor	101m
Tower type (lattice or tube)	Tube
Passive stall, active stall, or pitch controlled turbine	Pitch controlled
Constant or variable speed	Variable
Power curve	See Figure B.01 [Appendix B]
Rotational speed at each integer standardised wind speed	See Figure B.02 [Appendix B]
Rated power output	2.126 kW derated to 1.745 MW
Control software version	130204

Table 3 - Rotor Details

Rotor Details	
Rotor control devices	Hydraulic
Presence of aerodynamic add-ons, such as vortex generators, stall strips, serrated trailing edges, etc.	Vortex Generators, Serrated Trailing Edges
Blade type	RAL 7035 PC4, B49-01
Serial number	Set 7045, Blade A 490158501, Blade B 490159001, Blade C 4902105701
Number of blades	3

Table 4 - Gearbox Details

Gearbox Details	
Manufacturer	Winergy
Model number	PEAB4456.8 cold climate 2.3MW
Serial number	4852370-0110-3

Table 5 - Generator Details

Generator Details	
Manufacturer	Loher
Model number	2.3MW VS ver. 1.0, C3
Serial number	6012423

2.2 Wind Turbine Location / Physical Environment

UTM coordinates of Turbine T060 are 406654 m E and 4687622 m N, Zone 17T. The area surrounding the test turbine was flat and cleared farmland.

A general layout of the test turbine and surrounding area is provided in the site plan (Figure A.01).

3 Measurement Details

3.1 Instrumentation

The instrumentation used to acquire acoustic, meteorological (“MET”), and turbine operational data is detailed in the following sections. All data was acquired synchronously using Aercoustics’ data acquisition system unless otherwise noted.

3.1.1 Acoustic Equipment

Acoustic equipment used for the testing is summarized in Table 6. The acoustic equipment used in the test conforms to the traceable calibration requirements prescribed in Section 6.3 of [1]. A field calibration of the measurement chain was performed at the beginning and end of each measurement day.

Table 6 – Acoustic Measurement Equipment

Equipment	Make & Model	Serial Number	Last Calibration Date
Data acquisition system	LMS SCADA Mobile	22143211	June 05, 2020
Microphone	B&K 4189	2888707	December 08, 2020
Pre-amplifier	B&K 2671	2369794	December 08, 2020
Signal Conditioner	PCB 480E09	34208	March 16, 2020
Acoustic calibrator	B&K 4231	2053016	August 14, 2020

3.1.2 Meteorological Equipment

Meteorological parameters were measured using an anemometer installed on top of a 10-m AGL¹ mast. The anemometer recorded wind speed, temperature, and atmospheric pressure for the duration of the test. Wind speed at hub-height was recorded from the test turbine. Meteorological equipment utilized and controlled by Aercoustics is summarized in Table 7; this equipment conforms to the traceable calibration requirements prescribed in Section 6.3 of [1]. Equipment used by the test turbine to measure turbine parameters are outside of Aercoustics' control and not reported here.

Table 7 – Meteorological Measurement Equipment

Equipment	Make & Model	Serial Number	Last Calibration Date
Weather anemometer	Vaisala WXT520	K2420011	July 14, 2020
Serial to Analog Converter	Nokeval 7470	A165152	August 04, 2020

3.1.3 Turbine Operational Information

Turbine operational parameters were acquired from the turbine controller separately via the turbine SCADA system and input into Aercoustics' measurement dataset after the test. Turbine parameters measured include electrical power, yaw angle, rotational speed, and nacelle wind speed. Equipment used by the test turbine to measure turbine parameters are outside of Aercoustics' control and not reported here.

3.1.4 Microphone and MET Tower Placement

The measurement microphone was installed in Position 1, according to Figure 3 of [1]. The horizontal distance from microphone to the centerline of the wind turbine tower was $R_0 = 152$ m. An elevation difference of zero metres between the microphone position and the base of the wind turbine was noted by test personnel at the time of the measurements.

¹ Above ground level

The slant distance from microphone location to rotor centre was $R_1 = 184.2\text{m}$ (includes the distance from rotor center to tower centreline).

The microphone was placed in a downwind position on the centre of a circular, acoustically reflective board. The downwind direction was determined using the turbine yaw angle output (Section 8.3 of [1]). The microphone position relative to downwind direction was monitored via the turbine yaw angle and data points were excluded from analysis when the turbine yaw angle exceeded ± 15 degrees from the microphone position (reference yaw angle). The microphone board was moved as needed during the measurement to maintain a downwind position from the wind turbine.

The area immediately surrounding the microphone board was cleared farmland. There were no reflecting surfaces in the vicinity of the microphone position during the test.

The 10-m AGL mast was installed in a crosswind position from the turbine tower, according to Figure 5 of [1].

Photos of the 10-m AGL mast and microphone board used during the test are provided in Figure A.02.

3.1.5 Double Windscreen Setup

A double windscreen was utilized, and the measurement data was adjusted to account for the insertion loss of the double windscreen. The insertion loss of the double windscreen has been tested per Annex E of [1].

3.2 Measurement Date and Time

Measurement data collected for this test was acquired during the following times.

Table 8 – Summary of Measurement Periods

Date	Test Type	Start Time	Finish time
March 12, 2021	Turbine ON	6:17 AM	6:25 AM
	Turbine ON	6:33 AM	7:25 AM
	Background	7:27 AM	7:52 AM
	Background	7:55 AM	8:12 AM
	Turbine ON	8:15 AM	9:20 AM
	Background	9:25 AM	10:13 AM
	Turbine ON	10:22 AM	11:12 AM
	Background	11:39 AM	12:00 PM
	Turbine ON	12:12 PM	12:27 PM
	Turbine ON	12:51 PM	1:26 PM
	Background	1:33 PM	2:05 PM

3.3 Determination of Normalized Wind Speed

The normalized hub height wind speed for Turbine ON intervals was determined using one of the following two methods, depending on the hub-height wind speed during the interval:

The power curve method (Section 8.2.1.1 of [1]) is used to determine normalized hub-height wind speed if the power output during the interval falls within the allowable range of the power curve. The allowable range is defined per Equation (3) of [1] as the range of wind bins where the power curve has a positive slope.

The nacelle plus correction method (Section 8.2.1.2 of [1]) is used to determine normalized hub-height wind speed if the power output falls outside the allowable range of the power curve. If the application of this method results in a normalized wind speed that falls back inside the allowable range of the power curve, then that data point is excluded from analysis.

The normalized hub height wind speed for Background intervals is determined using the 10-m AGL anemometer wind speed and applying a correction factor (k_Z) to adjust to hub-height (Section 8.2.2 of [1]).

3.3.1 Wind Speed Correction Factors

Following the methodologies described above, two correction factors are derived from the measurement data and used to determine the normalized hub-height wind speed outside the allowable power curve range.

The first correction factor (k_{nac}) is used to correct nacelle wind speeds for Turbine ON intervals that fall outside of the allowable power curve range. The second correction factor (k_Z) is used to correct Background 10-m AGL wind speeds to hub-height. The correction factors calculated for this measurement set are provided in Table 9.

Table 9 – Calculated nacelle anemometer (k_{nac}) and 10 m (k_Z) wind speed k-factor

k_{nac}	k_Z
1.02	1.40

3.4 Deviations from IEC-61400-11 Edition 3.0

No deviations.

3.5 Special Notes & Considerations

No additional turbines were parked during the measurement period. Transient events (such as vehicle traffic, wildlife, air traffic, etc.) are manually excluded from the measurement data set.

4 Measurement Results

Measurement results are summarized in this section. Detailed supporting information is provided in Appendix C (1/3rd octave sound levels and uncertainties), Appendix D (tonality assessment), and Appendix E (measurement dataset).

4.1 Sound Pressure Levels

Average overall sound pressure levels in each wind bin for all Turbine ON and Background periods are summarized in Table 10.

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	
7.0	49.6	288	39.4	55	49.2
7.5	49.8	244	38.5	40	49.5
8.0	49.4	109	40.0	25	48.9
8.5	49.4	76	38.0	47	49.1
9.0	49.7	36	39.1	34	49.3
9.5	49.7	27	39.8	39	49.3
10.0	49.8	23	40.0	33	49.3
10.5	50.4	22	41.1	36	49.9
11.0	50.2	18	40.7	34	49.7
11.5	49.4	14	40.9	22	48.8

4.2 Apparent Sound Power Level

The calculated apparent sound power levels by hub height wind speed are summarized in Table 11. Corresponding sound power levels by 10 m height wind speed are summarized in Table 12. Wind speeds at 10 m are calculated per Section 9.4 of [1].

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

Wind Speed (m/s)	Apparent L _{WA} , (dBA)	Uncertainty (dB)
7.0	99.5	0.8
7.5	99.8	0.8
8.0	99.2	0.8
8.5	99.4	0.8
9.0	99.6	0.8
9.5	99.6	0.8
10.0	99.6	0.9
10.5	100.2	1.0
11.0	100.0	0.9
11.5	99.1	1.0

Table 12 – $L_{WA\ 10m,\ k}$ at each integer wind speed

Wind Speed (m/s)	Apparent L_{WA} , (dBA)	Uncertainty (dB)
5.0	99.3	0.8
6.0	99.4	0.8
7.0	99.8	0.9
8.0	99.4	0.9

* denotes a 3 to 6 dB difference between Turbine ON and Background

** denotes a less than 3 dB difference between Turbine ON and Background and are not reported

4.3 Uncertainty

The uncertainty of the test result is the combination of Type A and Type B uncertainty. Detailed uncertainties calculated for overall and 1/3rd octave band sound levels are provided in Appendix C.

4.3.1 Type A Uncertainty

Type A measurement uncertainty is calculated based on the distribution of the measured sound levels and wind speeds during the test. Calculation of Type A uncertainty is conducted per Section 9.2 of [1].

4.3.2 Type B Uncertainty

Type B uncertainty is determined using the guidance provided in Annex C of [1] and equipment calibration records. A summary of Type B uncertainties is provided in Table 13.

Table 13 – 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

4.4 Tonality Analysis

Tonal audibility is determined for each wind speed bin per Section 9.5 of [1]. The results of the tonality analysis are summarized in Table 14. All ΔL_{tn} and ΔL_a values reported represent the energy average of all data points having an identified tone that fall within the same frequency of origin (Section 9.5.8 of [1]).

The average narrow band spectrum measured at each hub-height wind speed are provided in Appendix D.

Table 14 – Tonality Assessment Summary

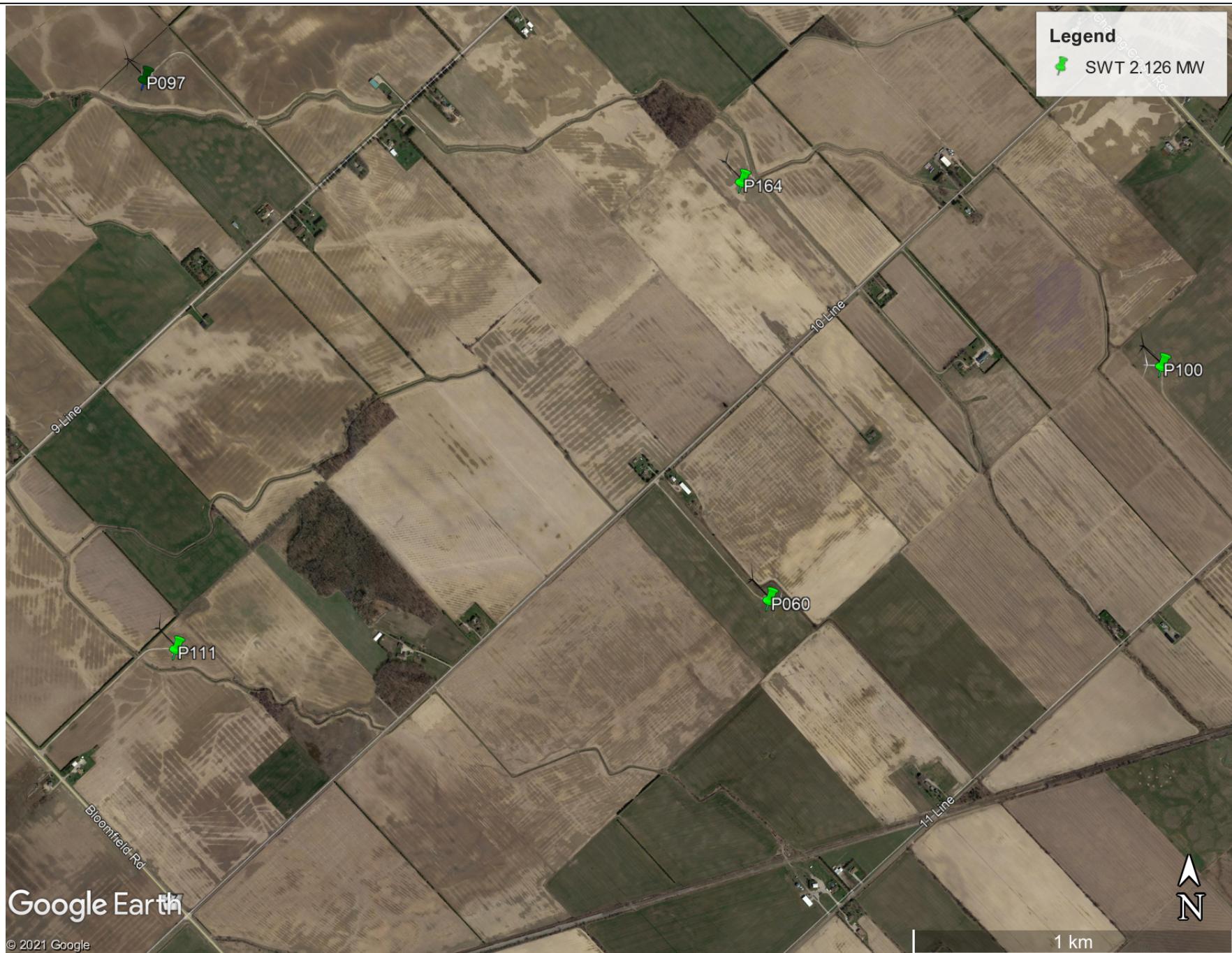
Wind Speed (m/s)	Frequency (Hz)	Tonality, ΔL_{tn} (dB)	Tonal audibility, ΔL_a (dB)	FFT's with tones	Total # of FFT's	Presence (%)
7.0			No reportable tones			
7.5			No reportable tones			
8.0			No reportable tones			
8.5			No reportable tones			
9.0	411	-2.3	-0.1	9	36	25%
9.5	411	-1.4	0.8	12	27	44%
10.0	422	3.1	5.4	8	23	35%
10.5	420	0.9	3.1	10	22	45%
11.0	413	-1.9	0.3	8	18	44%
11.5	416	0.3	2.5	9	14	64%

5 Closure

Measurements and analyses per IEC 61400-11 (edition 3.0) were performed on turbine T060 of the South Kent Wind, located in the municipality of Chatham-Kent. The test turbine was found to have a maximum apparent sound power level of 100.2 dBA and a maximum tonal audibility of 5.4 dB.

Supplementary information to address specific local regulatory requirements are attached separately in Appendix F.

Appendix A Site Details



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Project Name

Scale: As Shown

Drawn by: SS

Reviewed by: PA

Date: March 2021

Revision: 1

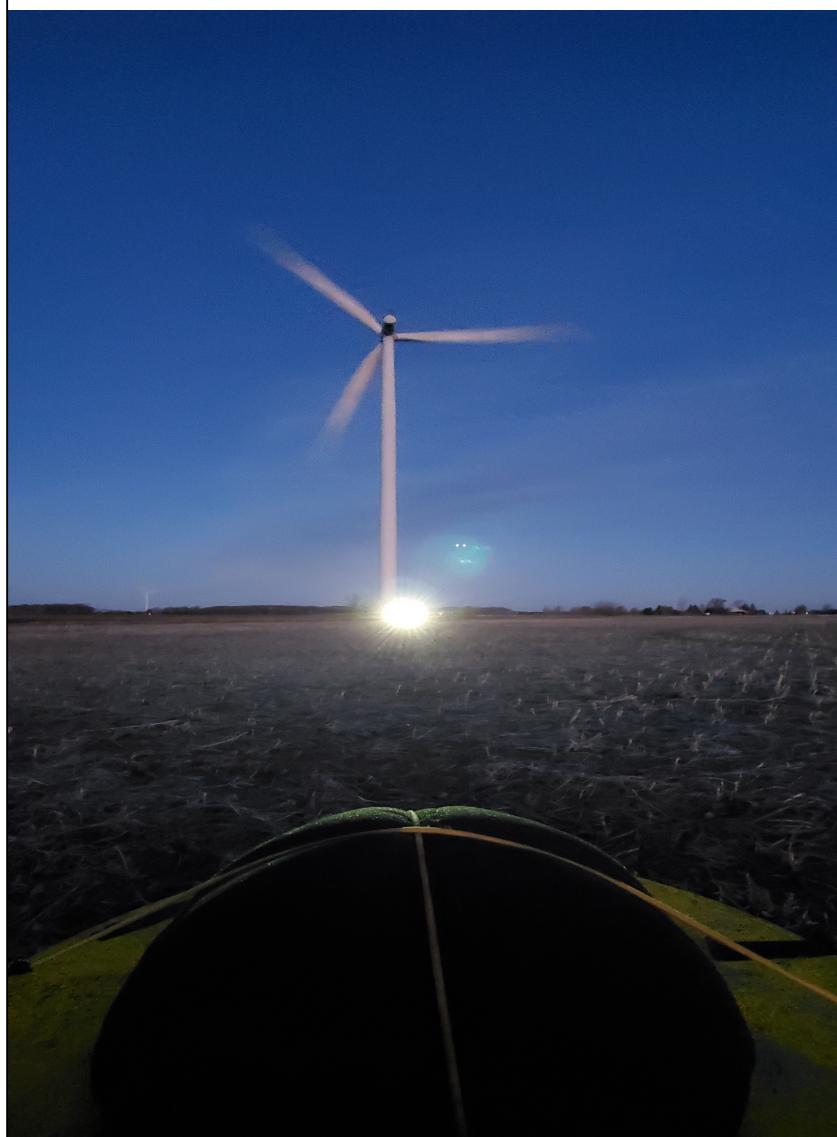
South Kent WPP - IEC 61400- 11 Edition 3.0 - Turbine T60

Figure Title

Site Plan



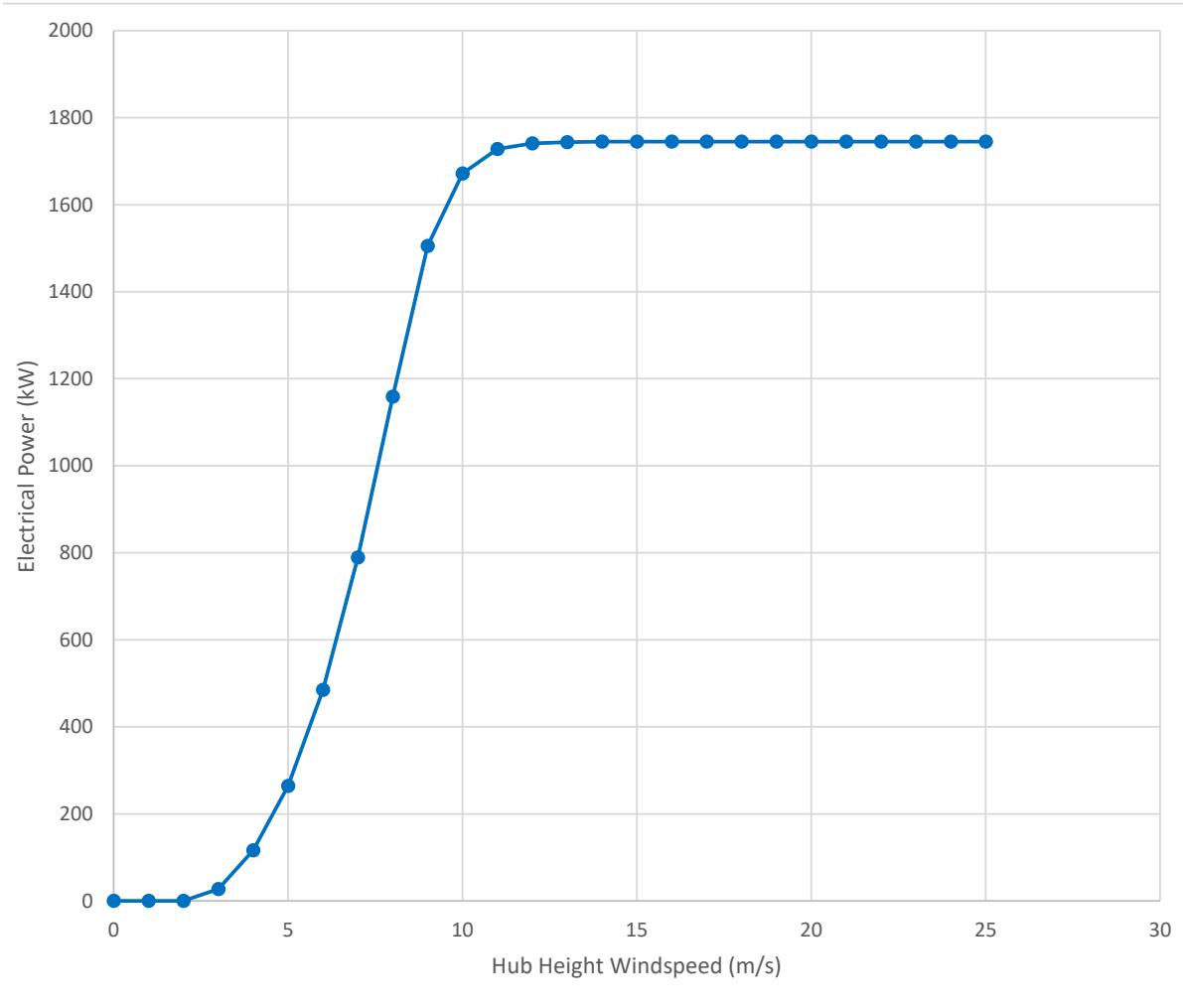
Figure A.01



 aercoustics	13228.02.T60.RP1	Project Name	South Kent WPP - IEC 61400- 11 Edition 3.0 - Turbine T60
	Scale: As Shown Drawn by: SS Reviewed by: PA Date: March 2021 Revision: 1	Figure Title	
Site Photos			Figure A.02

Appendix B

Turbine Information



Power Curve	
Hub Wind Speed (m/s)	Power [kW]
0	0
1	0
2	0
3	27
4	116
5	264
6	485
7	789
8	1159
9	1505
10	1672
11	1728
12	1741
13	1744
14	1745
15	1745
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20	1745
21	1745
22	1745
23	1745
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25	1745

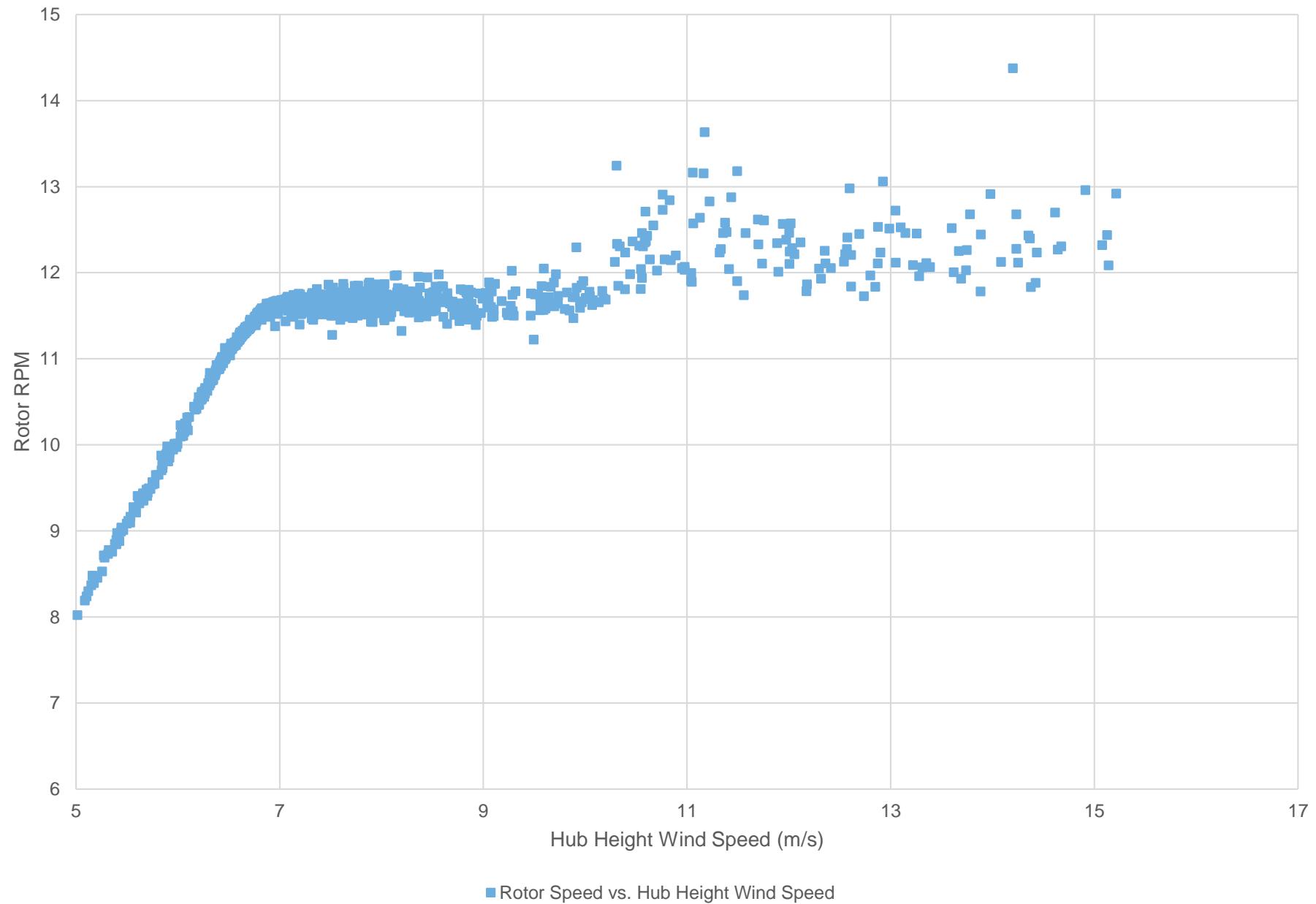


Table B.01 Allowed range of power curve and required wind speeds

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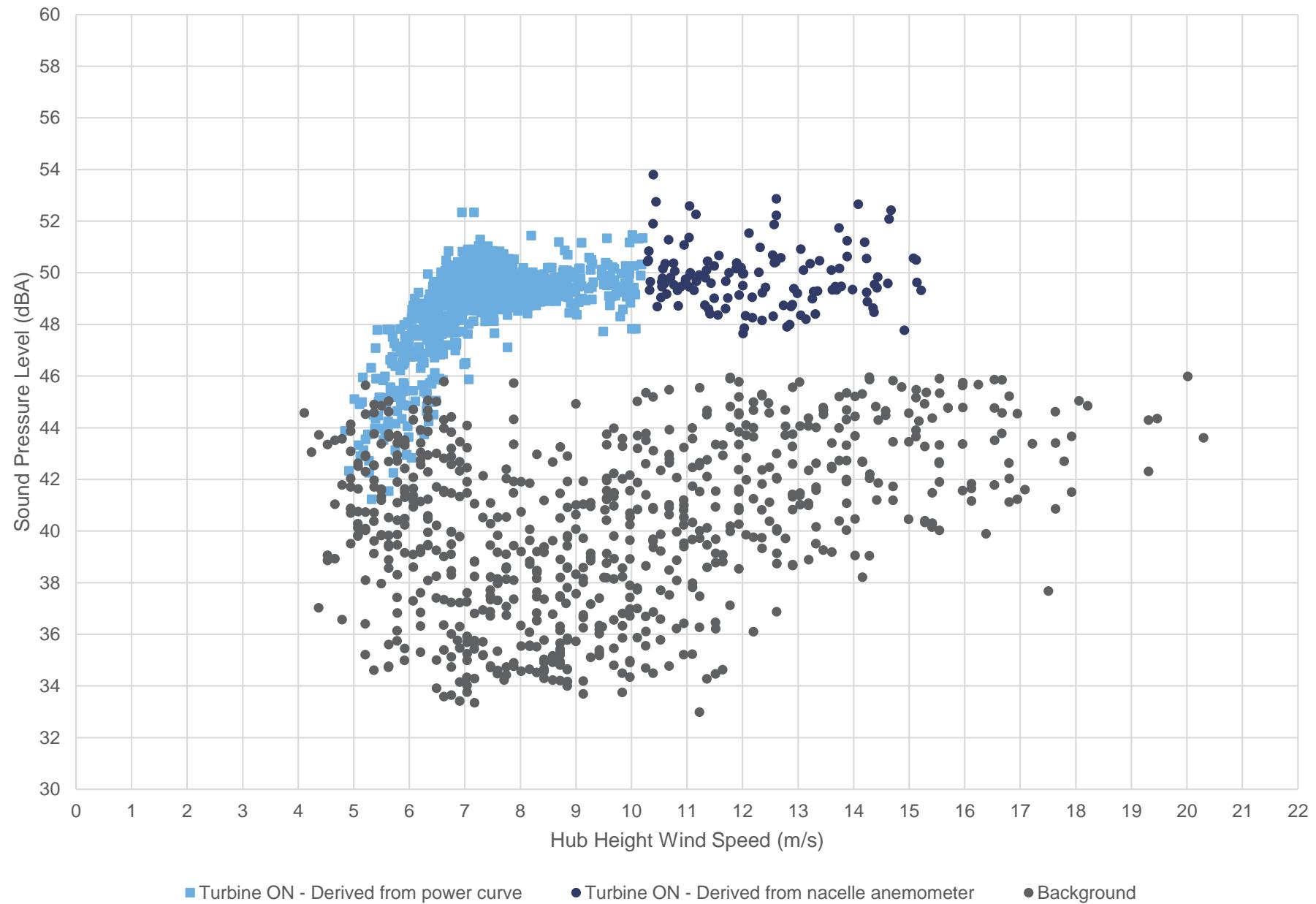
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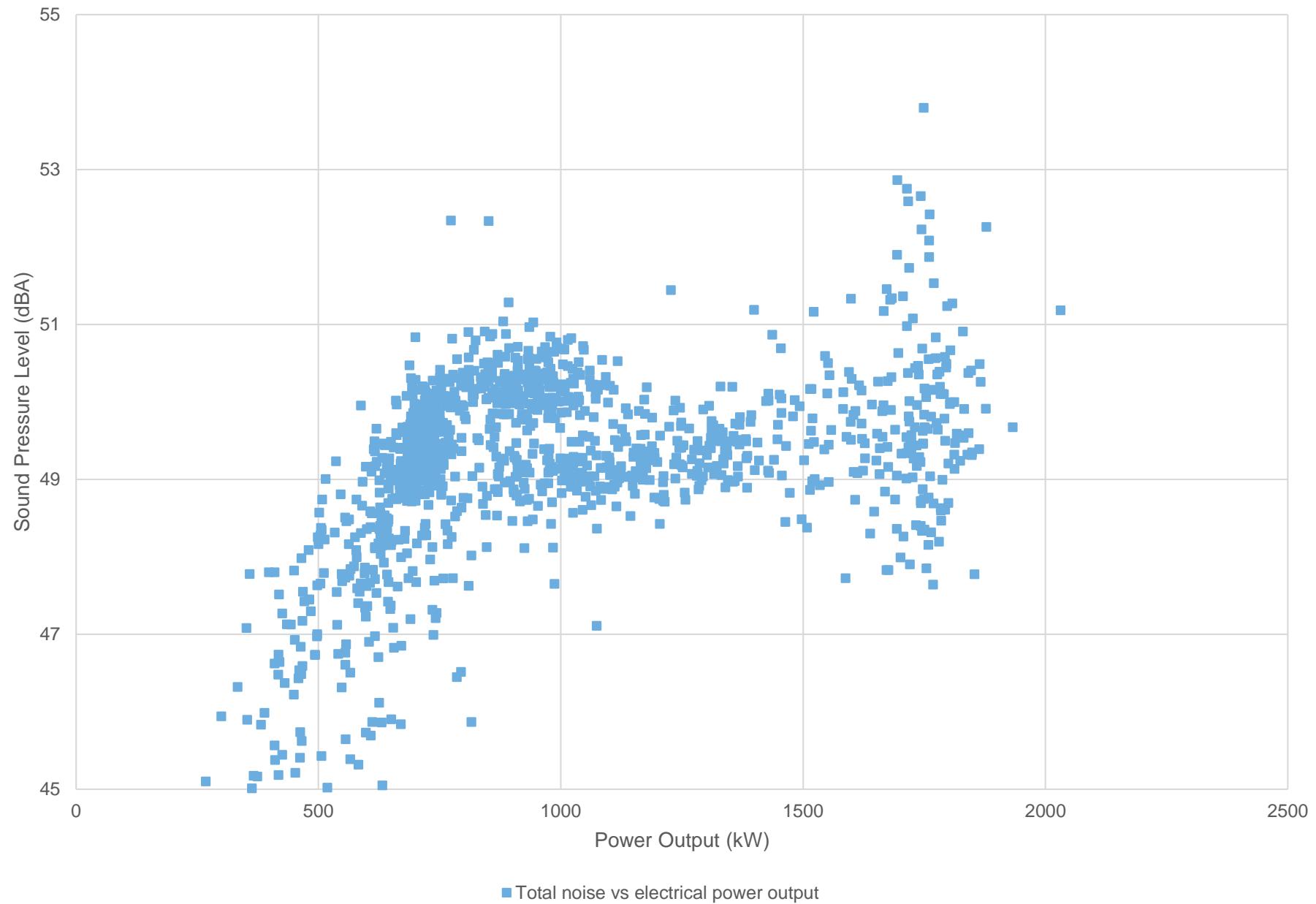
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Power Curve & Required Wind Speeds		
Power Curve Tolerance	1.0%	
Acceptable range min	3	m/s
Acceptable range max	10	m/s
Min allowable range	3	m/s
Max allowable range	10	m/s
Power Output	1745	kW
85% Power	1483.25	kW
Corresponding wind speed	8.94	m/s
Minimum bin	7.0	m/s
Maximum bin	11.5	m/s

Power Curve		
Hub Wind Speed (m/s)	Power [kW]	slope
0	0	-34.9
1	0	-34.9
2	0	-7.9
3	27	54.1
4	116	113.1
5	264	186.1
6	485	269.1
7	789	335.1
8	1159	311.1
9	1505	132.1
10	1672	21.1
11	1728	-21.9
12	1741	-31.9
13	1744	-33.9
14	1745	-34.9
15	1745	-34.9
16	1745	-34.9
17	1745	-34.9
18	1745	-34.9
19	1745	-34.9
20	1745	-34.9
21	1745	-34.9
22	1745	-34.9
23	1745	-34.9
24	1745	-34.9
25	1745	

Appendix C Apparent Sound Power Level





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Scale: NTS
Drawn by: SS
Reviewed by: PA
Date: March 2021
Revision: 1

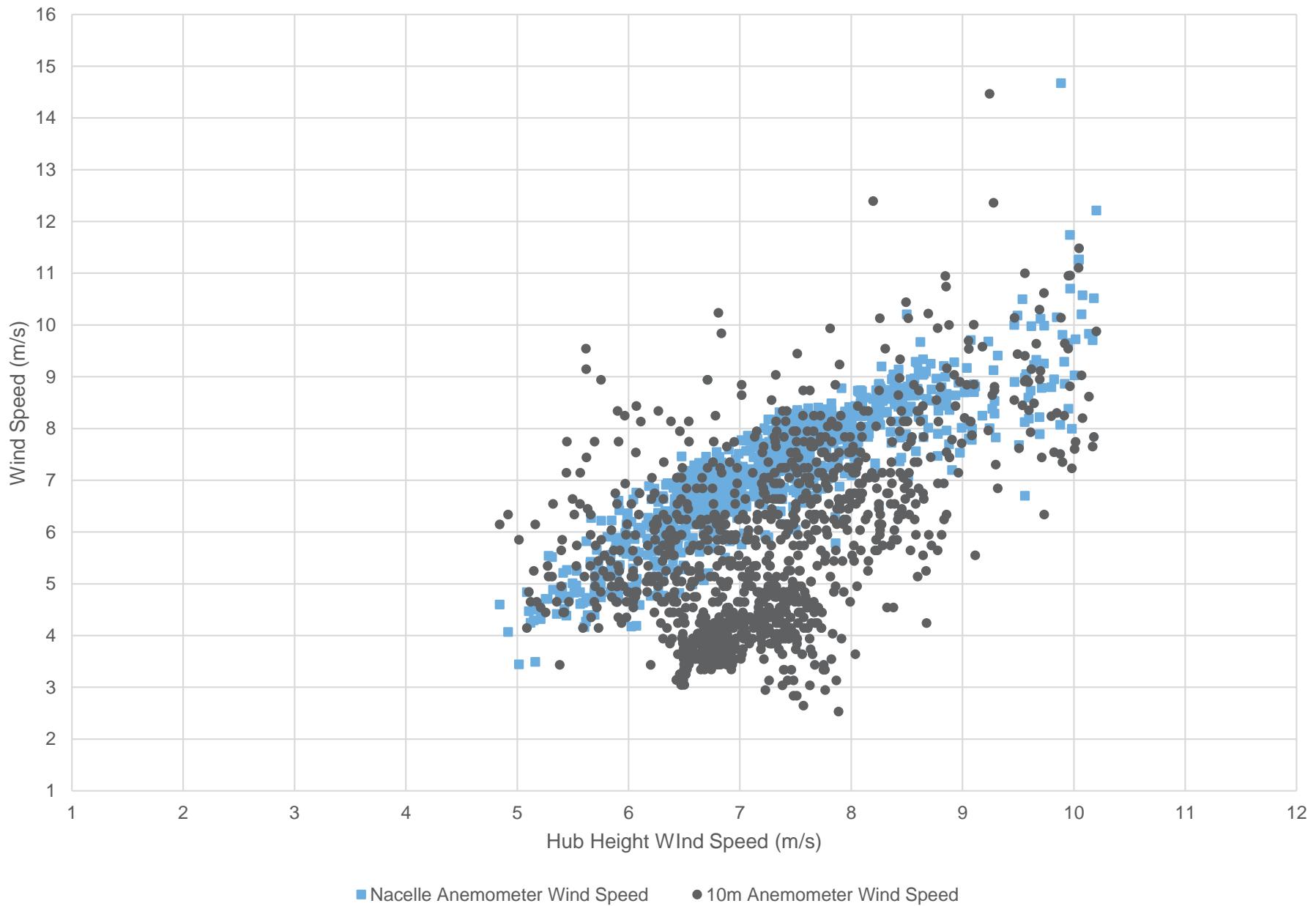
Project Name

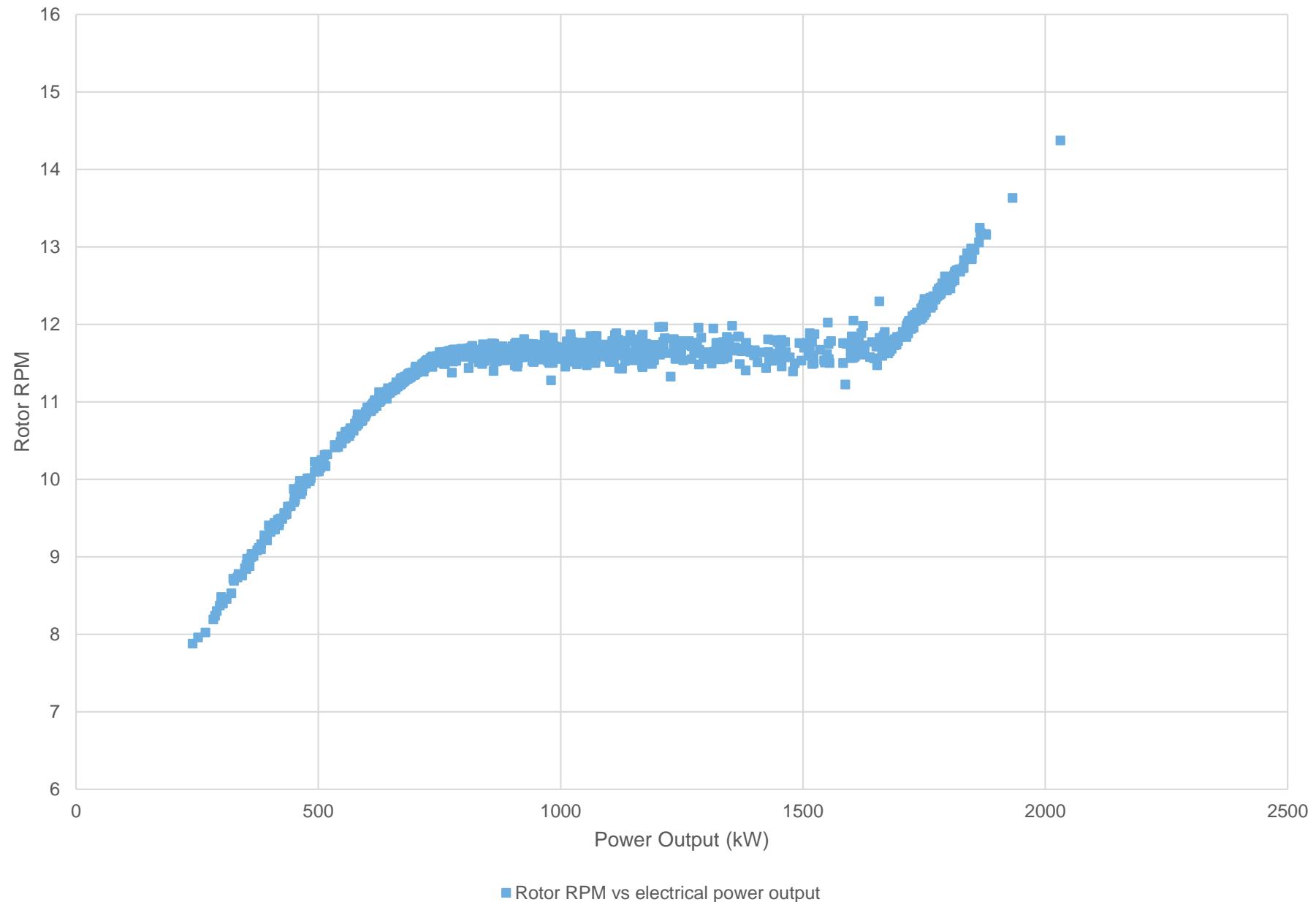
South Kent WPP - IEC 61400- 11 Edition 3.0 - Turbine T60

Figure Title

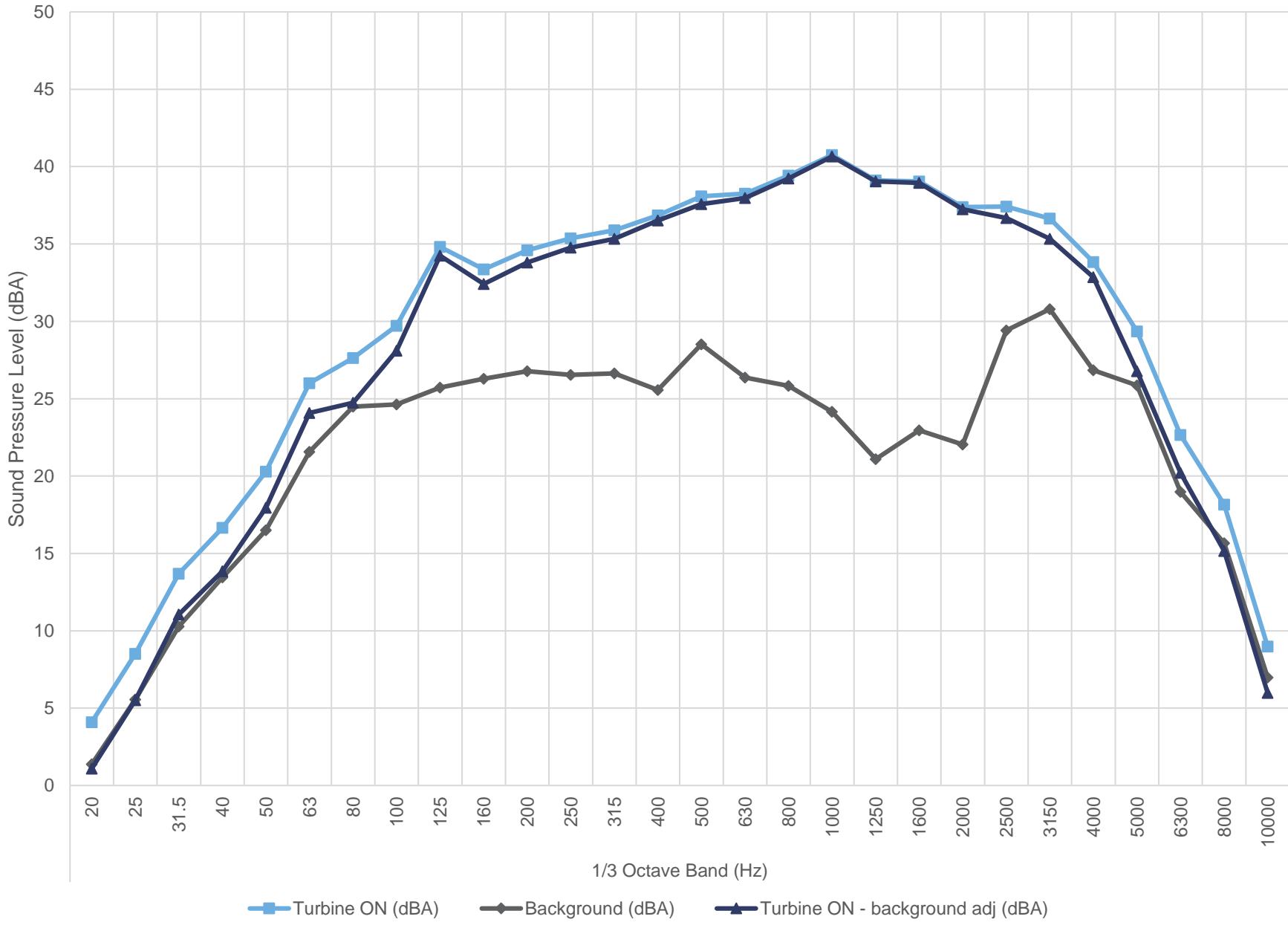
Plot of measured total noise vs. electrical power output

Figure C.02

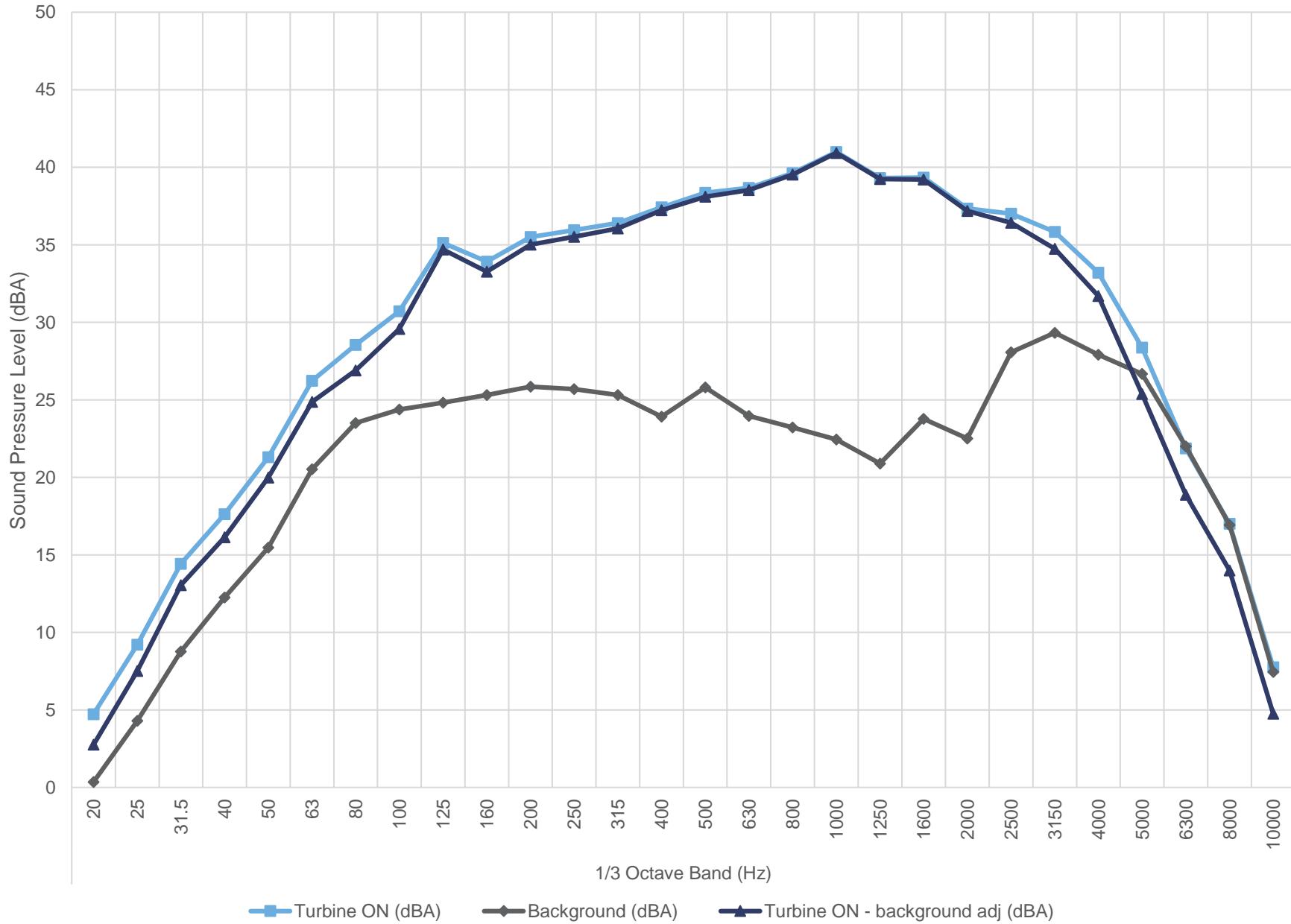


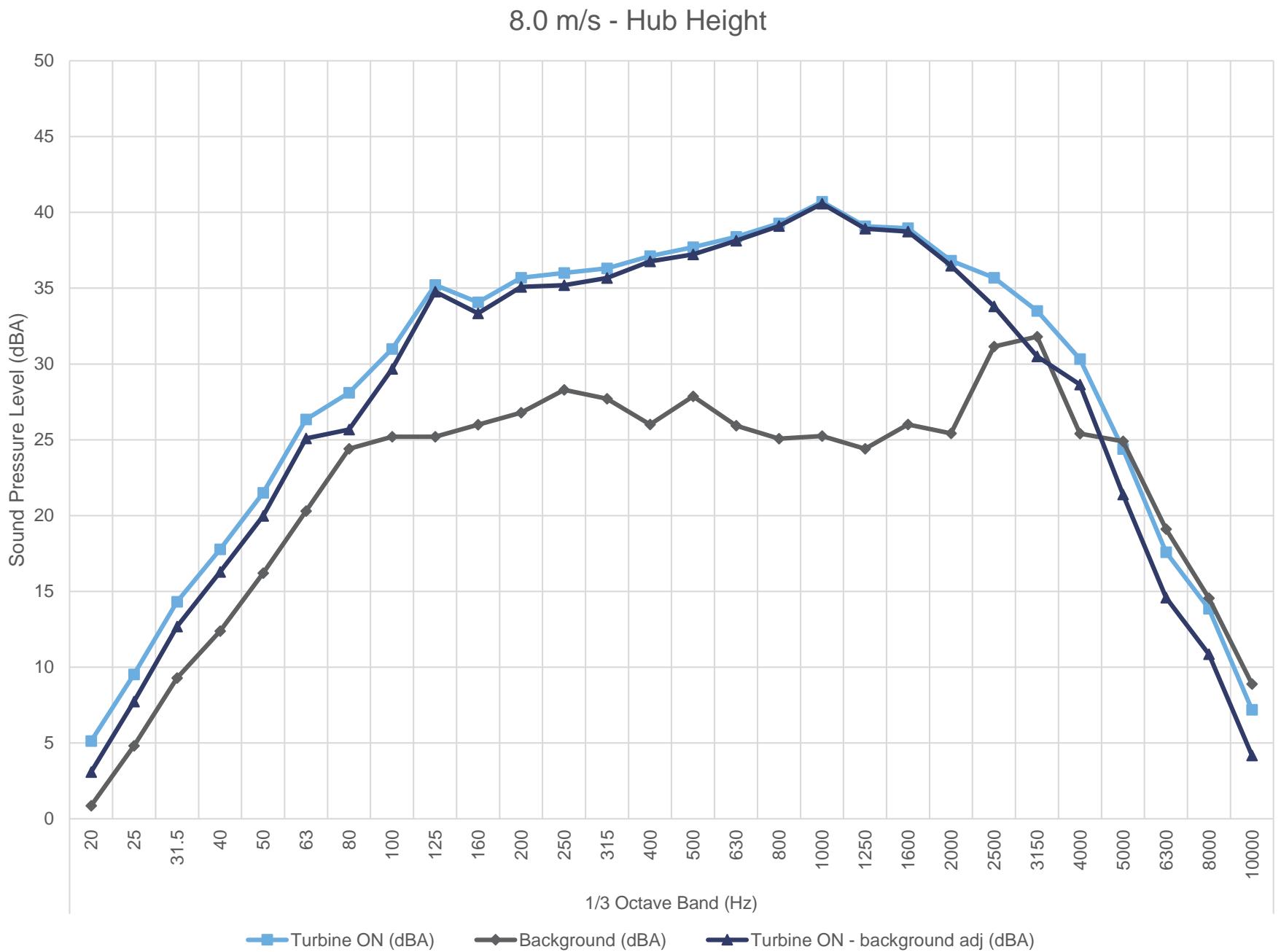


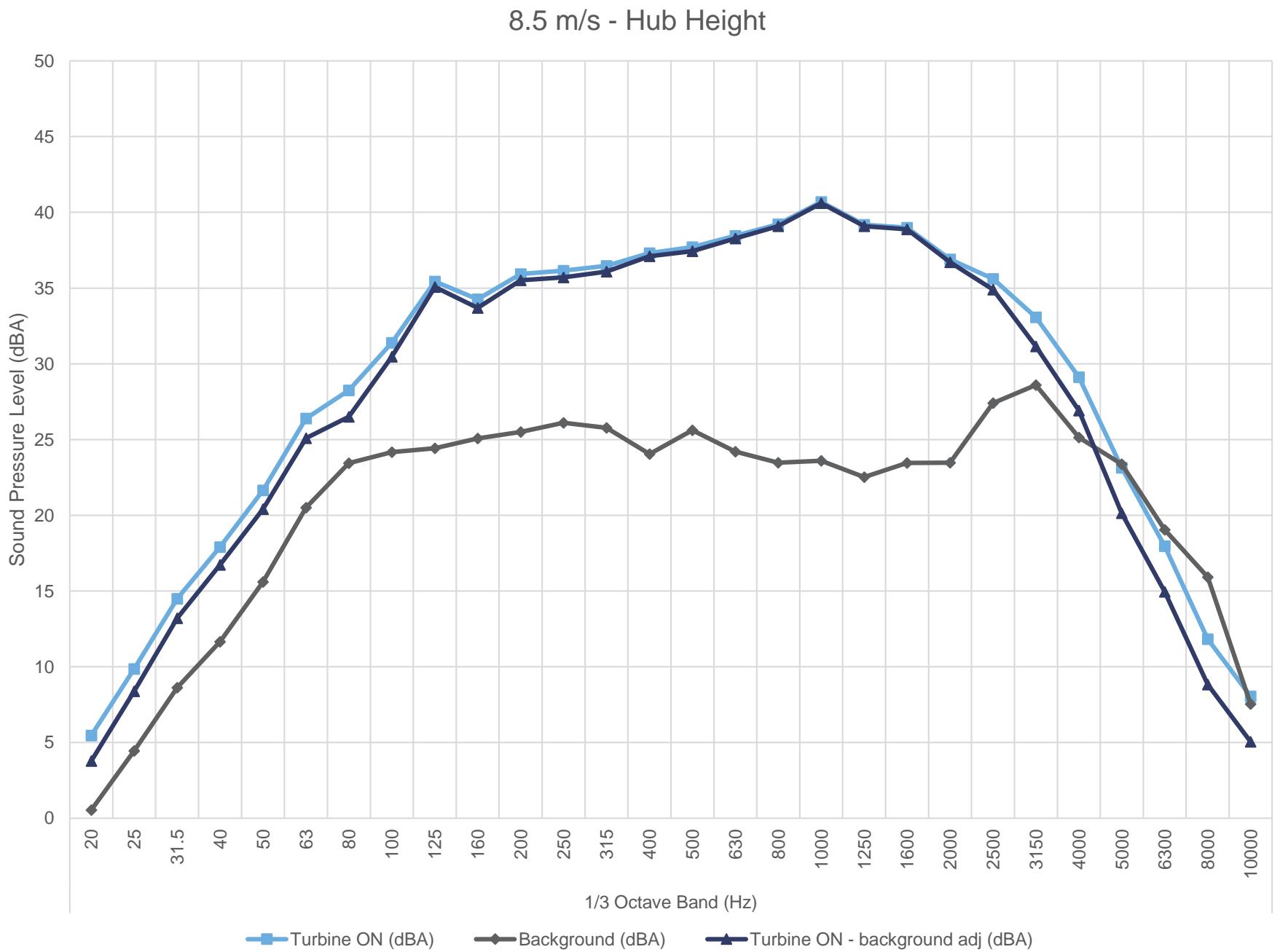
7.0 m/s - Hub Height

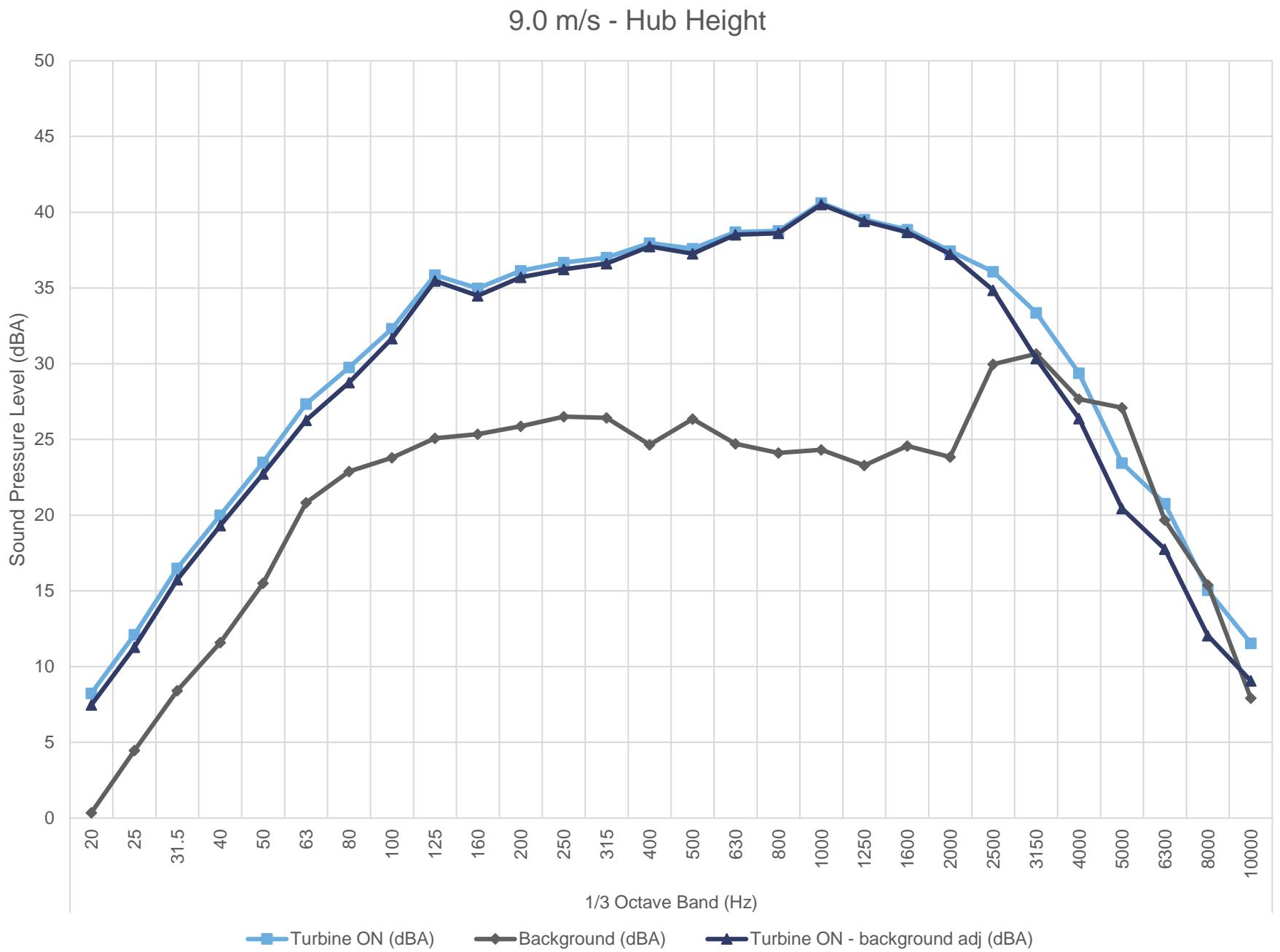


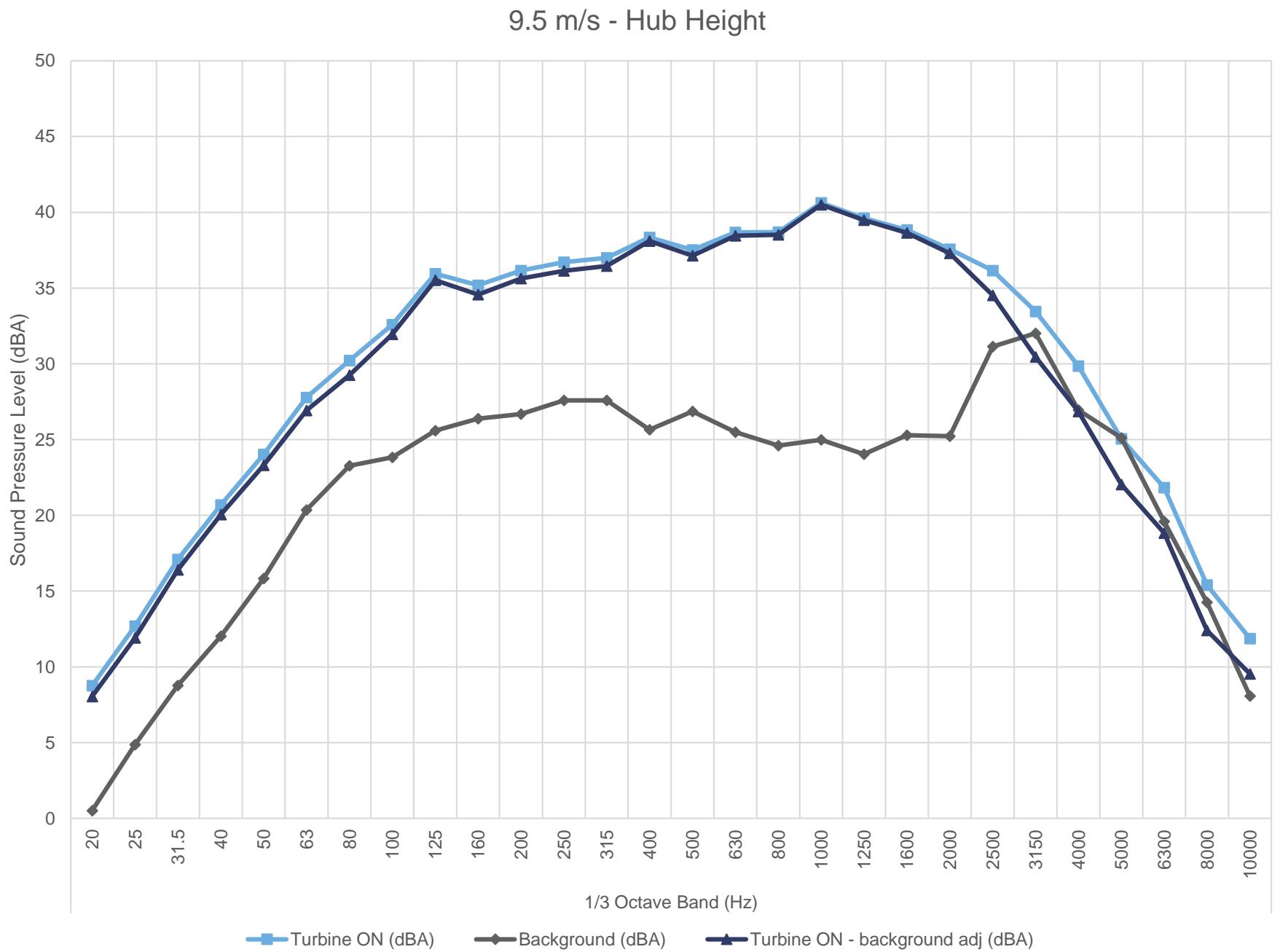
7.5 m/s - Hub Height



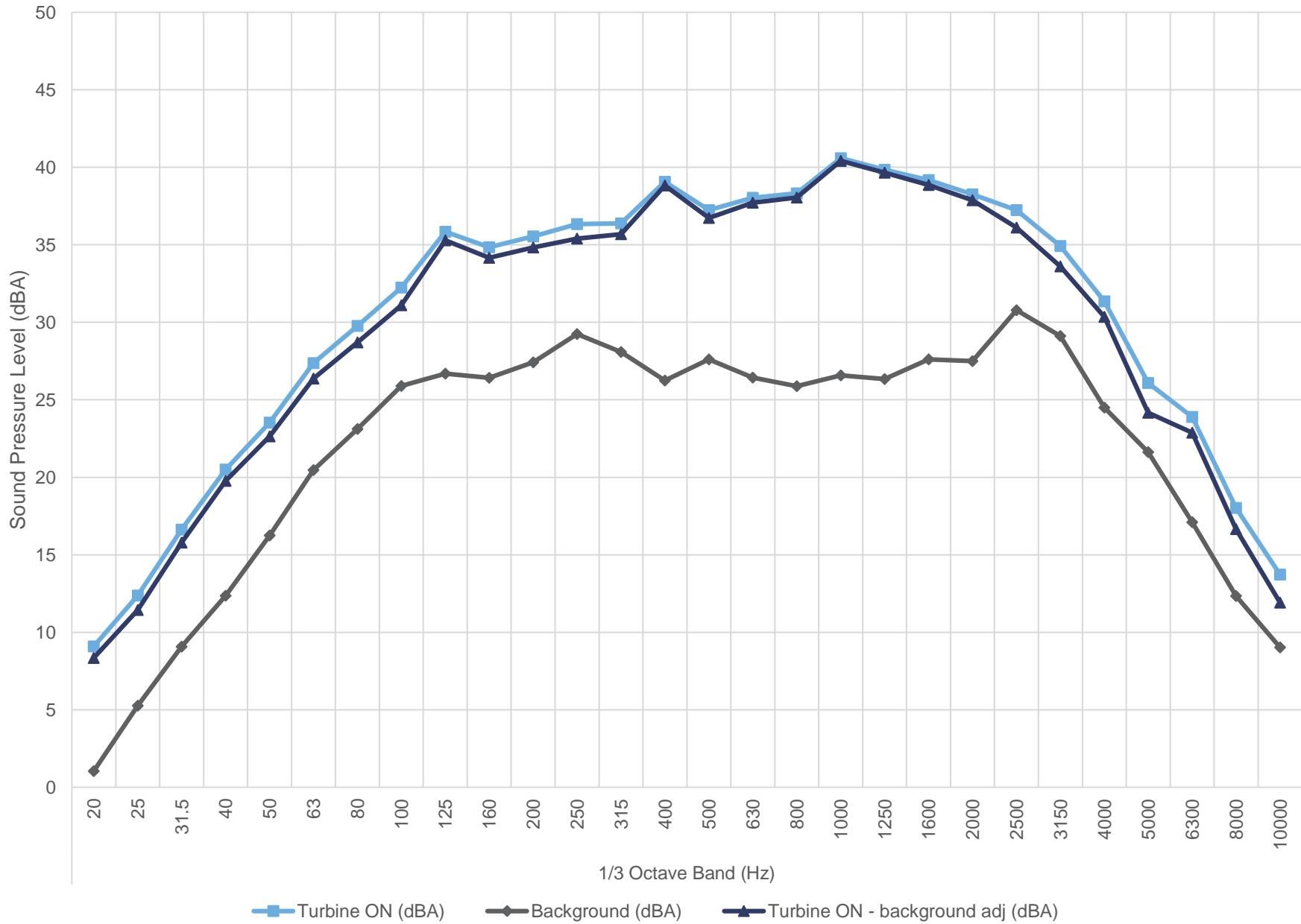




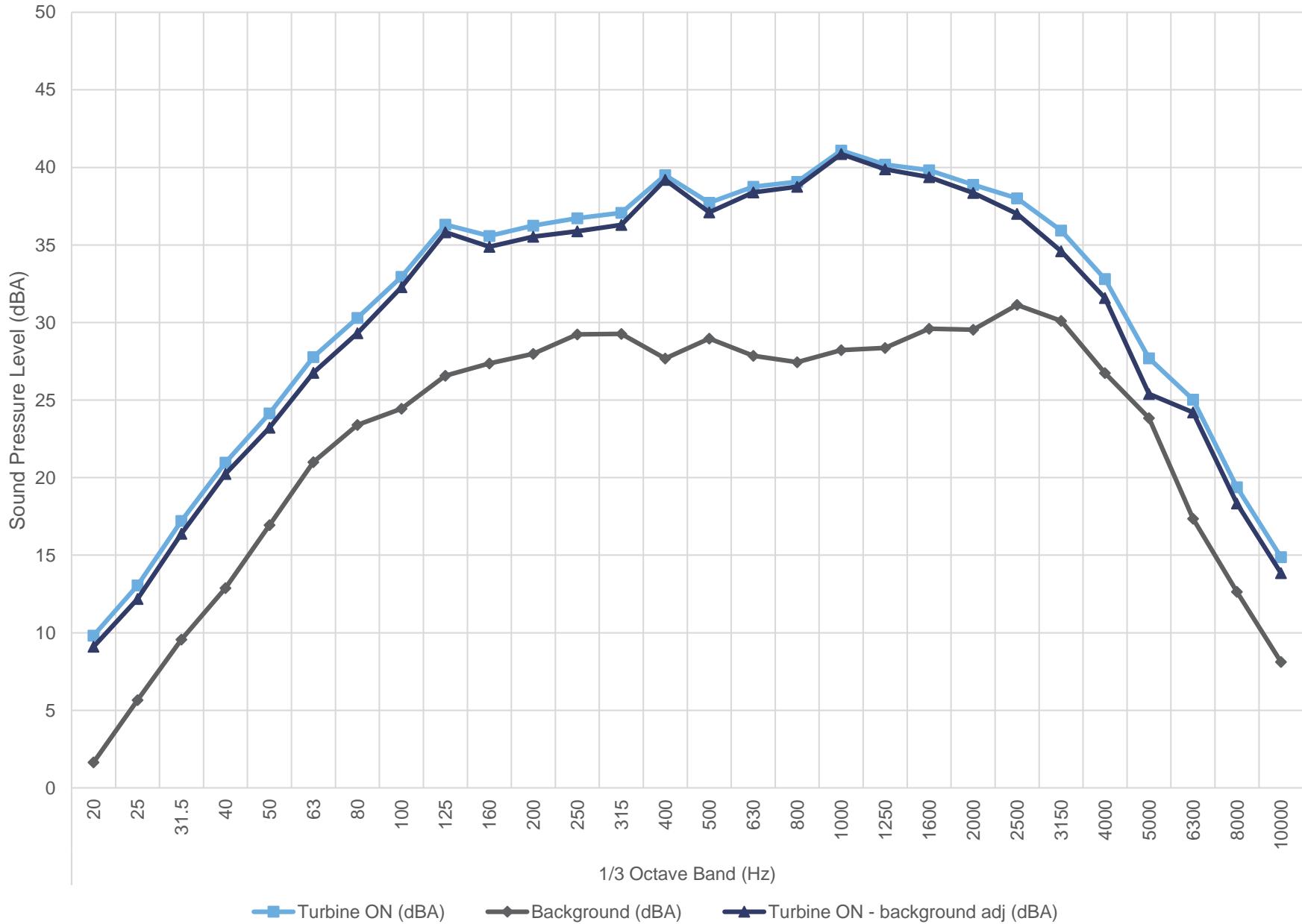




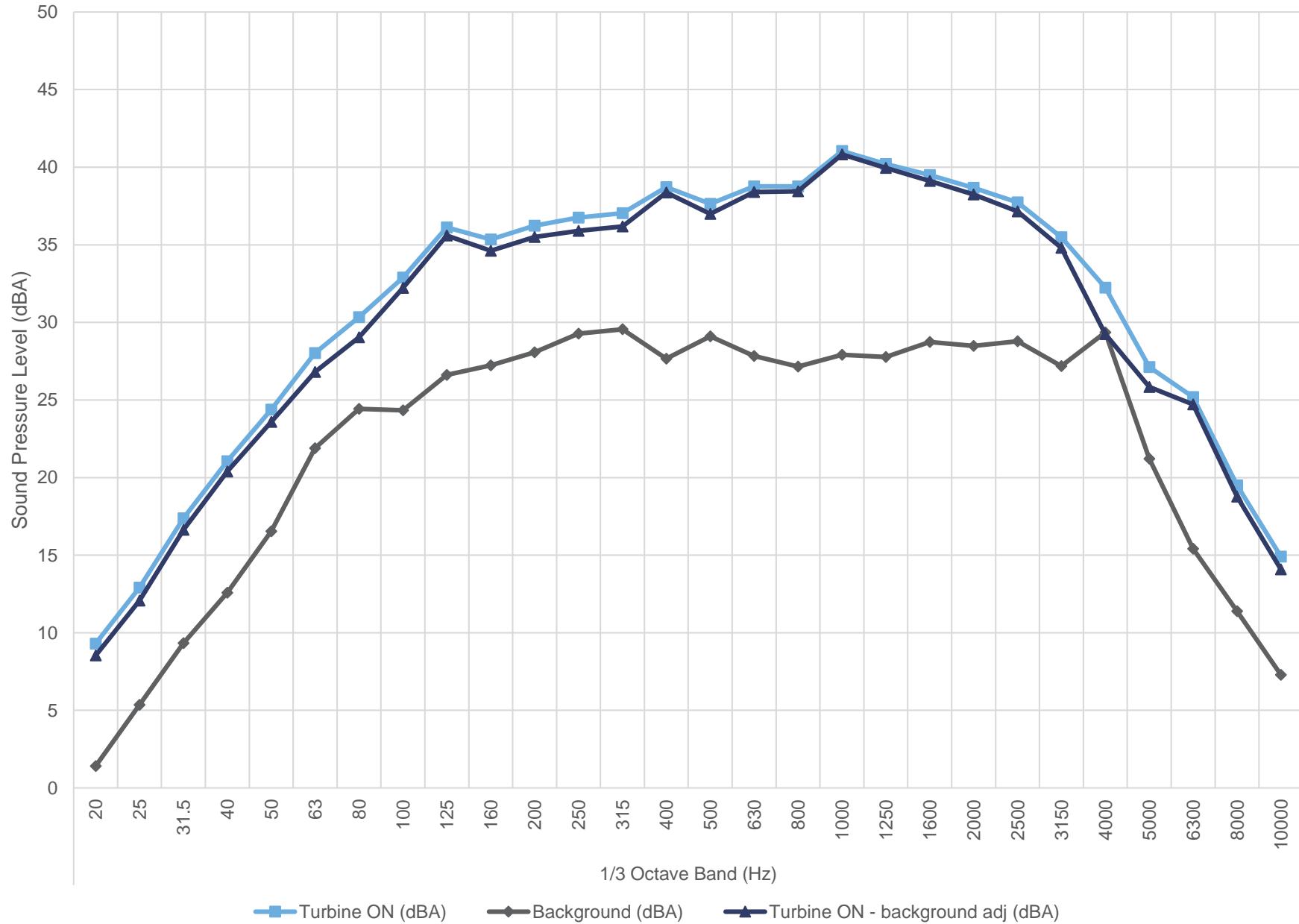
10.0 m/s - Hub Height



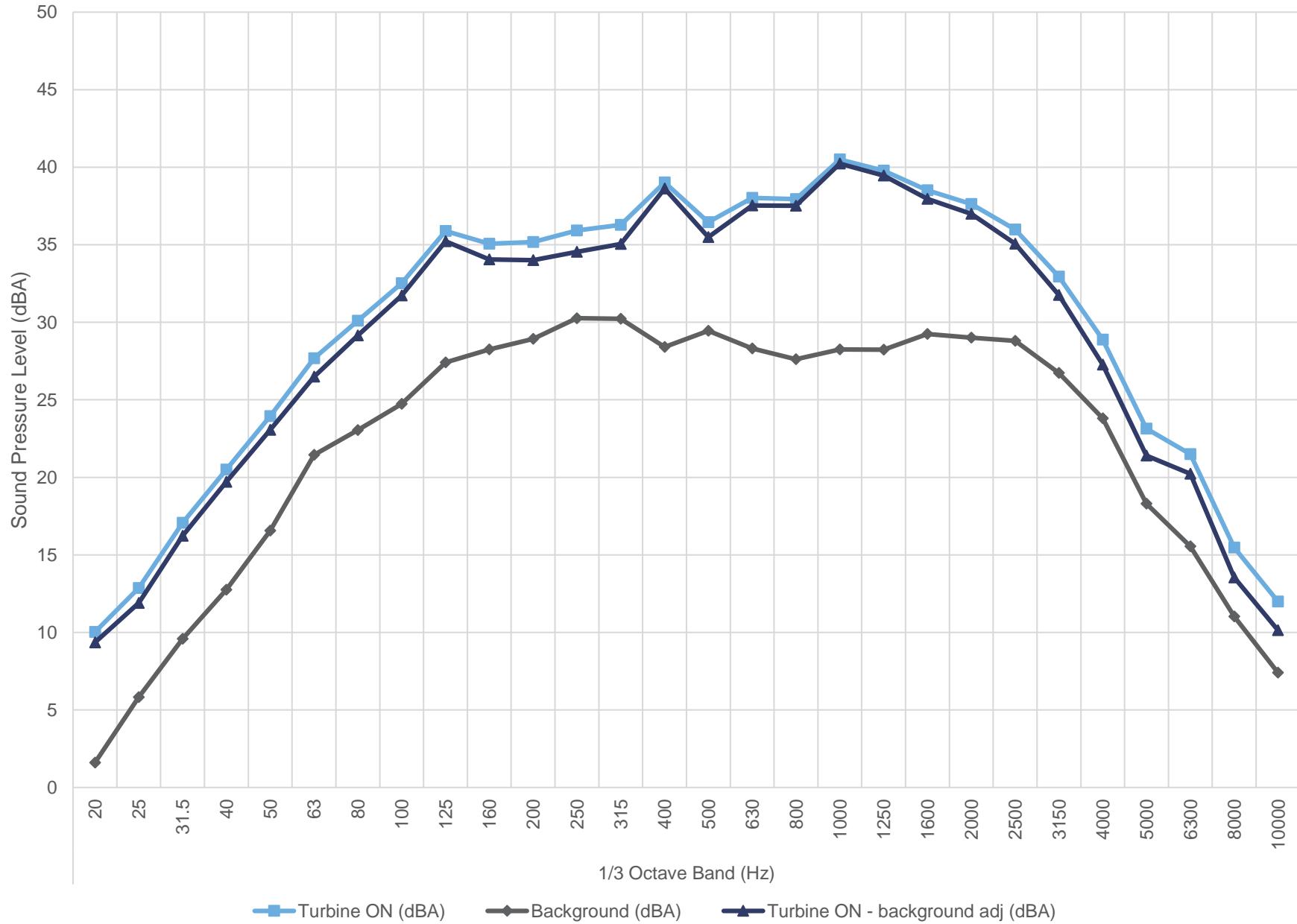
10.5 m/s - Hub Height



11.0 m/s - Hub Height



11.5 m/s - Hub Height



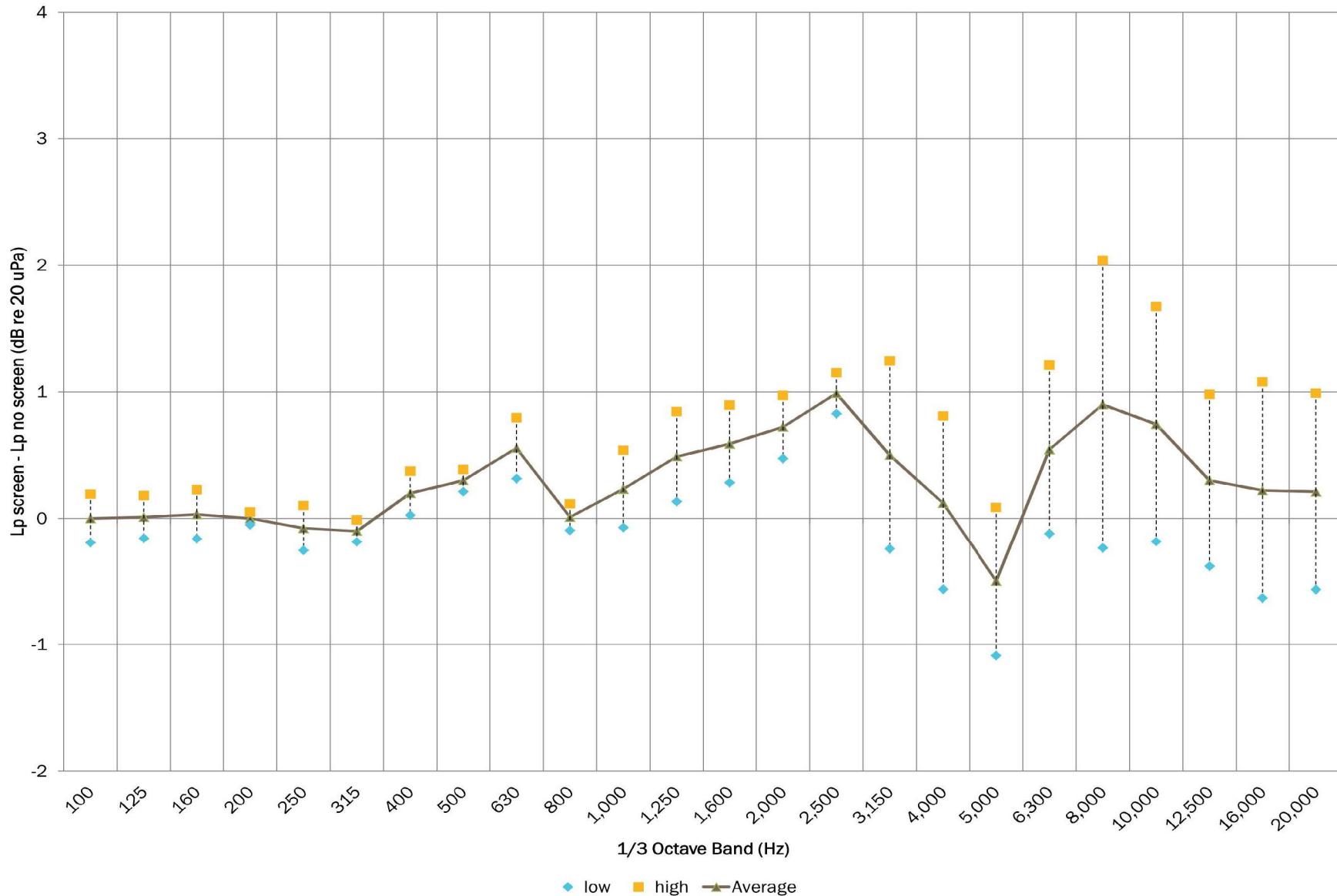


Table C.01 Detailed apparent sound power level data at hub height

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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

Values marked with a dash - denote less than 10 data points collected for Turbine ON; level not reported

Wind Bin (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	8000	10000			
7.0	Turbine ON (dBA)	4.1	8.5	13.7	16.7	20.3	26.0	27.6	29.7	34.8	33.4	34.6	35.4	35.9	36.8	38.1	38.3	39.4	40.8	39.1	39.0	37.4	37.4	36.6	33.8	29.4	22.6	18.2	9.0	49.6		
	Background (dBA)	1.4	5.6	10.3	13.5	16.5	21.6	24.5	24.6	25.7	26.3	26.8	26.5	26.6	25.6	28.5	26.4	25.8	24.2	21.1	23.0	22.0	29.4	30.8	26.8	25.9	19.0	15.7	7.0	39.4		
	Turbine ON - background adj (dBA)	[1.1]	[5.5]	11.0	13.8	17.9	24.1	24.7	28.1	34.2	32.4	33.8	34.8	35.3	36.5	37.6	38.0	39.2	40.7	39.0	38.9	37.2	36.7	35.3	32.9	26.8	20.2	[15.2]	[6]	49.2		
	Signal to noise (dB)	2.7	2.9	3.4	3.2	3.8	4.4	3.1	5.1	9.1	7.1	7.8	8.8	9.3	11.3	9.6	11.9	13.6	16.6	18.0	16.1	15.3	8.0	5.8	7.0	3.5	3.7	2.5	2.0	10.2		
	Uncertainty (dB)	4.0	3.3	1.9	2.9	1.8	1.4	1.6	1.1	0.8	0.9	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	0.9	1.4	1.3	2.1	2.0	3.0	3.4	0.8
	PWL (dBA)	[51.4]	[55.8]	61.3	64.1	68.2	74.4	75.0	78.4	84.5	82.7	84.1	85.1	85.6	86.8	87.9	88.3	89.5	91.0	89.3	89.2	87.5	87.0	85.6	83.2	77.1	70.5	[65.5]	[56.3]	99.5		
7.5	Turbine ON (dBA)	4.7	9.2	14.4	17.6	21.3	26.2	28.5	30.7	35.1	33.9	35.5	35.9	36.4	37.4	38.3	38.7	39.6	41.0	39.3	39.3	37.3	37.0	35.8	33.2	28.4	21.9	17.0	7.8	49.8		
	Background (dBA)	0.4	4.3	8.8	12.3	15.5	20.5	23.5	24.4	24.8	25.3	25.8	25.7	25.3	23.9	25.8	24.0	23.2	22.4	20.9	23.8	22.5	28.1	29.3	27.9	26.7	22.0	16.9	7.5	38.5		
	Turbine ON - background adj (dBA)	2.8	7.5	13.1	16.1	20.0	24.9	26.9	29.6	34.7	33.3	35.0	35.5	36.1	37.2	38.1	38.5	39.5	40.9	39.2	39.2	37.2	36.4	34.7	31.7	[25.4]	[18.9]	[14]	[4.8]	49.5		
	Signal to noise (dB)	4.4	4.9	5.7	5.4	5.8	5.7	5.0	6.3	10.3	8.6	9.7	10.3	11.1	13.5	12.6	14.7	16.4	18.5	18.4	15.6	14.8	8.9	6.5	5.3	1.7	-0.1	0.1	0.3	11.4		
	Uncertainty (dB)	3.1	2.4	1.4	2.1	1.4	1.3	1.2	1.0	0.9	0.9	0.8	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.9	1.4	1.6	2.6	3.2	3.6	0.8		
	PWL (dBA)	53.1	57.8	63.3	66.4	70.3	75.2	77.2	79.9	85.0	83.6	85.3	85.8	86.3	87.5	88.4	88.8	89.8	91.2	89.5	89.5	87.5	86.7	85.0	82.0	[75.7]	[69.2]	[64.3]	[55]	99.8		
8.0	Turbine ON (dBA)	5.1	9.5	14.3	17.8	21.5	26.3	28.1	31.0	35.2	34.1	35.7	36.0	36.3	37.1	37.7	38.4	39.3	40.7	39.1	39.0	36.8	35.7	33.5	30.3	24.4	17.6	13.9	7.2	49.4		
	Background (dBA)	0.9	4.8	9.3	12.4	16.2	20.3	24.4	25.2	25.2	26.0	26.8	28.3	27.7	26.0	27.9	25.9	25.1	25.2	24.4	26.0	25.4	31.2	31.8	25.4	24.9	19.1	14.5	8.9	40.0		
	Turbine ON - background adj (dBA)	3.1	7.7	12.7	16.3	20.0	25.1	25.7	29.7	34.8	33.3	35.1	35.2	35.7	36.8	37.2	38.1	39.1	40.6	38.9	38.7	36.5	33.8	[30.5]	[28.6]	[21.4]	[14.6]	[10.9]	[4.2]	48.9		
	Signal to noise (dB)	4.3	4.7	5.0	5.4	5.3	6.0	3.7	5.8	10.0	8.1	8.9	7.7	8.6	11.1	9.8	12.5	14.2	15.5	14.7	13.0	11.4	4.5	1.7	-0.5	-1.5	-0.7	-1.7	9.4			
	Uncertainty (dB)	3.2	2.5	1.5	2.1	1.5	1.2	1.5	1.1	0.9	0.9	0.8	0.8	0.8	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	1.6	2.9	1.7	2.6	3.2	3.6	0.8		
	PWL (dBA)	53.4	58.0	63.0	66.6	70.3	75.4	76.0	80.0	85.1	83.6	85.4	85.5	86.0	87.1	87.5	88.4	89.4	90.9	89.2	89.0	86.8	84.1	[80.8]	78.9	[71.7]	[64.9]	[61.2]	[54.5]	99.2		
8.5	Turbine ON (dBA)	5.5	9.9	14.5	17.9	21.7	26.4	28.2	31.4	35.4	34.3	35.9	36.2	36.5	37.3	37.7	38.4	39.2	40.7	39.2	39.0	36.9	35.6	33.1	29.1	23.1	18.0	11.8	8.0	49.4		
	Background (dBA)	0.5	4.4	8.6	11.6	15.6	20.5	23.4	24.2	24.4	25.1	25.5	26.1	25.8	24.0	25.6	24.2	23.5	23.6	22.5	23.5	27.4	28.6	25.1	23.4	19.0	15.9	7.5	38.0			
	Turbine ON - background adj (dBA)	3.8	8.4	13.2	16.7	20.4	25.1	26.5	30.5	35.1	33.7	35.5	35.7	36.1	37.1	37.4	38.3	39.1	40.6	39.1	38.9	36.7	34.9	31.2	26.9	[20.1]	[15]	[8.8]	[5]	49.1		
	Signal to noise (dB)	4.9	5.4	5.9	6.3	6.0	5.9	4.8	7.2	11.0	9.2	10.4	10.1	10.7	13.3	12.1	14.2	15.7	17.1	16.7	15.5	13.4	8.2	4.5	4.0	-0.2	-1.1	-4.1	0.5	11.4		
	Uncertainty (dB)	2.9	2.3	1.4	1.9	1.4	1.2	1.2	1.0	0.8	0.9	0.7	0.8	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	1.0	1.9	2.0	2.6	2.7	3.1	3.6	0.8	
	PWL (dBA)	54.1	58.7	63.5	67.0	70.7	75.4	76.8	80.8	85.4	84.0	85.8	86.0	86.4	87.4	87.7	88.6	89.4	90.9	89.4	89.2	87.0	85.2	81.4	77.2	[70.4]	[65.3]	[59.1]	[55.3]	99.4		
9.0	Turbine ON (dBA)	8.2	12.1	16.5	20.0	23.5	27.4	29.7	32.3	35.8	35.0	36.1	36.7	37.0	38.0	37.6	38.7	38.8	40.6	39.5	38.8	37.4	36.1	33.4	29.4	23.4	18.0	11.5	49.7			
	Background (dBA)	0.4	4.5	8.4	11.6	15.5	20.8	22.9	23.8	25.1	25.3	25.9	26.5	26.4	24.6	26.3	24.7	24.1	24.3	23.3	23.6	24.6	23.8	30.6	30.7	27.7	27.1	19.7	15.4	7.9	39.1	
	Turbine ON - background adj (dBA)	7.5	11.3	15.7	19.3	22.7	26.3	28.7	31.7	35.5	34.5	35.7	36.2	36.6	37.7	37.3	38.5	38.6	40.5	39.4	38.7	37.2	34.8	[30.4]	[26.4]	[20.4]	[17.8]	[12]	9.1	49.3		
	Signal to noise (dB)	7.9	7.6	8.1	8.4	8.0	6.5	6.9	8.5	10.8	9.6	10.3	10.2	10.6	13.3	11.2	14.0	14.7	16.3	16.2	14.3	13.6	6.1	2.7	1.7	-3.6	1.1	-0.3	3.6	10.5		
	Uncertainty (dB)	2.3	1.9	1.2	1.7	1.2	1.2	1.0	0.9	0.8	0.9	0.7	0.8	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.8		
	PWL (dBA)	57.8	61.6	66.0	69.6	73.0	76.6	79.0	82.0	85.8	84.8	86.0	86.5	86.9	88.0	87.6	88.8	88.9	90.8	89.7	89.0	87.5	85.1	[80.6]	[76.7]	[70.7]	[68.1]	[62.3]	59.4	99.6		
9.5	Turbine ON (dBA)	8.8	12.7	17.1	20.7	24.0	27.8	30.2	32.6	35.9	35.2	36.2	36.7	37.0	38.3	37.5	38.7	38.7	40.6	39.6	38.8	37.6	36.2	33.5	29.9	25.0	21.8	15.4	11.9	49.7		
	Background (dBA)	0.5	4.9	8.8	12.0	15.8	20.4	23.3	23.8	25.6	26.4	26.7	27.6	27.6	25.7	26.9	25.5	26.4	26.5	25.0	25.3	25.2	31.1	32.0	27.0	25.1	19.6	14.3	8.1	39.8		
	Turbine ON - background adj (dBA)	8.0	11.9	16.4	20.1	23.3	26.9	29.2	32.0	35.5	34.6	35.6	36.1	36.5	38.1	37.1	38.5	38.5	40.5	39.5	39.6	37.3	34.5	[30.5]	[26.9]	[22]	[18.8]	[12.4]	9.5	49.3		
	Signal to noise (dB)	8.2	7.8	8.3	8.7	8.2	7.4	7.0	8.7	10.4	8.8	9.5	9.1	9.4	12.7	10.7	13.2	14.1	15.6	15.6	13.5	12.3	5.0	1.4	2.9	-0.1	2.2	1.1	3.8	9.9		
	Uncertainty (dB)	2.3	1.9	1.3	1.7	1.3	1.1	1.1	0.9	0.9	0.9	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	0.7	0.8		
	PWL (dBA)	58.3	62.2	66.7	70.4	73.6	77.2	79.5	82.3	85.8	84.9	85.9	86.4	86.8	88.4	87.4	88.8	88.9	90.8	89.9	89.2	88.2	86.4	83.9	80.6	74.5	73.2	67.0	62.2	99.6		

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

Project: South Kent WPP - IEC 61400- 11 Edition 3.0 - Turbine T60

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Created on: 3/25/2021

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

Values marked with a dash - denote less than 10 data points collected for Turbine ON; level not reported

Wind Bin (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	8000	10000	
11.0	Turbine ON (dBA)	9.3	12.9	17.4	21.1	24.4	28.0	30.3	32.9	36.1	35.3	36.2	36.8	37.0	38.7	37.6	38.8	38.8	41.0	40.2	39.5	38.7	37.7	35.5	32.2	27.1	25.2	19.5	14.9	50.2
	Background (dBA)	1.4	5.4	9.3	12.6	16.5	21.9	24.4	24.3	26.6	27.2	28.1	29.3	29.6	27.7	29.1	27.8	27.1	27.9	27.8	28.7	28.5	28.8	27.2	29.4	21.2	15.4	11.4	7.3	40.7
	Turbine ON - background adj (dBA)	8.5	12.1	16.6	20.4	23.6	26.8	29.0	32.2	35.6	34.6	35.5	35.9	36.2	38.4	37.0	38.4	38.5	40.8	39.9	39.1	38.2	37.1	34.8	[29.2]	25.8	24.7	18.8	14.1	49.7
	Signal to noise (dB)	7.9	7.6	8.0	8.5	7.8	6.1	5.9	8.5	9.5	8.1	8.2	7.5	7.5	11.1	8.5	10.9	11.6	13.1	12.4	10.8	10.2	9.0	8.3	2.9	5.9	9.8	8.1	7.6	9.6
	Uncertainty (dB)	2.4	2.0	1.3	1.8	1.3	1.3	1.2	1.0	0.9	1.0	0.9	0.9	0.9	0.8	0.9	0.8	0.8	0.8	0.8	0.9	0.9	1.1	1.5	3.4	2.2	2.2	2.5	2.6	0.9
	PWL (dBA)	58.8	62.4	66.9	70.7	73.9	77.1	79.3	82.5	85.9	84.9	85.8	86.2	86.5	88.7	87.3	88.7	88.8	91.1	90.2	89.4	88.5	87.4	85.1	[79.5]	76.1	75.0	69.1	64.4	100.0
11.5	Turbine ON (dBA)	10.0	12.9	17.1	20.5	23.9	27.7	30.1	32.5	35.9	35.1	35.2	35.9	36.3	39.0	36.5	38.0	37.9	40.5	39.8	38.5	37.6	36.0	32.9	28.9	23.1	21.5	15.5	12.0	49.4
	Background (dBA)	1.6	5.8	9.6	12.7	16.6	21.4	23.0	24.7	27.4	28.2	28.9	30.3	30.2	28.4	29.5	28.3	27.6	28.2	28.2	29.2	29.0	28.8	26.7	23.8	18.3	15.6	11.0	7.4	40.9
	Turbine ON - background adj (dBA)	9.4	11.9	16.2	19.7	23.1	26.5	29.1	31.7	35.2	34.0	34.0	34.5	35.0	38.6	35.5	37.5	37.5	40.2	39.5	38.0	37.0	35.1	31.8	27.3	21.4	20.2	13.5	10.1	48.8
	Signal to noise (dB)	8.4	7.0	7.5	7.8	7.4	6.2	7.1	7.8	8.5	6.8	6.3	5.7	6.1	10.6	7.0	9.7	10.3	12.2	11.6	9.3	8.6	7.2	6.2	5.1	4.8	5.9	4.4	4.6	8.6
	Uncertainty (dB)	2.4	2.1	1.4	1.9	1.4	1.3	1.1	1.1	1.0	1.1	1.0	1.1	1.1	0.9	1.0	0.9	0.8	0.8	0.9	0.9	1.2	1.6	1.9	2.1	2.3	2.8	3.1	1.0	
	PWL (dBA)	59.6	62.2	66.5	70.0	73.4	76.8	79.4	82.0	85.5	84.3	84.3	84.8	85.3	88.9	85.8	87.8	87.8	90.5	89.8	88.3	87.3	85.4	82.1	77.6	71.7	70.5	63.8	60.4	99.1

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

Project: South Kent WPP - IEC 61400- 11 Edition 3.0 - Turbine T60

Report ID: 13228.02.T60.RP1

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Created on: 3/25/2021

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

Values marked with a dash - denote less than 10 data points collected for Turbine ON; level not reported

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 (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	8000	10000	
5.0	Turbine ON (dBA)	4.4	8.8	13.9	16.9	20.6	25.9	27.9	30.0	34.8	33.5	34.8	35.5	36.0	36.9	38.0	38.3	39.3	40.7	39.0	39.0	37.2	37.1	35.9	33.0	28.2	22.2	17.1	8.8	49.5
	Background (dBA)	1.3	5.2	10.0	13.1	16.2	21.2	24.2	24.7	25.6	26.4	26.7	26.8	25.6	28.2	26.1	25.5	24.1	21.9	24.2	23.2	29.9	31.4	27.9	26.9	21.2	16.4	7.6	39.7	
	Turbine ON - background adj (dBA)	1.5	6.2	11.7	14.6	18.6	24.2	25.5	28.5	34.3	32.5	34.0	34.8	35.4	36.6	37.5	38.0	39.2	40.6	39.0	38.8	37.0	36.1	33.9	31.4	[25.2]	[19.2]	[14.1]	[5.8]	49.0
	Signal to noise (dB)	3.1	3.5	3.9	3.8	4.4	4.7	3.7	5.3	9.2	7.1	8.1	8.6	9.2	11.3	9.7	12.2	13.9	16.6	17.1	14.7	14.0	7.1	4.4	5.1	1.3	1.0	0.7	1.2	9.8
	Uncertainty (dB)	4.0	3.0	1.8	2.7	1.7	1.4	1.5	1.1	0.9	1.0	0.8	0.8	0.7	0.7	0.7	0.7	0.7	0.7	0.8	0.7	0.7	1.0	1.7	1.6	2.3	2.4	3.0	3.6	0.8
	PWL (dBA)	51.8	56.5	62.0	64.9	68.9	74.5	75.8	78.8	84.6	82.8	84.3	85.1	85.7	86.9	87.8	88.3	89.5	90.9	89.2	89.1	87.3	86.4	84.2	81.7	[75.5]	[69.5]	[64.4]	[56.1]	99.3
6.0	Turbine ON (dBA)	6.4	10.6	15.1	18.6	22.2	26.7	28.7	31.6	35.5	34.5	35.9	36.3	36.6	37.6	37.7	38.5	39.1	40.7	39.3	39.0	37.1	35.8	33.3	29.6	24.0	19.0	13.3	9.3	49.5
	Background (dBA)	0.4	4.5	8.7	11.7	15.7	20.6	23.4	24.1	24.8	25.3	25.7	26.2	26.0	24.2	26.0	24.3	23.6	23.7	22.5	23.6	23.2	29.0	29.9	26.2	25.2	19.4	15.6	7.9	38.5
	Turbine ON - background adj (dBA)	5.1	9.3	14.0	17.6	21.2	25.5	27.2	30.8	35.1	33.9	35.5	35.8	36.2	37.3	37.4	38.3	39.0	40.6	39.2	38.8	36.9	34.8	30.6	26.9	[21]	[16]	[10.3]	[6.3]	49.2
	Signal to noise (dB)	6.0	6.1	6.5	6.9	6.6	6.1	5.3	7.5	10.8	9.2	10.2	10.1	10.6	13.3	11.7	14.1	15.5	17.0	16.8	15.3	13.9	6.8	3.4	3.4	-1.2	-0.5	-2.3	1.4	11.0
	Uncertainty (dB)	2.5	2.0	1.3	1.8	1.3	1.2	1.1	0.9	0.8	0.9	0.7	0.7	0.7	0.7	0.7	0.7	0.6	0.7	0.7	0.7	0.7	1.0	2.2	2.1	2.3	2.4	2.9	3.5	0.8
	PWL (dBA)	55.4	59.6	64.3	67.9	71.4	75.8	77.5	81.1	85.4	84.2	85.8	86.1	86.5	87.6	87.7	88.6	89.3	90.9	89.5	89.1	87.2	85.1	80.9	77.2	[71.3]	[66.3]	[60.6]	[56.6]	99.4
7.0	Turbine ON (dBA)	9.3	12.7	17.0	20.8	24.0	27.7	30.1	32.6	36.0	35.2	35.9	36.6	36.8	39.0	37.5	38.4	38.6	40.7	39.9	39.3	38.3	37.2	34.9	31.5	26.2	23.8	18.0	13.8	50.0
	Background (dBA)	1.1	5.3	9.2	12.5	16.4	20.6	23.1	24.9	26.3	26.8	27.5	28.8	28.5	26.7	28.0	26.8	26.2	26.9	26.7	28.0	27.9	31.1	30.7	26.0	23.5	17.8	12.8	8.4	40.4
	Turbine ON - background adj (dBA)	8.6	11.9	16.3	20.1	23.1	26.7	29.2	31.8	35.6	34.6	35.3	35.8	36.1	38.8	36.9	38.1	38.4	40.6	39.7	39.0	37.9	36.0	32.9	30.0	[23.2]	22.6	16.5	12.3	49.5
	Signal to noise (dB)	8.2	7.4	7.9	8.3	7.6	7.0	7.0	7.7	9.7	8.5	8.5	7.7	8.3	12.3	9.5	11.6	12.4	13.8	13.1	11.3	10.4	6.1	4.3	5.5	2.6	6.0	5.2	5.4	9.6
	Uncertainty (dB)	2.4	2.1	1.3	1.8	1.3	1.2	1.1	1.0	0.9	1.0	0.8	0.9	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	1.2	2.0	1.7	2.7	1.8	2.3	2.7	0.9
	PWL (dBA)	58.9	62.2	66.6	70.4	73.4	77.0	79.5	82.1	85.8	84.8	85.6	86.1	86.4	89.1	87.2	88.4	88.7	90.9	90.0	89.2	88.2	86.3	83.2	80.3	[73.5]	72.9	66.8	62.6	99.8
8.0	Turbine ON (dBA)	9.5	12.7	17.1	20.7	24.0	27.7	30.1	32.6	35.9	35.1	35.6	36.2	36.5	39.0	37.1	38.3	38.3	40.8	40.0	39.0	38.2	36.9	34.4	30.8	25.5	23.5	17.7	13.4	49.8
	Background (dBA)	2.0	5.9	9.7	13.0	16.9	21.8	24.3	24.9	27.4	28.3	29.1	30.5	30.8	29.0	30.0	29.0	28.3	29.0	29.1	30.1	30.0	30.0	28.1	27.8	20.9	17.7	12.8	8.7	41.6
	Turbine ON - background adj (dBA)	8.6	11.7	16.2	19.9	23.1	26.4	28.8	31.8	35.3	34.1	34.5	34.8	35.1	38.5	36.1	37.8	37.9	40.5	39.6	38.4	37.4	36.0	33.2	27.8	23.6	22.2	16.0	11.6	49.1
	Signal to noise (dB)	7.5	6.8	7.4	7.7	7.1	5.9	5.9	7.7	8.6	6.8	6.5	5.7	5.7	10.0	7.0	9.3	10.0	11.7	10.9	8.9	8.1	7.0	6.3	3.0	4.5	5.8	4.9	4.7	8.2
	Uncertainty (dB)	2.4	2.1	1.3	1.9	1.4	1.3	1.2	1.0	1.0	1.1	0.9	1.0	1.0	0.8	0.9	0.8	0.8	0.9	0.9	0.9	1.1	1.5	2.7	2.0	2.0	2.5	2.9	0.9	
	PWL (dBA)	58.9	62.0	66.5	70.2	73.3	76.7	79.1	82.1	85.6	84.4	84.8	85.1	85.4	88.8	86.4	88.0	88.2	90.8	89.9	88.7	87.7	86.3	83.5	78.1	73.9	72.5	66.3	61.9	99.4

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	2 dB
25	0.8 dB	1.6 dB
31.5	0.5 dB	1.1 dB
40	0.5 dB	1.5 dB
50	0.5 dB	1.1 dB
63	0.5 dB	0.9 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	0.8 dB
1250	0.3 dB	0.8 dB
1600	0.3 dB	0.8 dB
2000	0.3 dB	0.7 dB
2500	0.5 dB	0.8 dB
3150	0.5 dB	1.1 dB
4000	0.5 dB	1.1 dB
5000	0.5 dB	1 dB
6300	0.5 dB	1.1 dB
8000	0.5 dB	1.4 dB
10000	1.3 dB	1.7 dB

Table C.04 Detailed measurement uncertainty at hub height

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Wind Bin (m/s)	Parameter	Average Wind Speed (m/s)	# of data 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	8000						
7.0	Turbine ON	6.94	288	Average (dBA)	4.0	8.4	13.6	16.5	20.2	26.0	27.5	29.6	34.8	33.3	34.5	35.3	35.8	36.8	38.0	38.2	39.4	40.7	39.1	39.0	37.4	37.5	36.7	33.9	29.5	22.7	18.3	9.1	49.6				
				Uncertainty A (dB)	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.1	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	1.1	1.1	1.0	1.1	1.4	0.2	0.2			
				Uncertainty B (dB)	2.0	1.6	1.1	1.5	1.1	0.9	0.8	0.8	0.8	0.8	0.7	0.7	0.7	0.7	0.7	0.7	0.8	0.8	0.8	0.8	0.7	0.8	0.8	1.1	1.1	1.0	1.1	1.4	1.7				
	Background	6.96	55	Combined Uncertainty (dB)	2.0	1.7	1.1	1.5	1.1	0.9	0.8	0.8	0.8	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.8	0.8	0.8	0.8	0.7	0.8	0.8	1.1	1.1	1.0	1.1	1.4	1.7	39.5			
				Average (dBA)	1.5	5.7	10.4	13.6	16.6	21.7	24.6	27.5	25.8	26.4	26.9	26.6	26.7	25.7	28.8	26.6	24.3	21.1	22.9	22.0	29.5	30.9	26.8	25.8	18.7	15.6	6.9						
				Uncertainty A (dB)	0.2	0.3	0.3	0.3	0.2	0.3	0.4	0.3	0.3	0.4	0.4	0.6	0.5	0.6	0.5	0.5	0.8	0.8	0.7	0.8	0.8	0.7	0.8	1.1	1.1	1.0	1.1	0.9	0.2				
7.5	Turbine ON	7.47	244	Average (dBA)	4.7	9.2	14.4	17.6	21.3	26.2	28.6	30.7	35.1	33.9	35.5	35.9	36.4	37.4	38.4	38.7	39.6	41.0	39.3	39.4	37.4	37.1	36.0	33.4	28.6	22.1	17.2	7.8	49.8				
				Uncertainty A (dB)	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.2	0.2	0.4	0.4	0.4	0.1					
				Uncertainty B (dB)	2.0	1.6	1.1	1.5	1.1	0.9	0.8	0.8	0.8	0.7	0.7	0.7	0.7	0.7	0.7	0.8	0.8	0.8	0.8	0.7	0.8	0.8	1.1	1.1	1.0	1.1	1.4	1.7					
	Background	7.56	40	Combined Uncertainty (dB)	2.0	1.7	1.1	1.5	1.1	0.9	0.8	0.8	0.8	0.7	0.7	0.7	0.7	0.7	0.7	0.8	0.8	0.8	0.8	0.7	0.8	0.8	1.1	1.1	1.0	1.1	1.4	1.7	38.4				
				Average (dBA)	0.2	4.1	8.6	12.1	15.3	20.4	23.4	24.3	24.7	25.2	25.7	25.6	25.2	23.7	25.5	23.7	22.9	22.2	20.9	23.9	22.6	27.9	29.1	28.0	26.8	22.4	17.1	7.5					
				Uncertainty A (dB)	0.1	0.1	0.1	0.2	0.2	0.3	0.3	0.3	0.2	0.3	0.2	0.2	0.3	0.3	0.4	0.5	0.7	1.1	0.9	1.3	1.3	1.4	1.4	1.5	1.2	0.3							
8.0	Turbine ON	7.96	109	Average (dBA)	5.1	9.5	14.3	17.8	21.5	26.3	28.1	31.0	35.2	34.1	35.7	36.0	36.3	37.1	37.7	38.4	39.3	40.7	39.1	39.0	36.8	35.7	33.5	30.4	24.5	17.6	14.0	7.1	49.4				
				Uncertainty A (dB)	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.1	0.1	0.1	0.2	0.3	0.4	0.4	0.5	0.1							
				Uncertainty B (dB)	2.0	1.6	1.1	1.5	1.1	0.9	0.8	0.8	0.8	0.7	0.7	0.7	0.7	0.7	0.7	0.8	0.8	0.8	0.8	0.7	0.8	0.8	1.1	1.1	1.0	1.1	1.4	1.7					
	Background	8.02	25	Combined Uncertainty (dB)	2.0	1.7	1.1	1.5	1.1	0.9	0.8	0.8	0.8	0.7	0.7	0.7	0.7	0.7	0.7	0.8	0.8	0.8	0.8	0.7	0.8	0.8	0.8	0.7	0.8	0.8	1.1	1.1	1.0	1.1	1.4	1.7	40.0
				Average (dBA)	0.9	4.8	9.3	12.4	16.2	20.3	24.4	25.2	25.2	26.0	26.8	28.4	27.8	26.1	28.0	26.0	25.2	25.4	24.5	26.1	25.5	31.3	31.9	25.3	24.8	19.0	14.5	9.0					
				Uncertainty A (dB)	0.3	0.3	0.4	0.3	0.3	0.3	0.6	0.6	0.4	0.5	0.5	0.8	0.7	0.7	0.7	0.8	0.8	0.8	0.7	0.8	0.8	0.7	0.8	1.1	1.1	1.0	1.1	1.4	1.7				
8.5	Turbine ON	8.47	76	Average (dBA)	5.3	9.7	14.4	17.8	21.5	26.3	28.2	31.3	35.4	34.2	35.9	36.1	36.4	37.3	37.7	38.4	39.2	40.7	39.2	39.0	36.9	35.6	33.1	29.1	23.1	17.8	11.6	7.8	49.4				
				Uncertainty A (dB)	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.2	0.4	0.4	0.3	0.2							
				Uncertainty B (dB)	2.0	1.6	1.1	1.5	1.1	0.9	0.8	0.8	0.8	0.8	0.7	0.7	0.7	0.7	0.7	0.7	0.8	0.8	0.8	0.7	0.8	0.8	0.8	1.1	1.1	1.0	1.1	1.4	1.7				
	Background	8.52	47	Combined Uncertainty (dB)	2.0	1.7	1.1	1.5	1.1	0.9	0.8	0.8	0.8	0.7	0.7	0.7	0.7	0.7	0.7	0.8	0.8	0.8	0.7	0.8	0.8	0.7	0.8	0.8	1.1	1.1	1.0	1.1	1.4	1.7	37.9		
				Average (dBA)	0.5	4.4	8.6	11.6	15.6	20.5	23.4	24.1	24.4	25.0	25.5	26.0	25.7	24.0	25.5	24.1	23.4	23.5	22.5	23.4	23.4	27.3	28.5	25.1	23.3	19.1	16.0	7.5					
				Uncertainty A (dB)	0.2	0.1	0.1	0.1	0.1	0.2	0.3	0.3	0.2	0.2	0.3	0.3	0.3	0.3	0.4	0.4	0.5	0.5	0.8	0.9	1.0	1.4	1.6	1.3	1.2	1.1	1.0	1.1	1.4	1.7			
9.0	Turbine ON	8.95	36	Average (dBA)	8.2	12.1	16.4	19.9	23.4	27.3	29.7	32.3	35.8	35.0	36.1	36.7	37.0	37.9	37.6	38.7	38.8	40.6	39.5	38.8	37.4	36.1	33.3	29.3	23.3	20.7	15.0	11.5	49.7				
				Uncertainty A (dB)	0.3	0.3	0.3	0.3	0.3	0.2	0.2	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.2	0.1	0.2	0.3	0.4	0.5	0.7	0.9	0.8	0.8					
				Uncertainty B (dB)	2.0	1.6	1.1	1.5	1.1	0.9	0.8	0.8	0.8	0.7	0.7	0.7	0.7	0.7	0.7	0.8	0.8	0.8	0.8	0.7	0.8	0.8	0.8	1.1	1.1	1.0	1.1	1.4	1.7				
	Background	8.97	34	Combined Uncertainty (dB)	2.0	1.7	1.1	1.5	1.1	0.9	0.8	0.8	0.8	0.7	0.7	0.7	0.7	0.7	0.8	0.8	0.8	0.8	0.7	0.8	0.8	0.7	0.8	0.8	1.1	1.1	1.0	1.1	1.4	1.7	39.1		
				Average (dBA)	0.4	4.4	8.4	11.6	15.5	20.9	22.9	23.8	25.0	25.3	25.8	26.4	26.4	24.6	26.3	24.7	24.1	24.3	23.2	24.5	23.8	29.9	30.6	27.7	27.2	19.7	15.5	7.9					
				Uncertainty A (dB)	0.2	0.2	0.1	0.1	0.2	0.2	0.3	0.3	0.3	0.4	0.4	0.4	0.4	0.5	0.5	0.6	0.8	0.8	0.7	0.9	1.1	1.2	1.2	1.4	1.6	1.9	1.7	1.8					
9.5	Turbine ON	9.54	27	Average (dBA)	8.8	12.7	17.1	20.7	24.1	27.8	30.3	32.6	36.0	35.2	36.2	36.7	37.0	38.4	37.5	38.7	38.7	40.6	39.6	38.8	37.6	36.2	33.5	29.9	25.2	21.9	15.4	11.9	49.7				
				Uncertainty A (dB)	0.5	0.4	0.4	0.4	0.3	0.3	0.2	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.2	0.2	0.3	0.4	0.8	0.9	0.8	0.8	0.8						
				Uncertainty B (dB)	2.0	1.6	1.1	1.5	1.1	0.9	0.8	0.8	0.8	0.7	0.7	0.7	0.7	0.7	0.7	0.8	0.8	0.8	0.8	0.7	0.8	0.8	0.8	1.1	1.1	1.0	1.1	1.4	1.7				
	Background	9.51	39	Combined Uncertainty (dB)	2.0	1.7	1.1	1.6	1.1	1.0	0.9	0.8	0.8	0.8	0.7																						

Table C.04 Detailed measurement uncertainty at hub height

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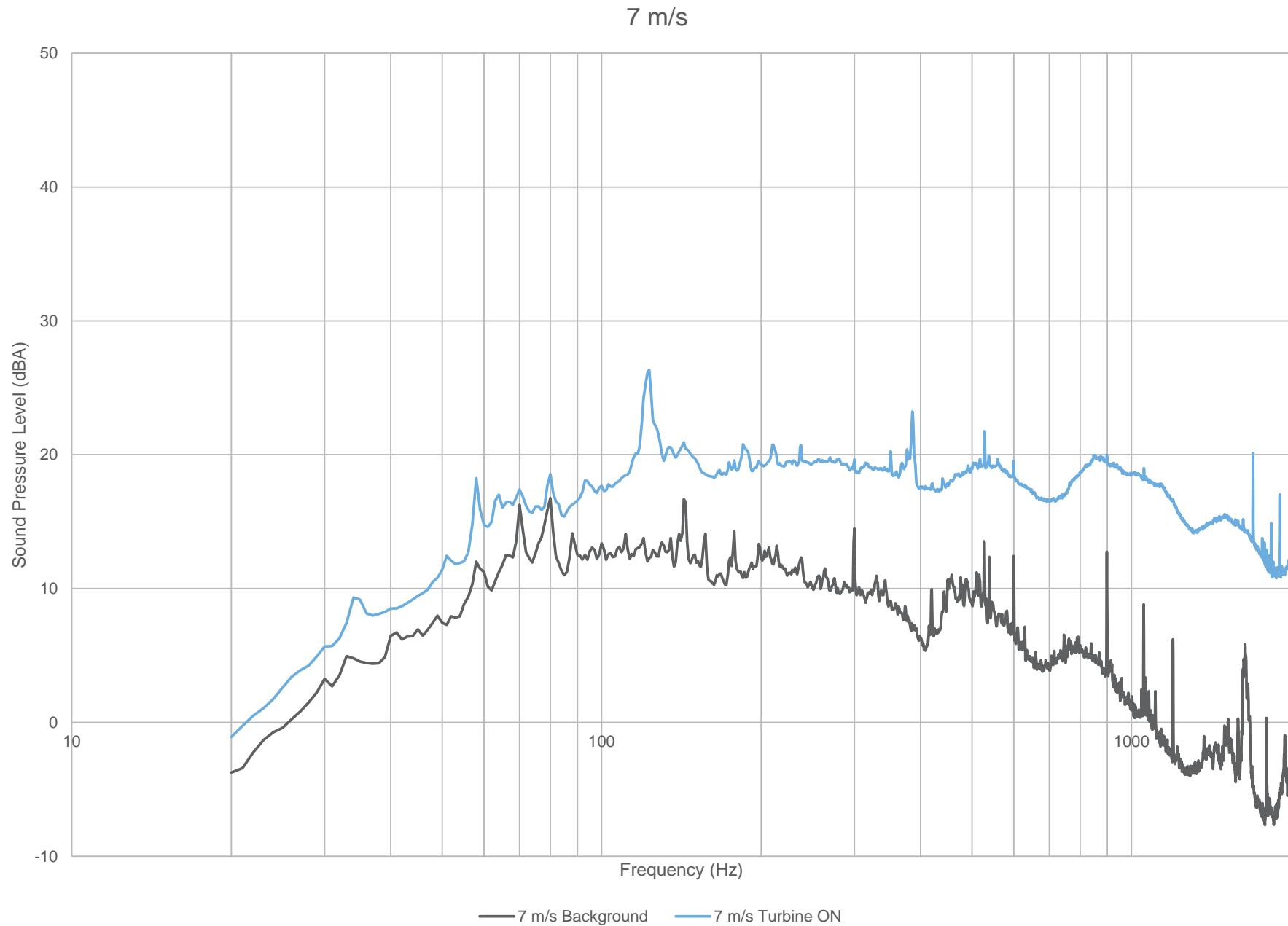
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Wind Bin (m/s)	Parameter	Average Wind Speed (m/s)	# of data points	Parameter	1/3 Octave Band (Hz)																								Overall								
					20	25	31.5	40	50	63	80	100	125	160	200	250	315	400	500	630	800	1000	1250	1600	2000	2500	3150	4000	5000	6300	8000	10000					
10.5	Turbine ON	10.50	22	Average (dBA)	9.8	13.1	17.2	21.0	24.1	27.8	30.3	32.9	36.3	35.6	36.2	36.7	37.1	39.5	37.7	38.8	39.1	41.1	40.2	39.8	38.9	38.0	35.9	32.8	27.7	25.0	19.4	14.9	50.4				
				Uncertainty A (dB)	0.4	0.4	0.3	0.3	0.3	0.3	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.4	0.2	0.2	0.2	0.2	0.3	0.4	0.6	0.8	1.1	1.4	1.7	1.6	1.4	1.4					
				Uncertainty B (dB)	2.0	1.6	1.1	1.5	1.1	0.9	0.8	0.8	0.8	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8						
	Background	10.47	36	Combined Uncertainty (dB)	2.0	1.7	1.1	1.6	1.1	1.0	0.9	0.9	0.8	0.9	0.8	0.8	0.7	0.7	0.7	0.7	0.7	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	41.1			
				Average (dBA)	1.7	5.7	9.6	12.9	17.0	20.9	23.3	24.5	26.6	27.4	28.0	29.2	29.3	27.7	29.0	27.9	27.5	28.2	28.4	29.7	29.6	31.3	30.3	26.6	24.0	17.5	12.7	8.2	41.1				
				Uncertainty A (dB)	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.4	0.4	0.5	0.5	0.6	0.6	0.7	0.8	1.1	1.3	1.3	1.4	1.4	1.1	1.3	0.9	0.7	0.4	0.4	0.4					
11.0	Turbine ON	10.98	18	Uncertainty B (dB)	2.0	1.6	1.1	1.5	1.1	0.9	0.8	0.8	0.8	0.7	0.7	0.7	0.7	0.7	0.7	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	50.3				
				Combined Uncertainty (dB)	2.0	1.7	1.1	1.6	1.1	1.0	0.9	0.9	0.8	0.9	0.7	0.8	0.7	0.8	0.8	0.7	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8				
				Average (dBA)	9.3	12.9	17.4	21.1	24.4	28.0	30.3	32.9	36.1	35.4	36.3	36.8	37.1	38.7	37.7	38.8	38.8	41.1	40.2	39.5	38.7	37.8	35.6	32.3	27.3	25.3	19.6	15.0	50.3				
	Background	11.04	34	Uncertainty A (dB)	0.4	0.3	0.4	0.4	0.3	0.3	0.3	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.3	0.4	0.6	0.8	1.0	1.4	1.8	1.6	1.4	1.4	1.7	1.7			
				Uncertainty B (dB)	2.0	1.6	1.1	1.5	1.1	0.9	0.8	0.8	0.8	0.7	0.7	0.7	0.7	0.7	0.7	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8			
				Combined Uncertainty (dB)	2.0	1.7	1.1	1.5	1.1	1.0	1.0	0.8	0.9	0.9	0.8	0.8	0.8	0.8	0.9	0.9	0.9	1.0	1.1	1.4	1.5	1.6	1.7	1.5	1.6	1.4	1.5	1.7	40.7				
11.5	Turbine ON	11.49	14	Average (dBA)	10.0	12.9	17.1	20.5	24.0	27.7	30.1	32.5	35.9	35.1	35.2	35.9	36.3	39.0	36.4	38.0	37.9	40.5	39.8	38.5	37.6	36.0	32.9	28.9	23.1	21.5	15.5	12.0	49.4				
				Uncertainty A (dB)	0.5	0.4	0.4	0.4	0.4	0.3	0.3	0.3	0.2	0.3	0.2	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.3	0.4	0.6	0.9	1.4	1.1	1.0	1.0	1.0	1.0	1.0	1.0	1.0		
				Uncertainty B (dB)	2.0	1.6	1.1	1.5	1.1	0.9	0.8	0.8	0.8	0.8	0.7	0.7	0.7	0.7	0.7	0.7	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8				
	Background	11.49	22	Combined Uncertainty (dB)	2.0	1.7	1.1	1.6	1.1	1.0	0.9	0.9	0.8	0.9	0.7	0.8	0.8	0.9	0.8	0.8	0.9	0.8	0.9	1.0	1.2	1.3	1.2	1.4	1.5	2.0	1.5	1.3	1.5	1.7			
				Average (dBA)	1.6	5.8	9.6	12.7	16.5	21.4	23.0	24.7	27.4	28.2	28.9	30.2	30.2	28.4	29.4	28.3	27.6	28.2	28.2	29.2	28.9	28.7	26.7	23.7	18.2	15.4	10.9	7.3	40.8				
				Uncertainty A (dB)	0.4	0.3	0.3	0.3	0.4	0.2	0.3	0.4	0.5	0.5	0.6	0.7	0.7	0.6	0.7	0.7	0.7	0.8	0.8	0.8	0.7	0.8	1.1	1.1	1.0	1.1	1.4	1.7	1.7				
				Uncertainty B (dB)	2.0	1.6	1.1	1.5	1.1	0.9	0.8	0.8	0.8	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
				Combined Uncertainty (dB)	2.0	1.7	1.1	1.6	1.1	1.0	0.9	0.9	0.9	0.9	0.9	1.0	1.0	1.0	1.0	1.1	1.3	1.6	1.8	1.9	1.9	1.9	1.8	1.5	1.4	1.5	1.7	1.7	1.7	1.7	1.7	1.7	1.7

Appendix D

Tonality Assessment

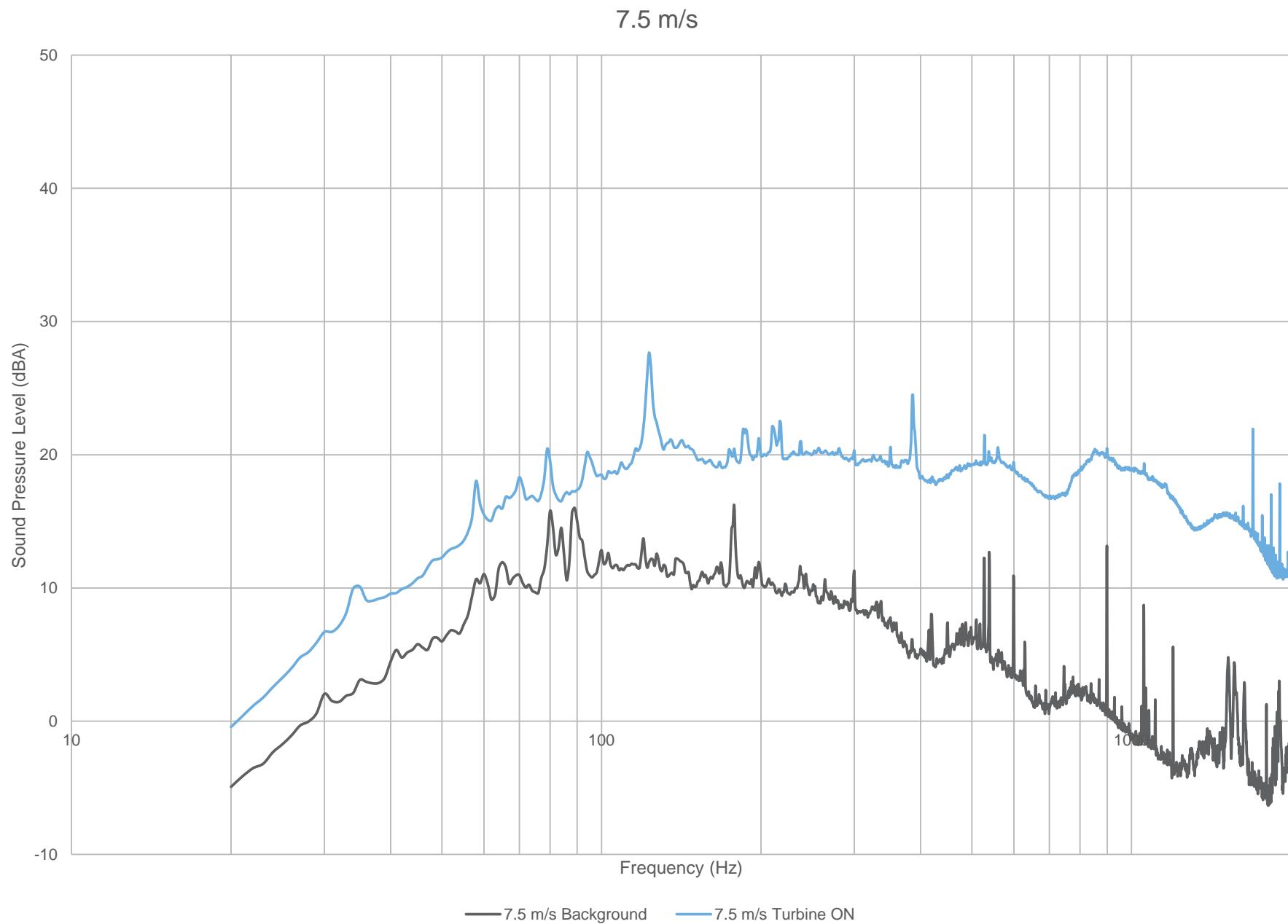


13228.02.T60.RP1
 Scale: NTS
 Drawn by: SS
 Reviewed by: PA
 Date: March 2021
 Revision: 1

Project Name
 South Kent WPP - IEC 61400-11 Edition 3.0 - Turbine T60

Figure Title
 Plot of narrow band spectra - Turbine ON vs. Background at 7.0 m/s

Figure D.01

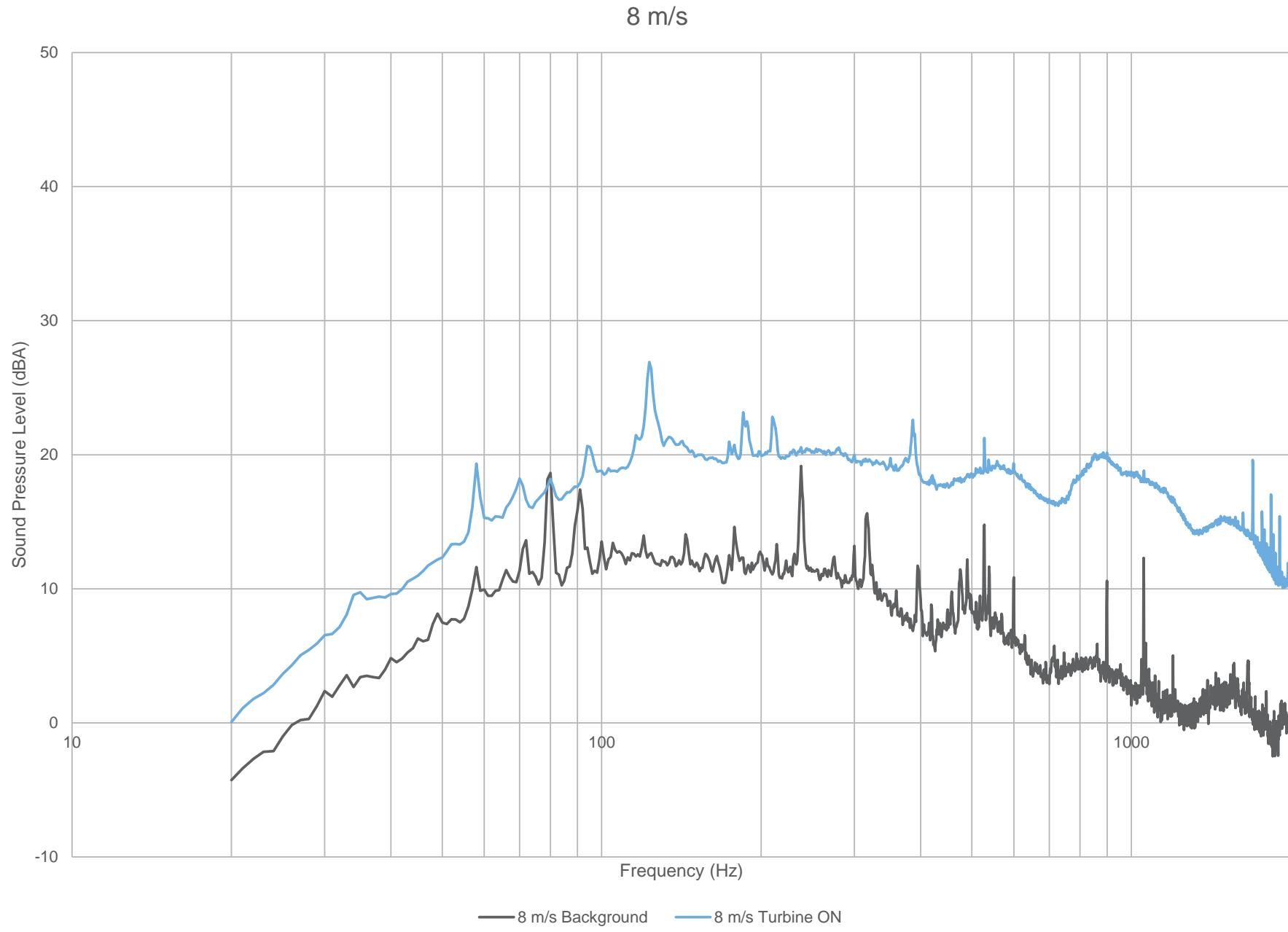


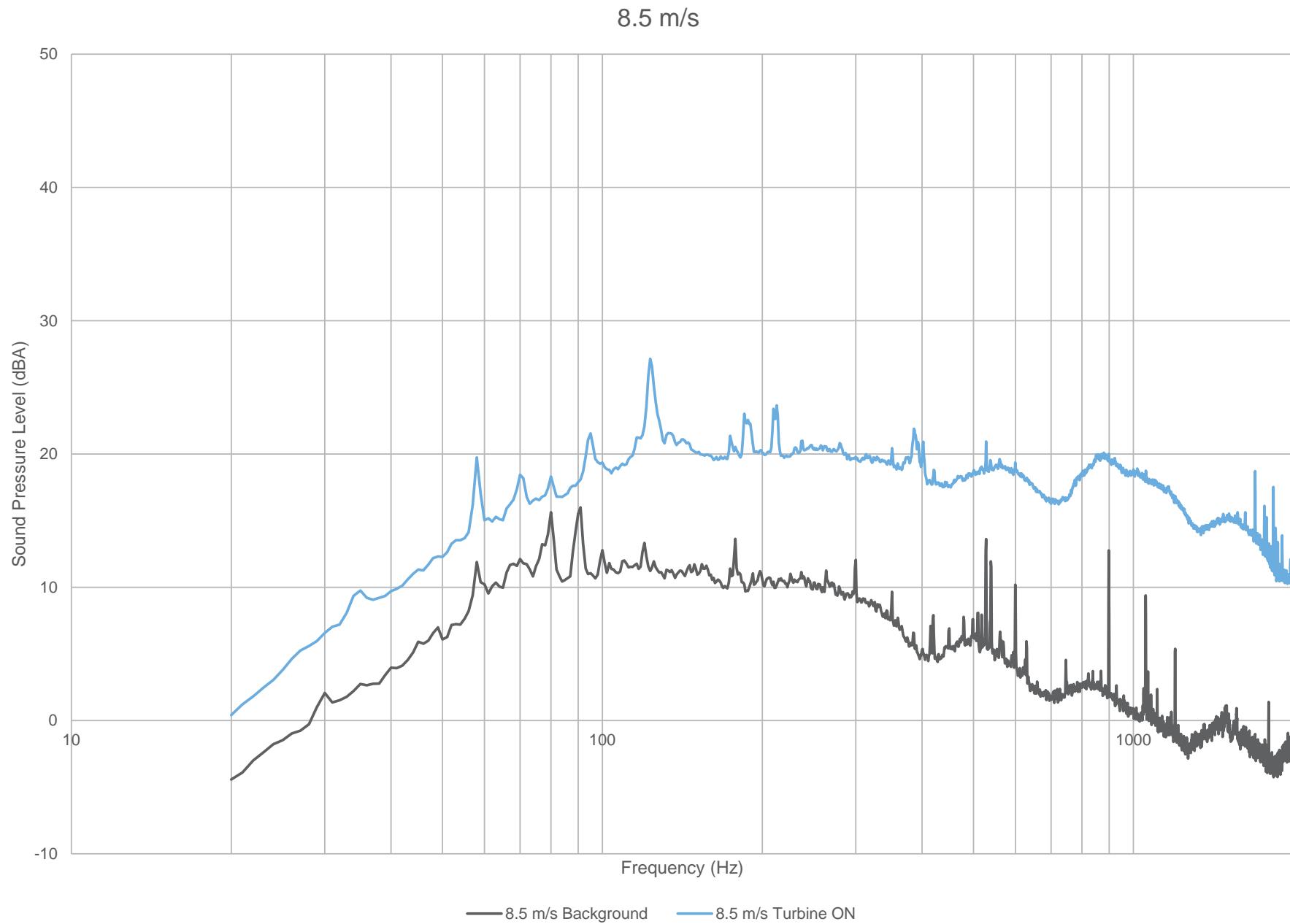
13228.02.T60.RP1
 Scale: NTS
 Drawn by: SS
 Reviewed by: PA
 Date: March 2021
 Revision: 1

Project Name
 South Kent WPP - IEC 61400-11 Edition 3.0 - Turbine T60

Figure Title
 Plot of narrow band spectra - Turbine ON vs. Background at 7.5 m/s

Figure D.02



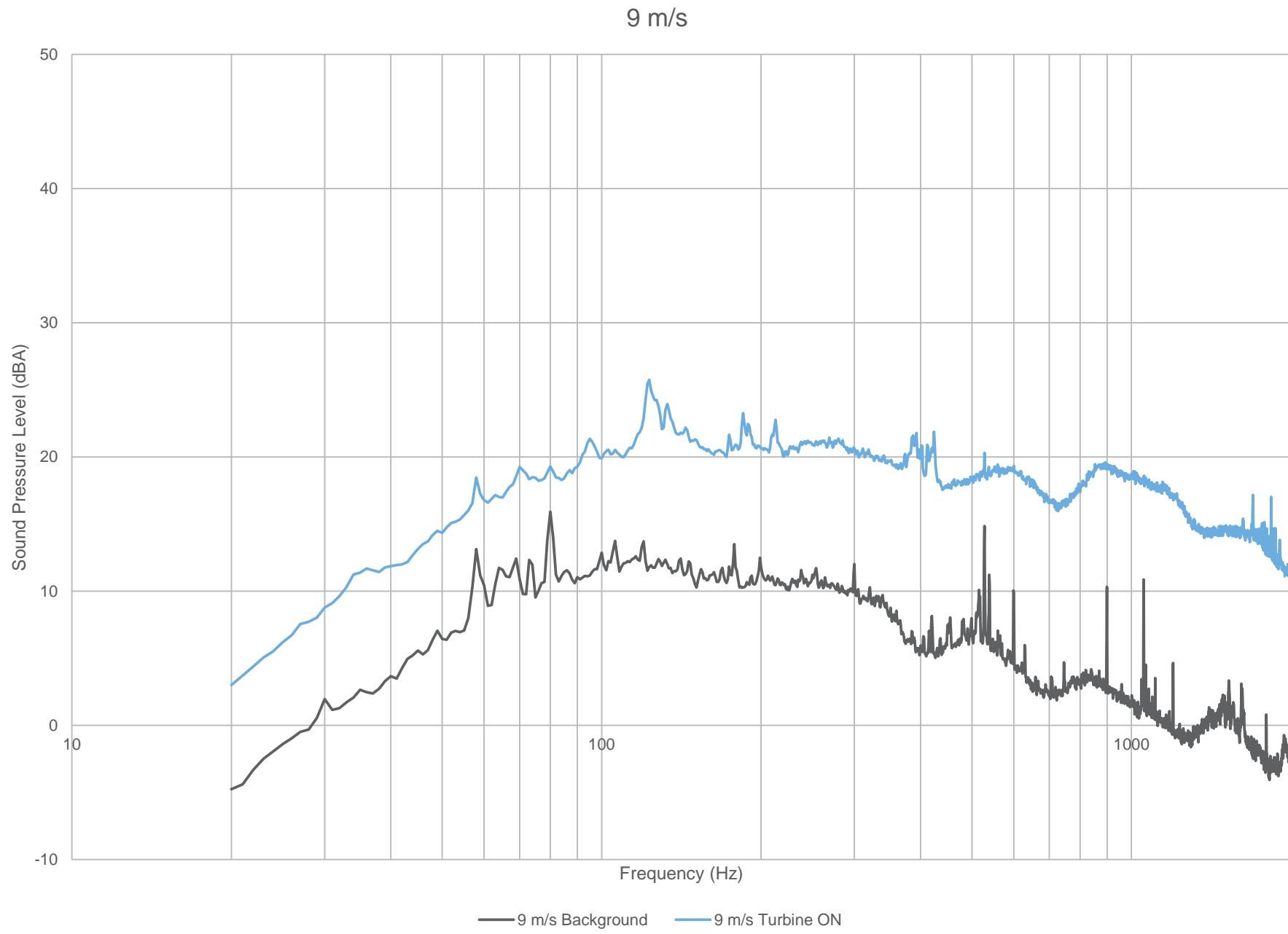


13228.02.T60.RP1
 Scale: NTS
 Drawn by: SS
 Reviewed by: PA
 Date: March 2021
 Revision: 1

Project Name
 South Kent WPP - IEC 61400- 11 Edition 3.0 - Turbine T60

Figure Title
 Plot of narrow band spectra - Turbine ON vs. Background at 8.5 m/s

Figure D.04

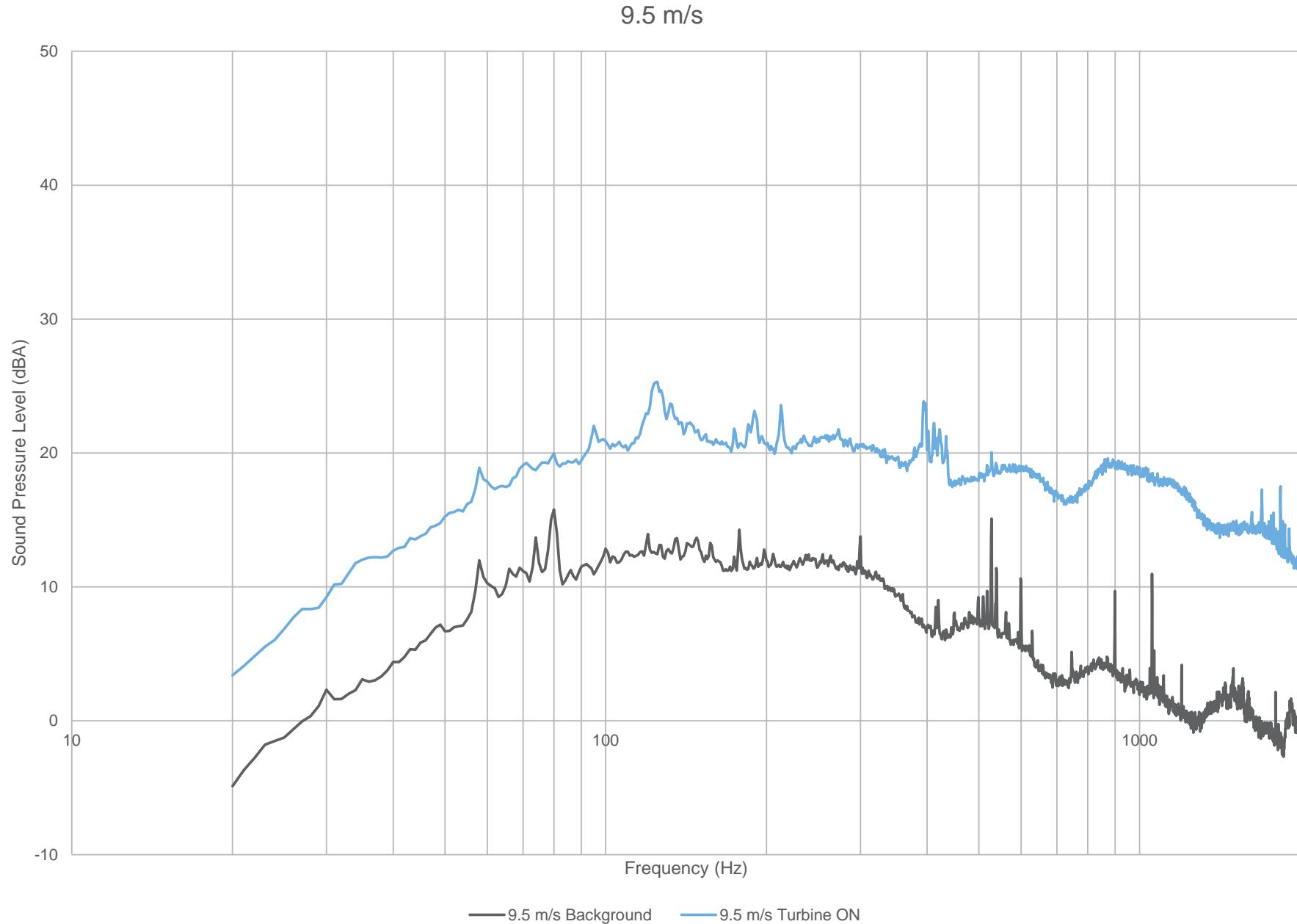


13228.02.T60.RP1
 Scale: NTS
 Drawn by: SS
 Reviewed by: PA
 Date: March 2021
 Revision: 1

Project Name
 South Kent WPP - IEC 61400-11 Edition 3.0 - Turbine T60

Figure Title
 Plot of narrow band spectra - Turbine ON vs. Background at 9.0 m/s

Figure D.05

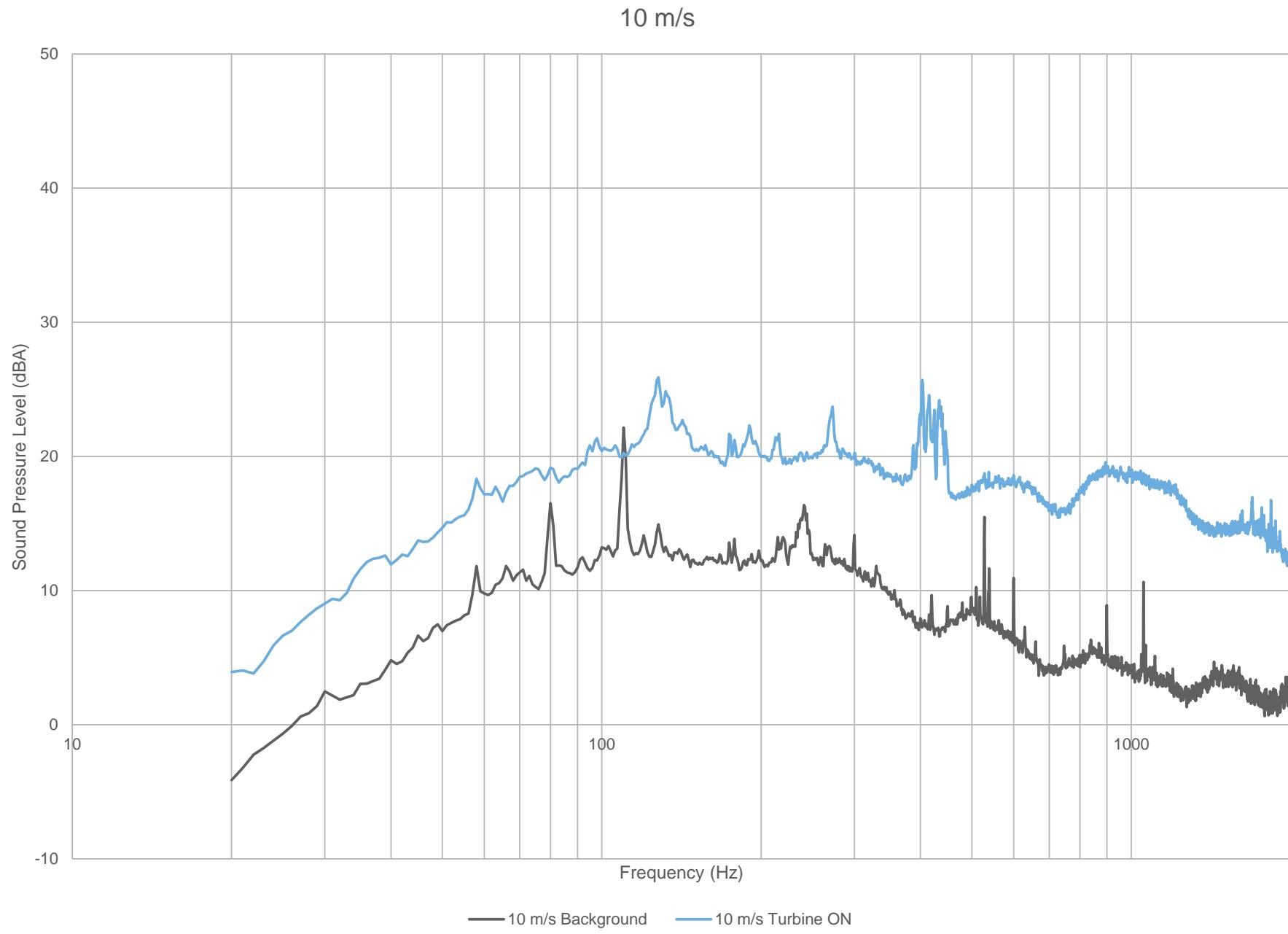


13228.02.T60.RP1
 Scale: NTS
 Drawn by: SS
 Reviewed by: PA
 Date: March 2021
 Revision: 1

Project Name
 South Kent WPP - IEC 61400- 11 Edition 3.0 - Turbine T60

Figure Title
 Plot of narrow band spectra - Turbine ON vs. Background at 9.5 m/s

Figure D.06

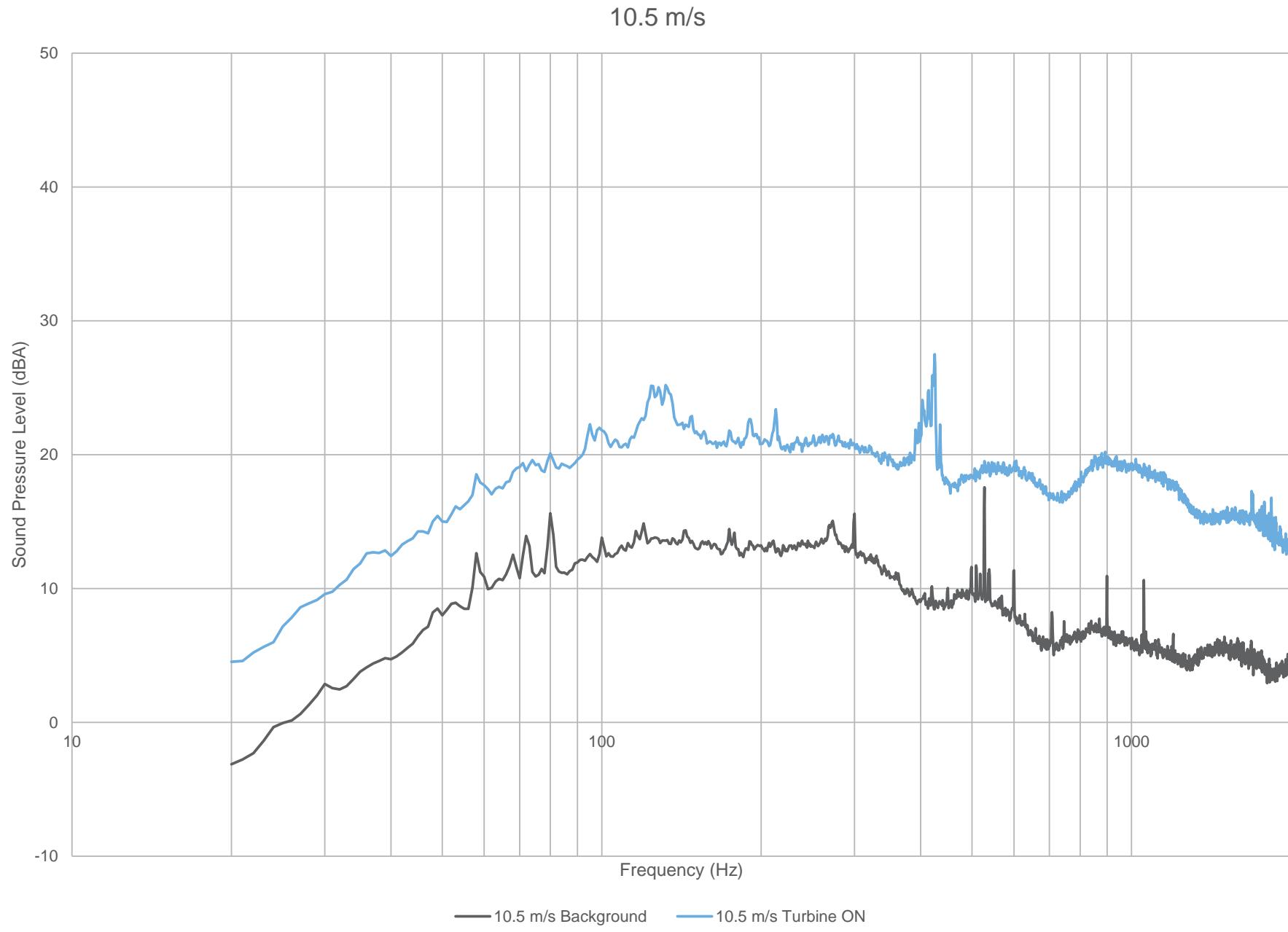


13228.02.T60.RP1
 Scale: NTS
 Drawn by: SS
 Reviewed by: PA
 Date: March 2021
 Revision: 1

Project Name
 South Kent WPP - IEC 61400-11 Edition 3.0 - Turbine T60

Figure Title
 Plot of narrow band spectra - Turbine ON vs. Background at 10.0 m/s

Figure D.07

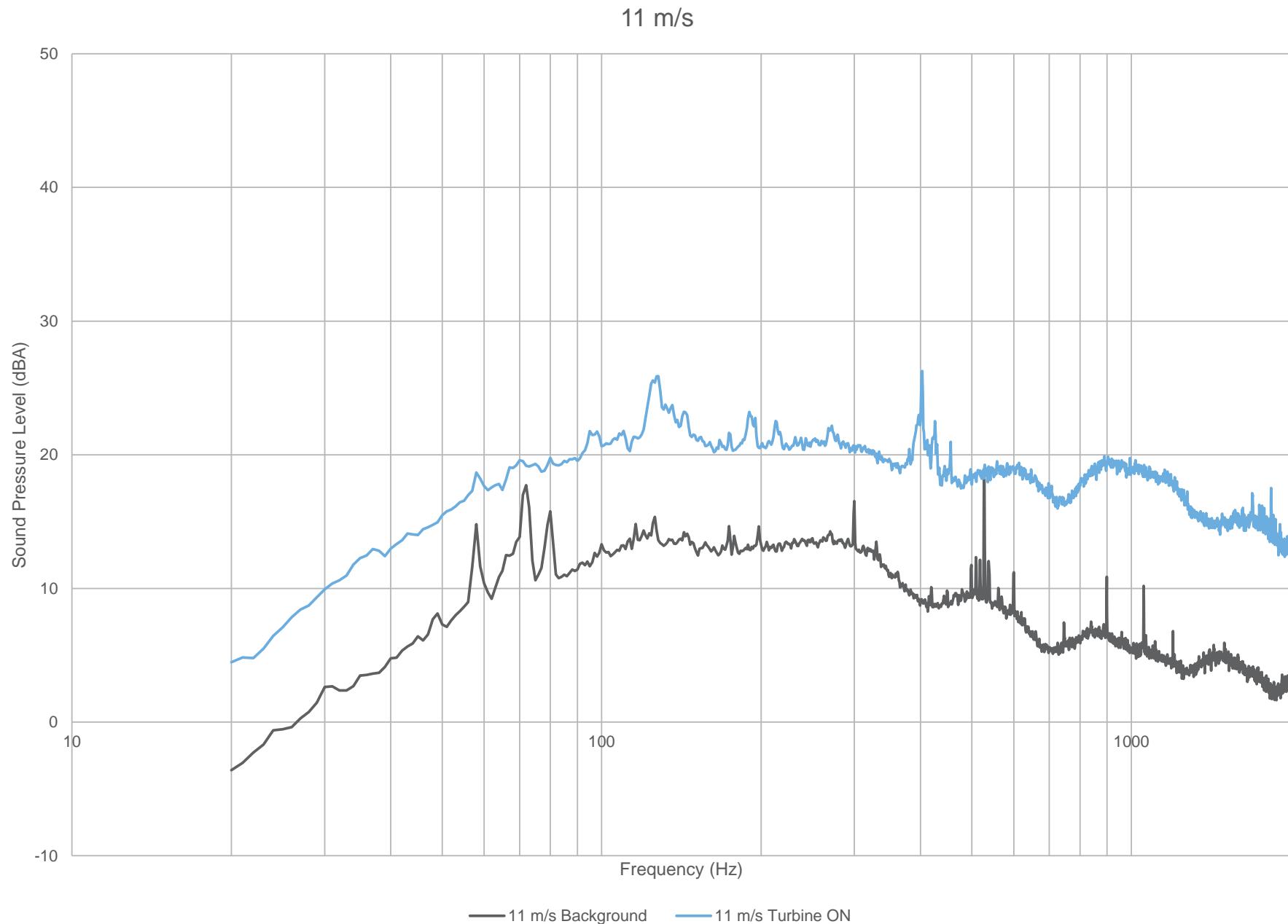


13228.02.T60.RP1
 Scale: NTS
 Drawn by: SS
 Reviewed by: PA
 Date: March 2021
 Revision: 1

Project Name
 South Kent WPP - IEC 61400- 11 Edition 3.0 - Turbine T60

Figure Title
 Plot of narrow band spectra - Turbine ON vs. Background at 10.5 m/s

Figure D.08

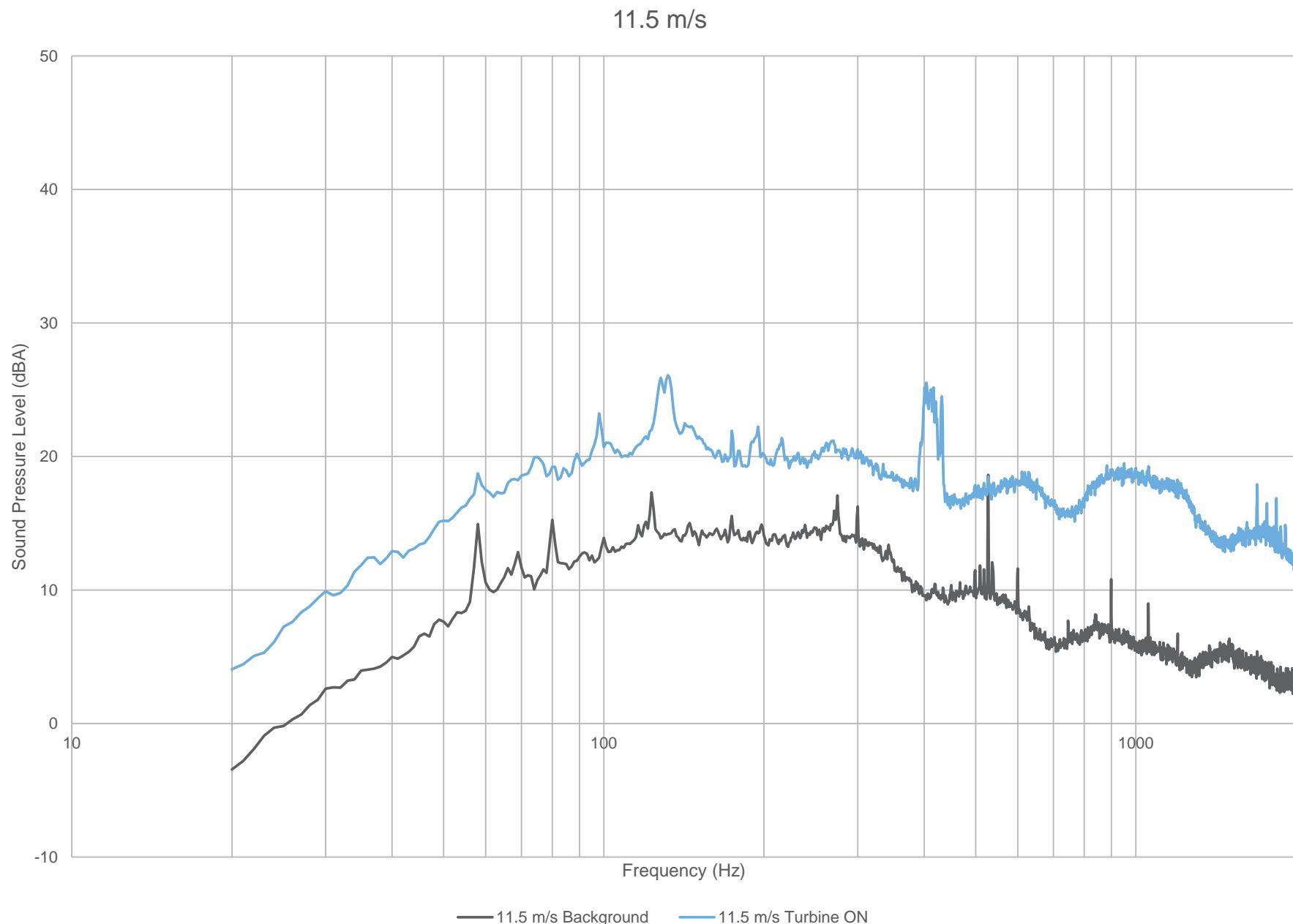


13228.02.T60.RP1
 Scale: NTS
 Drawn by: SS
 Reviewed by: PA
 Date: March 2021
 Revision: 1

Project Name
 South Kent WPP - IEC 61400- 11 Edition 3.0 - Turbine T60

Figure Title
 Plot of narrow band spectra - Turbine ON vs. Background at 11.0 m/s

Figure D.09



13228.02.T60.RP1
 Scale: NTS
 Drawn by: SS
 Reviewed by: PA
 Date: March 2021
 Revision: 1

Project Name
 South Kent WPP - IEC 61400- 11 Edition 3.0 - Turbine T60

Figure Title
 Plot of narrow band spectra - Turbine ON vs. Background at 11.5 m/s

Figure D.10

Table D.01 Tonality Assessment Table - 7 m/s

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Report ID: 13228.02.T60.RP1

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Created on: 3/25/2021

Table D.02 Tonality Assessment Table - 7.5 m/s

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Report ID: 13228.02.T60.RP1

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Created on: 3/25/2021

Table D.03 Tonality Assessment Table - 8 m/s

Project: South Kent WPP - IEC 61400- 11 Edition 3.0 - Turbine T60

Report ID: 13228.02.T60.RP1

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Created on: 3/25/2021

Table D.04 Tonality Assessment Table - 8.5 m/s

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Report ID: 13228.02.T60.RP1

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Created on: 3/25/2021

Table D.05 Tonality Assessment Table - 9 m/s

Project: South Kent WPP - IEC 61400- 11 Edition 3.0 - Turbine T60

Report ID: 13228.02.T60.RP1

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Created on: 3/25/2021

Measurement #	Centre frequency (Hz)	Background adjusted criterion level (dB)	Masking level (dB)	Tone level (dB)	Determination of tonality (dB)	Frequency dependent audibility criterion (dB)	Tonal Audibility (dB)
983	397	18.9	37.6	29.9	-7.7	-2.2	-5.5
1426	397	18.0	36.7	25.9	-10.9	-2.2	-8.7
1201	402	18.9	37.6	32.7	-4.8	-2.2	-2.6
1176	403	19.1	37.8	34.6	-3.2	-2.2	-1.0
1339	411	17.6	36.3	32.1	-4.2	-2.2	-2.0
1430	418	18.4	37.2	31.9	-5.3	-2.2	-3.1
1193	420	17.9	36.6	34.2	-2.5	-2.2	-0.2
1274	424	18.8	37.6	39.0	1.4	-2.2	3.6
1338	424	17.1	35.8	37.9	2.0	-2.2	4.2
Average	411				-2.3	-2.2	-0.1

Table D.06 Tonality Assessment Table - 9.5 m/s

Project: South Kent WPP - IEC 61400- 11 Edition 3.0 - Turbine T60

Report ID: 13228.02.T60.RP1

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Created on: 3/25/2021

Measurement #	Centre frequency (Hz)	Background adjusted criterion level (dB)	Masking level (dB)	Tone level (dB)	Determination of tonality (dB)	Frequency dependent audibility criterion (dB)	Tonal Audibility (dB)
1366	394	19.3	38.0	35.9	-2.0	-2.2	0.1
1365	396	18.9	37.6	35.1	-2.5	-2.2	-0.3
1371	398	17.9	36.6	36.6	0.0	-2.2	2.2
1329	402	18.6	37.3	28.3	-9.0	-2.2	-6.8
1171	402	19.1	37.8	31.1	-6.7	-2.2	-4.5
1172	402	19.4	38.1	26.8	-11.3	-2.2	-9.1
1429	411	19.6	38.3	34.4	-3.9	-2.2	-1.7
1328	412	19.1	37.8	31.6	-6.2	-2.2	-4.0
1440	420	16.8	35.5	37.0	1.5	-2.2	3.7
1439	422	17.7	36.4	40.1	3.6	-2.2	5.8
1444	434	18.3	37.1	36.5	-0.6	-2.2	1.6
1443	434	20.2	39.0	37.9	-1.1	-2.2	1.1
Average	411				-1.4	-2.2	0.8

Table D.07 Tonality Assessment Table - 10 m/s

Project: South Kent WPP - IEC 61400- 11 Edition 3.0 - Turbine T60

Report ID: 13228.02.T60.RP1

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Created on: 3/25/2021

Measurement #	Centre frequency (Hz)	Background adjusted criterion level (dB)	Masking level (dB)	Tone level (dB)	Determination of tonality (dB)	Frequency dependent audibility criterion (dB)	Tonal Audibility (dB)
1359	410	18.9	37.7	27.0	-10.7	-2.2	-8.5
1301	415	16.8	35.6	33.0	-2.6	-2.2	-0.4
1370	415	16.2	34.9	40.7	5.8	-2.2	8.0
1404	415	17.1	35.9	39.5	3.6	-2.2	5.8
1425	422	17.5	36.2	32.3	-3.9	-2.2	-1.7
1185	425	17.7	36.5	40.1	3.6	-2.2	5.8
1280	434	18.1	36.9	43.9	7.1	-2.2	9.3
1407	437	19.2	38.0	40.9	2.9	-2.2	5.1
Average	422				3.1	-2.2	5.4

Table D.08 Tonality Assessment Table - 10.5 m/s

Project: South Kent WPP - IEC 61400- 11 Edition 3.0 - Turbine T60

Report ID: 13228.02.T60.RP1

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Measurement #	Centre frequency (Hz)	Background adjusted criterion level (dB)	Masking level (dB)	Tone level (dB)	Determination of tonality (dB)	Frequency dependent audibility criterion (dB)	Tonal Audibility (dB)
1314	408	19.3	38.0	26.3	-11.7	-2.2	-9.5
1311	409	17.4	36.1	34.8	-1.3	-2.2	0.9
1186	413	16.6	35.3	37.4	2.1	-2.2	4.3
1310	413	20.0	38.7	36.1	-2.7	-2.2	-0.4
1273	421	19.5	38.2	36.2	-2.0	-2.2	0.2
1309	421	21.2	39.9	36.3	-3.7	-2.2	-1.5
962	424	19.0	37.7	41.2	3.5	-2.2	5.7
1369	425	16.9	35.7	40.4	4.7	-2.2	6.9
1189	426	19.8	38.6	40.8	2.2	-2.2	4.4
1281	435	17.3	36.0	37.7	1.7	-2.2	3.9
Average	420				0.9	-2.2	3.1

Table D.09 Tonality Assessment Table - 11 m/s

Project: South Kent WPP - IEC 61400- 11 Edition 3.0 - Turbine T60

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Measurement #	Centre frequency (Hz)	Background adjusted criterion level (dB)	Masking level (dB)	Tone level (dB)	Determination of tonality (dB)	Frequency dependent audibility criterion (dB)	Tonal Audibility (dB)
1386	401	16.5	35.2	32.4	-2.8	-2.2	-0.6
1423	402	16.3	35.0	34.0	-1.0	-2.2	1.2
1188	403	20.2	38.9	37.5	-1.4	-2.2	0.8
1208	403	19.0	37.7	36.3	-1.4	-2.2	0.8
1320	414	19.4	38.1	33.8	-4.3	-2.2	-2.1
1456	421	17.5	36.3	37.3	1.0	-2.2	3.2
1325	427	19.6	38.3	32.1	-6.3	-2.2	-4.0
1336	430	18.9	37.7	34.9	-2.8	-2.2	-0.5
Average	413				-1.9	-2.2	0.3

Table D.10 Tonality Assessment Table - 11.5 m/s

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Measurement #	Centre frequency (Hz)	Background adjusted criterion level (dB)	Masking level (dB)	Tone level (dB)	Determination of tonality (dB)	Frequency dependent audibility criterion (dB)	Tonal Audibility (dB)
1461	404	17.3	36.0	31.8	-4.2	-2.2	-2.0
1463	405	17.0	35.7	34.1	-1.6	-2.2	0.6
1464	412	17.2	35.9	36.8	0.8	-2.2	3.1
1438	413	18.8	37.5	37.6	0.1	-2.2	2.3
1455	415	17.4	36.2	33.5	-2.7	-2.2	-0.5
1433	417	18.6	37.3	36.1	-1.3	-2.2	0.9
1459	421	16.2	35.0	36.2	1.2	-2.2	3.4
1368	423	20.3	39.1	29.7	-9.4	-2.2	-7.2
1279	432	18.8	37.6	43.1	5.5	-2.2	7.7
Average	416				0.3	-2.2	2.5

Appendix E Measurement Data

Table E.01 Measurement data - Turbine ON

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Report ID: 13228.02.T60.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 Wind Speed	LAEq	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 (hPa)	Relative Humidity (%)
1	6.5	48.9	646	291.0	291.1	11.1	7.0	3.6	3.0	100.2	71	
2	6.5	48.9	646	291.0	291.1	11.1	6.4	3.6	3.0	100.2	71	
3	6.5	48.8	648	291.0	291.1	11.1	6.6	3.6	3.0	100.2	71	
4	6.5	48.8	650	291.0	291.1	11.2	6.5	3.4	3.0	100.2	71	
5	6.5	48.7	644	291.0	291.1	11.1	6.6	3.3	3.0	100.2	71	
6	6.5	48.7	639	291.0	291.1	11.1	6.6	3.4	2.9	100.2	71	
7	6.5	48.4	634	291.0	291.1	11.1	6.6	3.4	2.9	100.2	71	
8	6.5	48.6	650	291.0	291.1	11.1	6.5	3.4	2.9	100.2	71	
9	6.5	48.6	644	291.0	291.1	11.1	6.4	3.4	2.9	100.2	71	
10	6.5	48.5	645	291.0	291.1	11.1	6.8	3.3	2.9	100.2	71	
11	6.5	48.7	637	291.0	291.1	11.1	6.7	3.3	2.9	100.2	71	
12	6.5	48.6	626	291.0	291.1	11.0	6.8	3.3	2.9	100.2	71	
13	6.5	48.5	627	291.0	291.1	11.0	6.7	3.3	2.9	100.2	71	
14	6.5	48.3	628	291.0	291.1	11.0	6.7	3.3	2.9	100.2	71	
15	6.5	48.0	635	291.0	291.1	11.0	6.0	3.3	2.9	100.2	71	
16	6.4	47.8	617	291.0	291.1	11.0	6.5	3.1	2.9	100.2	71	
17	6.4	48.9	617	291.0	291.1	11.0	6.7	3.1	2.9	100.2	71	
18	6.4	49.0	616	291.0	291.1	11.0	6.3	3.1	2.9	100.2	71	
19	6.5	48.8	631	291.0	291.1	11.0	6.7	3.1	2.9	100.2	71	
20	6.5	49.0	637	291.0	291.1	11.1	6.4	3.0	2.9	100.2	71	
21	6.5	47.8	631	291.0	291.1	11.1	6.5	3.0	2.9	100.2	71	
22	6.5	47.9	628	291.0	291.1	11.0	6.5	3.0	2.9	100.2	71	
23	6.5	48.1	627	291.0	291.1	11.0	6.7	3.1	2.9	100.2	71	
24	6.5	48.1	635	291.0	291.1	11.1	7.0	3.1	2.8	100.2	71	
25	6.5	48.0	642	291.0	291.1	11.1	6.4	3.3	2.8	100.2	71	
26	6.5	48.1	638	291.0	291.1	11.1	6.8	3.3	2.8	100.2	71	
27	6.5	48.1	642	291.0	291.1	11.1	6.6	3.3	2.8	100.2	71	
28	6.5	48.2	641	291.0	291.1	11.1	6.0	3.3	2.8	100.2	71	
29	6.5	48.2	637	291.0	291.1	11.1	6.4	3.4	2.8	100.2	71	
30	6.5	48.2	639	291.0	291.1	11.1	6.5	3.6	2.8	100.2	71	
31	6.5	48.2	637	291.0	291.1	11.1	6.3	3.6	2.8	100.2	71	
32	6.5	47.9	651	291.0	291.1	11.1	6.5	3.6	2.8	100.2	71	
33	6.5	48.0	639	291.0	291.0	11.1	6.8	3.6	2.8	100.2	71	
34	6.5	47.9	646	291.0	288.9	11.1	6.9	3.6	2.8	100.2	71	
35	6.5	48.2	645	291.0	288.3	11.1	6.6	3.7	2.8	100.2	71	
36	6.5	48.2	638	291.0	288.3	11.1	6.5	3.6	2.7	100.2	71	
37	6.5	48.2	641	291.0	288.3	11.1	6.7	3.6	2.7	100.2	71	
38	6.5	48.0	634	291.0	288.3	11.1	6.9	3.9	2.7	100.2	71	
39	6.5	48.1	635	291.0	288.3	11.1	6.7	3.7	2.7	100.2	71	
40	6.5	48.2	633	291.0	288.3	11.1	6.7	3.9	2.7	100.2	71	
41	6.5	48.0	631	291.0	288.3	11.1	7.1	3.9	2.7	100.2	71	
42	6.8	49.2	733	291.0	288.3	11.6	7.1	4.2	2.6	100.2	71	
43	6.8	49.1	733	291.0	288.3	11.6	7.1	4.4	2.6	100.2	71	
44	6.8	49.6	731	291.0	288.3	11.5	6.9	4.2	2.6	100.2	71	
45	6.9	49.1	747	291.0	288.3	11.6	6.9	3.8	2.6	100.2	71	
46	6.8	49.2	726	291.0	288.3	11.5	7.2	3.9	2.6	100.2	71	
47	6.8	49.6	735	291.0	288.3	11.5	7.2	4.1	2.6	100.2	71	
48	6.8	49.0	720	291.0	288.3	11.5	6.6	4.2	2.6	100.2	71	
49	6.7	49.2	698	291.0	288.3	11.4	7.0	4.2	2.6	100.2	71	
50	6.7	48.9	709	291.0	288.3	11.4	6.9	3.9	2.6	100.2	71	
51	6.8	48.6	726	291.0	288.3	11.5	6.8	3.9	2.6	100.2	71	
52	6.8	48.9	718	291.0	288.3	11.5	6.8	4.0	2.6	100.2	71	
53	6.8	49.2	717	291.0	288.3	11.4	7.0	3.9	2.6	100.2	71	
54	6.8	49.2	735	291.0	288.3	11.5	6.8	4.1	2.6	100.2	71	
55	6.9	49.3	749	291.0	288.3	11.6	7.2	4.0	2.6	100.2	71	
56	6.7	49.3	709	291.0	288.3	11.4	6.9	4.1	2.6	100.2	71	
57	6.7	49.4	684	291.0	288.3	11.3	6.7	4.4	2.6	100.2	71	
58	6.7	48.9	688	291.0	288.3	11.4	7.2	4.0	2.6	100.2	71	
59	6.7	48.7	700	291.0	288.3	11.4	6.8	4.0	2.6	100.2	71	
60	6.7	49.0	684	291.0	288.3	11.3	6.1	4.2	2.6	100.2	71	
61	6.7	49.3	690	291.0	288.3	11.3	6.7	4.4	2.6	100.2	71	
62	6.7	49.0	694	291.0	288.3	11.3	7.2	4.2	2.6	100.2	71	
63	6.7	48.7	697	291.0	288.3	11.4	7.1	4.1	2.6	100.2	71	
64	6.7	49.2	707	291.0	288.3	11.4	6.9	4.1	2.6	100.2	71	
65	6.7	49.0	700	291.0	288.3	11.4	6.7	4.0	2.6	100.2	71	
66	6.7	49.0	703	291.0	288.3	11.4	6.5	3.9	2.6	100.2	71	
67	6.6	48.9	670	291.0	288.3	11.3	6.0	3.8	2.6	100.2	71	
68	6.6	49.3	673	291.0	288.3	11.3	6.8	3.8	2.6	100.2	71	
69	6.7	49.2	694	291.0	288.3	11.4	7.2	3.7	2.6	100.2	71	
70	6.6	48.7	654	291.0	288.3	11.1	6.3	3.8	2.6	100.2	71	
71	6.6	49.2	662	291.0	286.4	11.2	6.7	3.9	2.6	100.2	71	
72	6.6	48.8	680	291.0	285.9	11.3	6.7	3.8	2.6	100.2	71	
73	6.7	49.2	688	291.0	285.9	11.3	6.9	3.9	2.5	100.2	71	
74	6.7	49.4	700	291.0	285.9	11.4	6.7	3.6	2.5	100.2	71	
75	6.7	48.6	701	291.0	285.9	11.4	7.1	3.7	2.5	100.2	71	
76	6.8	48.8	716	291.0	285.9	11.5	6.7	3.5	2.5	100.2	71	
77	6.8	48.7	718	291.0	285.9	11.5	7.2	3.5	2.5	100.2	71	
78	6.8	49.6	724	291.0	285.9	11.5	6.7	3.6	2.5	100.2	71	
79	6.8	48.8	719	291.0	285.9	11.5	6.9	3.9	2.5	100.2	71	
80	6.7	49.1	711	291.0	285.9	11.4	6.3	4.0	2.5	100.2	71	
81	6.7	49.1	683	291.0	285.9	11.3	6.7	4.0	2.5	100.2	71	
82	6.6	48.8	679	291.0	285.9	11.3	7.0	4.2	2.5	100.2	71	
83	6.7	48.8	710	291.0	285.9	11.4	7.3	3.7	2.5	100.2	71	
84	6.6	48.8	664	291.0	285.9	11.2	7.3	3.6	2.5	100.2	71	
85	6.6	49.1	655	291.0	285.9	11.2	6.7	3.6	2.5	100.2	71	
86	6.6	48.4	652	291.0	285.9	11.2	6.4	3.6	2.5	100.2	71	
87	6.6	48.4	661	291.0	285.9	11.2	6.8	3.8	2.4	100.2	72	
88	6.6	48.5	678	291.0	285.9	11.3	6.8	3.6	2.4	100.2	72	

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

Data Point #	Standardized Wind Speed	LAEq	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 (hPa)	Relative Humidity (%)
89	6.6	48.6	708	291.0	285.9	11.3	7.0	3.5	2.4	100.2	72	
90	6.7	48.5	708	291.0	285.9	11.4	6.7	3.6	2.4	100.2	72	
91	6.7	48.6	697	291.0	285.9	11.4	7.1	3.7	2.4	100.2	72	
92	6.6	49.1	675	291.0	285.9	11.3	6.9	3.8	2.4</td			

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	LAEq	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 (hPa)	Relative Humidity (%)
177	6.7	49.4	600	291.0	285.9	11.3	6.9	3.7	2.1	100.2	73	
178	6.8	49.1	713	291.0	285.9	11.4	6.9	3.6	2.1	100.2	73	
179	6.7	48.9	694	291.0	285.9	11.3	7.1	3.5	2.1	100.2	73	
180	6.8	49.2	737	291.0	285.9	11.5	6.7	3.4	2.1	100.2	73	
181	6.8	49.3	733	291.0	285.9	11.5	6.8	3.4	2.1	100.2	73	
182	6.8	49.8	717	291.0	285.9	11.5	6.5	3.5	2.1	100.2	73	
183	6.8	49.7	727	291.0	285.9	11.5	6.7	3.5	2.1	100.2	73	
184	6.7	49.7	730	291.0	285.9	11.5	7.4	3.6	2.1	100.2	73	
185	6.8	49.4	734	291.0	285.9	11.5	7.3	4.2	2.1	100.2	73	
186	6.9	49.1	760	291.0	285.9	11.6	7.0	3.7	2.1	100.2	73	
187	6.9	49.1	760	291.0	285.9	11.6	7.0	3.6	2.1	100.2	73	
188	7.0	49.6	793	291.0	285.9	11.7	7.1	3.5	2.1	100.2	73	
189	6.9	50.0	751	291.0	285.9	11.6	7.0	3.5	2.0	100.2	73	
190	6.8	49.8	722	291.0	285.9	11.5	6.8	3.4	2.0	100.2	73	
191	6.7	48.5	711	291.0	285.9	11.4	6.8	3.3	2.0	100.2	73	
192	6.7	49.4	690	291.0	285.9	11.4	7.1	3.4	2.0	100.2	73	
193	6.7	49.4	684	291.0	285.9	11.3	6.9	3.8	2.0	100.2	73	
194	6.8	49.2	725	291.0	285.9	11.5	6.4	3.6	2.0	100.2	73	
195	6.8	49.2	739	291.0	285.9	11.6	6.8	3.5	2.0	100.2	73	
196	6.7	49.8	693	291.0	286.3	11.4	6.7	3.3	2.0	100.2	73	
197	6.7	49.6	698	291.0	286.3	11.4	6.6	3.5	2.0	100.2	73	
198	6.7	49.1	713	291.0	286.3	11.4	6.5	3.5	2.0	100.2	73	
199	6.9	49.7	763	291.0	288.5	11.6	7.1	3.4	2.0	100.2	73	
200	6.9	49.2	769	291.0	288.5	11.6	6.9	3.4	2.0	100.2	73	
201	6.8	49.7	724	291.0	288.5	11.5	6.6	3.5	2.0	100.2	73	
202	6.7	49.5	691	291.0	288.5	11.3	6.3	3.6	2.0	100.2	73	
203	6.9	49.3	749	291.0	288.5	11.6	7.0	3.5	2.0	100.2	73	
204	6.8	49.0	729	291.0	288.5	11.5	6.5	3.4	2.0	100.2	73	
205	6.9	49.4	766	291.0	288.5	11.6	6.9	3.3	2.0	100.2	73	
206	6.9	49.0	756	291.0	288.5	11.5	6.5	3.4	2.0	100.2	73	
207	6.9	49.9	744	291.0	288.5	11.6	7.0	3.5	2.0	100.2	73	
208	6.7	49.4	705	291.0	288.5	11.4	6.4	3.6	2.0	100.2	73	
209	6.8	49.3	740	291.0	288.5	11.6	6.6	3.7	2.0	100.2	73	
210	6.8	48.8	717	291.0	288.5	11.4	6.7	3.8	2.0	100.2	73	
211	6.6	49.3	661	291.0	288.5	11.2	6.3	3.9	2.0	100.2	73	
212	6.6	49.3	676	291.0	288.5	11.3	6.5	4.0	2.0	100.2	73	
213	6.8	48.3	740	291.0	288.5	11.6	6.9	4.0	2.0	100.2	73	
214	6.9	48.9	747	291.0	288.5	11.6	7.1	4.0	2.0	100.2	74	
215	6.8	49.7	739	291.0	288.5	11.5	7.3	3.9	2.0	100.2	74	
216	6.9	49.4	744	291.0	288.5	11.6	6.9	4.0	2.0	100.2	74	
217	6.8	49.1	732	291.0	288.5	11.5	6.4	4.0	2.0	100.2	74	
218	6.8	49.1	735	291.0	288.5	11.6	6.9	3.8	2.0	100.2	74	
219	6.8	49.0	718	291.0	288.5	11.5	7.0	3.7	2.0	100.2	74	
220	6.7	49.1	691	291.0	288.5	11.3	6.7	3.6	2.0	100.2	74	
221	6.7	48.9	689	291.0	288.5	11.3	6.5	3.8	2.0	100.2	74	
222	6.7	48.4	693	291.0	288.5	11.3	6.8	3.7	2.0	100.2	74	
223	6.7	48.7	702	291.0	288.5	11.4	6.8	3.7	2.0	100.2	74	
224	6.7	48.7	709	291.0	288.5	11.4	6.9	3.5	2.0	100.2	74	
225	6.8	48.6	728	291.0	288.5	11.5	6.8	3.7	2.1	100.2	73	
226	6.7	48.9	700	291.0	288.5	11.4	6.8	3.9	2.1	100.2	73	
227	6.7	48.9	711	291.0	288.5	11.4	6.7	3.9	2.1	100.2	73	
228	6.7	48.9	708	291.0	288.5	11.4	6.4	3.9	2.1	100.2	73	
229	6.6	48.8	674	291.0	288.5	11.2	6.7	4.0	2.1	100.2	73	
230	6.7	49.0	685	291.0	288.5	11.3	6.8	4.0	2.1	100.2	73	
231	6.7	48.5	712	291.0	288.5	11.4	7.1	4.1	2.1	100.2	73	
232	6.8	48.7	719	291.0	288.5	11.5	6.8	4.0	2.1	100.2	73	
233	6.7	48.8	697	291.0	288.5	11.3	6.6	4.0	2.1	100.2	73	
234	6.7	48.7	685	291.0	288.5	11.3	6.4	4.0	2.1	100.2	73	
235	6.7	48.0	693	291.0	288.5	11.3	6.5	4.0	2.1	100.2	73	
236	6.8	48.8	730	291.0	288.5	11.5	7.1	4.0	2.1	100.2	73	
237	6.7	49.0	712	291.0	288.5	11.4	6.6	3.8	2.2	100.2	73	
238	6.7	49.2	709	291.0	288.5	11.4	6.9	3.8	2.2	100.2	73	
239	6.8	49.1	718	291.0	288.5	11.5	6.8	3.8	2.2	100.2	73	
240	6.7	49.0	689	291.0	288.5	11.3	7.0	3.9	2.2	100.2	73	
241	6.7	49.3	691	291.0	288.5	11.4	6.3	3.9	2.2	100.2	73	
242	6.7	48.5	700	291.0	288.5	11.4	7.2	3.8	2.2	100.2	73	
243	6.8	48.3	716	291.0	288.5	11.5	6.7	3.8	2.2	100.2	73	
244	6.9	48.7	752	291.0	288.5	11.6	6.4	3.6	2.2	100.2	73	
245	6.7	48.7	708	291.0	288.5	11.4	6.4	3.6	2.2	100.2	73	
246	6.7	49.2	707	291.0	288.5	11.4	6.1	3.6	2.2	100.2	73	
247	6.8	48.7	742	291.0	288.5	11.6	6.9	3.7	2.2	100.2	73	
248	6.9	49.1	749	291.0	288.5	11.6	6.9	3.7	2.2	100.2	73	
249	6.8	49.5	730	291.0	288.5	11.5	7.2	3.7	2.2	100.2	72	
250	6.7	48.3	696	291.0	288.5	11.3	6.7	3.8	2.2	100.2	72	
251	6.7	48.3	693	291.0	288.5	11.3	6.5	3.7	2.2	100.2	72	
252	6.8	49.1	733	291.0	288.5	11.5	7.2	3.7	2.2	100.2	72	
253	6.9	49.0	747	291.0	288.5	11.6	6.4	3.7	2.2	100.2	72	
254	6.7	49.3	702	291.0	288.5	11.4	6.4	4.0	2.2	100.2	72	
255	6.8	49.0	731	291.0	288.5	11.5	6.7	4.0	2.2	100.2	72	
256	6.8	48.7	729	291.0	288.5	11.5	6.9	3.8	2.2	100.2	72	
257	6.7	48.0	712	291.0	288.5	11.4	6.7	3.8	2.2	100.2	72	
258	6.9	48.3	765	291.0	288.5	11.6	7.0	4.0	2.2	100.2	72	
259	6.8	48.9	715	291.0	288.5	11.4	6.6	3.9	2.2	100.2	72	
260	6.7	49.3	696	291.0	288.5	11.4	6.2	3.8	2.2	100.2	72	
261	6.8	48.7	723	291.0	288.5	11.5	6.8	3.8	2.2	100.2	72	
262	6.8	48.7	737	291.0	288.5	11.5	6.9	3.7	2.2	100.2	72	
263	6.7	49.2	696	291.0	288.5	11.4	6.7	3.6	2.2	100.2	72	
264	6.8	49.5	719	291.0	290.0	11.5	6.8	3.8	2.2	100.2	72	

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

Data Point #	Standardized Wind Speed	LAEq	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 (hPa)	Relative Humidity (%)
265	6.9	49.9	752	291.0	291.2	11.6	7.1	3.7	2.2	100.2	73	
266	7.0	49.6	779	291.0	291.2	11.7	6.8	4.2	2.2	100.2	73	
267	6.8	49.3	742	291.0	291.2	11.5	6.5	3.9	2.2	100.2</td		

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	LAeq	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 (hPa)	Relative Humidity (%)
353	7.2	49.9	851	291.0	288.8	11.7	7.1	4.4	2.4	100.3	72	
354		7	291.0	285.9	11.7	5.7	4.1	4.2	100.3	69		
355	-7	291.0	285.9	2.4	5.7	5.3	4.2	100.3	69			
356	-15	291.0	285.9	3.2	6.5	4.1	4.2	100.3	69			
357	-16	291.0	285.9	3.8	6.6	5.1	4.2	100.3	69			
358	-16	291.0	285.9	4.3	6.7	4.7	4.2	100.3	69			
359	-16	291.0	285.9	4.2	6.7	5.0	4.2	100.3	69			
360	-15	291.0	285.9	3.8	6.8	4.8	4.2	100.3	69			
361	-6	291.0	285.9	3.7	6.2	4.6	4.2	100.3	69			
362	-6	291.0	285.9	4.1	6.5	6.0	4.2	100.3	69			
363	-6	291.0	285.9	5.1	7.3	3.8	4.2	100.3	69			
364	-13	291.0	285.9	6.6	7.7	2.9	4.2	100.3	69			
365	-58	291.0	285.9	7.5	6.7	3.1	4.3	100.3	69			
366	-27	291.0	285.9	7.7	6.8	3.5	4.3	100.3	68			
367	163	291.0	285.9	7.5	6.1	4.7	4.3	100.3	68			
368	405	291.0	289.9	9.4	7.6	4.6	4.3	100.3	68			
369	1005	291.0	290.8	11.8	8.0	4.4	4.3	100.3	68			
370	8.4	48.7	1290	291.0	290.9	11.8	9.0	4.5	4.3	100.3	68	
371	7.8	49.8	1072	291.0	290.9	11.5	8.1	5.4	4.3	100.3	68	
372	7.6	49.6	1027	291.0	290.9	11.6	7.9	4.2	4.4	100.3	67	
373	7.9	49.6	1134	291.0	290.9	11.7	7.8	4.8	4.4	100.3	67	
374	8.1	49.9	1177	291.0	290.9	11.7	8.0	4.9	4.4	100.3	67	
375	10.0	49.7	1172	291.0	290.9	11.6	8.4	3.6	4.4	100.3	67	
376	7.7	49.8	1036	291.0	290.9	11.5	8.2	6.3	4.4	100.3	67	
377	7.5	50.1	972	291.0	290.9	11.6	7.5	4.6	4.4	100.3	67	
378	7.6	50.2	1015	291.0	290.9	11.7	7.9	4.1	4.5	100.3	67	
379	7.9	50.2	1117	291.0	289.1	11.7	8.2	2.5	4.5	100.3	67	
380	7.6	50.5	1022	291.0	287.8	11.6	7.7	3.0	4.5	100.3	67	
381	7.4	50.0	941	291.0	287.8	11.6	8.0	4.2	4.5	100.3	67	
382	7.5	49.5	958	291.0	287.8	11.7	8.1	5.7	4.5	100.3	67	
383	7.8	50.0	1093	291.0	287.8	11.7	8.5	3.5	4.5	100.3	67	
384	7.8	49.9	1073	291.0	287.8	11.7	8.1	2.9	4.5	100.3	69	
385	7.8	49.7	1072	291.0	287.8	11.7	8.0	3.3	4.5	100.3	69	
386	7.8	49.9	1067	291.0	287.8	11.6	8.0	3.3	4.5	100.3	69	
387	7.7	50.0	1060	291.0	287.8	11.6	7.9	4.1	4.5	100.3	69	
388	7.8	49.7	1058	291.0	287.8	11.7	8.0	4.0	4.5	100.3	69	
389	7.7	50.0	1040	291.0	287.8	11.6	7.9	4.2	4.5	100.3	69	
390	7.8	50.2	1085	291.0	287.8	11.7	8.2	6.5	4.6	100.3	68	
391	7.7	49.7	1035	291.0	287.8	11.6	8.2	6.2	4.6	100.3	68	
392	7.6	50.2	1005	291.0	287.8	11.6	8.1	4.8	4.6	100.3	68	
393	7.5	50.3	987	291.0	287.8	11.6	8.0	5.2	4.6	100.3	68	
394	7.5	49.9	985	291.0	287.8	11.7	7.8	4.6	4.6	100.3	68	
395	7.7	49.9	1062	291.0	287.8	11.7	8.1	4.4	4.6	100.3	68	
396	7.6	49.7	987	291.0	287.8	11.8	7.6	3.5	4.5	100.3	68	
397	7.4	49.6	940	291.0	287.8	11.6	8.2	4.1	4.6	100.3	68	
398	7.1	49.7	819	291.0	287.8	11.6	6.9	4.3	4.6	100.3	66	
399	7.4	50.0	934	291.0	287.8	11.7	7.6	4.0	4.6	100.3	66	
400	7.7	50.1	1060	291.0	287.8	11.7	7.8	4.1	4.6	100.3	66	
401	7.5	50.6	979	291.0	287.8	11.6	8.0	2.8	4.6	100.3	66	
402	7.5	49.9	980	291.0	287.8	11.7	8.4	3.9	4.7	100.3	68	
403	7.8	49.5	1058	291.0	287.8	11.7	7.7	3.4	4.7	100.3	66	
404	7.7	49.7	1031	291.0	287.8	11.6	7.7	5.6	4.7	100.3	66	
405	7.6	49.9	1028	291.0	287.8	11.7	7.8	4.5	4.7	100.3	66	
406	7.6	49.9	1021	291.0	287.8	11.6	8.2	3.9	4.7	100.3	66	
407	7.4	49.8	937	291.0	287.8	11.6	7.3	3.3	4.7	100.3	66	
408	7.0	50.0	778	291.0	287.8	11.5	5.9	3.9	4.7	100.3	66	
409	7.3	50.2	906	291.0	287.8	11.7	7.3	4.8	4.7	100.3	66	
410	7.6	50.1	1022	291.0	287.8	11.8	7.7	3.7	4.7	100.3	66	
411	7.9	49.8	1110	291.0	287.8	11.7	7.0	3.1	4.7	100.3	66	
412	7.5	50.3	961	291.0	287.8	11.5	7.8	3.3	4.7	100.3	66	
413	7.4	49.5	930	291.0	287.8	11.6	8.2	3.0	4.7	100.3	67	
414	7.7	49.6	1050	291.0	287.8	11.7	8.4	4.5	4.8	100.3	68	
415	7.8	49.9	1081	291.0	287.8	11.7	7.8	5.9	4.8	100.3	68	
416	7.8	49.9	1102	291.0	287.8	11.7	7.8	4.8	4.8	100.3	68	
417	7.6	49.9	1090	291.0	287.8	11.7	7.8	5.1	4.8	100.3	68	
418	7.6	49.7	1015	291.0	287.8	11.6	8.0	4.6	4.8	100.3	68	
419	7.6	49.3	1002	291.0	287.8	11.7	7.5	4.1	4.8	100.3	67	
420	7.5	49.7	969	291.0	287.8	11.6	8.2	5.2	4.8	100.3	65	
421	7.5	49.7	965	291.0	287.8	11.6	8.3	4.0	4.8	100.3	65	
422	7.4	49.7	935	291.0	287.8	11.6	7.3	4.5	4.8	100.3	65	
423	7.4	50.0	940	291.0	287.8	11.7	8.0	4.1	4.8	100.3	65	
424	7.5	49.7	968	291.0	287.8	11.7	7.6	3.1	4.8	100.3	65	
425	7.8	49.8	1077	291.0	287.8	11.7	7.6	6.0	4.8	100.3	65	
426	7.5	49.9	965	291.0	287.8	11.6	6.0	4.6	4.8	100.3	65	
427	7.6	49.6	1001	291.0	287.8	11.6	8.3	4.3	4.8	100.3	66	
428	7.3	49.8	913	291.0	287.8	11.6	8.0	3.9	4.8	100.3	66	
429	7.3	49.9	898	291.0	287.8	11.6	7.9	4.0	4.8	100.3	66	
430	7.4	49.7	951	291.0	287.8	11.7	7.5	5.4	4.8	100.3	66	
431	7.5	49.9	975	291.0	287.8	11.7	7.7	3.7	4.8	100.3	66	
432	7.5	49.7	963	291.0	287.8	11.7	7.4	5.5	4.8	100.3	66	
433	7.5	49.7	961	291.0	287.8	11.7	7.7	4.8	4.8	100.3	66	
434	7.3	49.9	909	291.0	287.8	11.6	7.9	3.9	4.8	100.3	66	
435	7.2	49.7	869	291.0	287.8	11.6	7.2	3.5	4.8	100.3	66	
436	7.3	49.7	903	291.0	287.8	11.7	7.4	4.3	4.8	100.3	66	
437	7.4	49.6	952	291.0	287.8	11.7	7.8	4.8	4.8	100.3	66	
438	7.3	50.2	911	291.0	287.8	11.6	8.2	4.2	4.9	100.3	66	
439	7.2	50.2	871	291.0	287.8	11.6	8.0	4.3	4.9	100.3	66	
440	7.4	49.7	948	291.0	287.8	11.7	7.7	4.6	4.9	100.3	66	

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

Data Point #	Standardized Wind Speed	LAeq	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 (hPa)	Relative Humidity (%)
441	7.6	50.0	949	291.0	287.8	11.7	7.9	5.0	4.9	100.3	66	
442	7.4	50.0	949	291.0	287.8	11.6	7.7	5.2	4.9	100.3	66	
443	7.5	50.0	965	291.0	287.8	11.6	7.4	4.9	4.9	100.3	66	
444	7.1	50.1	844	291.0	287.8	11.6	7.0	5.3	4.9	100.3	66	
445	7.2	49.3	854	291.0	287.8	11.6	6.6	4.8				

Table E.01 Measurement data - Turbine ON

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Data Point #	Standardized Wind Speed	LAeq	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 (hPa)	Relative Humidity (%)
529	7.7	50.1	1035	291.0	285.3	11.7	8.1	4.6	5.3	100.3	66	
530	7.3	50.0	904	291.0	285.3	11.6	7.7	4.7	5.3	100.3	66	
531	7.2	49.8	879	291.0	285.3	11.6	6.9	4.7	5.3	100.3	66	
532	7.0	50.0	804	291.0	285.3	11.6	6.0	4.8	5.3	100.3	66	
533	7.1	50.2	842	291.0	285.3	11.7	7.1	5.7	5.3	100.3	66	
534	7.5	50.0	958	291.0	285.3	11.7	7.3	4.3	5.3	100.3	65	
535	7.4	50.2	955	291.0	285.3	11.7	7.0	4.0	5.3	100.3	65	
536	7.4	50.0	931	291.0	285.3	11.6	7.8	3.6	5.3	100.3	65	
537	7.5	50.0	964	291.0	285.3	11.7	8.0	5.0	5.3	100.3	65	
538	7.3	50.1	912	291.0	285.3	11.6	7.8	4.7	5.3	100.3	65	
539	7.2	50.2	853	291.0	285.3	11.6	7.1	4.6	5.3	100.3	65	
540	7.1	50.0	835	291.0	285.3	11.6	7.4	4.1	5.4	100.3	66	
541	7.0	49.9	805	291.0	285.3	11.7	6.7	4.6	5.4	100.3	66	
542	7.4	49.7	921	291.0	285.3	11.7	7.6	5.6	5.4	100.3	66	
543	7.0	50.0	785	291.0	285.3	11.5	7.9	5.3	5.4	100.3	66	
544	7.1	49.9	810	291.0	285.3	11.7	7.0	5.8	5.4	100.3	66	
545	7.2	49.8	861	291.0	285.3	11.7	7.3	4.7	5.4	100.3	66	
546	7.0	50.2	786	291.0	285.3	11.6	7.2	4.3	5.4	100.3	64	
547	7.3	49.8	911	291.0	285.3	11.7	8.0	4.9	5.4	100.3	64	
548	7.3	49.7	890	291.0	285.3	11.6	6.8	5.3	5.4	100.3	64	
549	7.1	49.9	843	291.0	285.3	11.6	7.6	5.1	5.4	100.3	64	
550	7.3	49.5	882	291.0	285.3	11.7	8.0	5.1	5.4	100.3	64	
551	7.1	49.9	836	291.0	285.3	11.6	6.8	5.3	5.4	100.3	64	
552	6.9	49.6	744	291.0	285.3	11.5	6.5	5.8	5.4	100.3	63	
553	6.6	49.6	662	291.0	287.2	11.2	6.3	5.7	5.4	100.3	63	
554	6.6	49.7	682	291.0	287.9	11.3	7.2	5.1	5.4	100.3	63	
555	6.8	49.6	741	291.0	287.9	11.6	7.2	4.7	5.4	100.3	63	
556	7.0	50.4	776	291.0	287.9	11.6	7.2	6.5	5.4	100.3	63	
557	7.1	49.8	818	291.0	288.0	11.7	7.8	6.0	5.4	100.3	63	
558	7.3	49.9	765	291.0	288.0	11.6	6.5	5.0	5.4	100.3	63	
559	7.3	49.5	804	291.0	288.0	11.7	6.3	0.0	-35.1	60.1	0	
560	6.9	49.8	763	291.0	288.0	11.6	6.7	5.3	5.4	100.3	62	
561	7.0	49.6	792	291.0	288.0	11.7	6.9	4.6	5.4	100.3	62	
562	6.7	49.5	709	291.0	288.0	11.4	6.4	5.1	5.4	100.3	62	
563	6.8	49.9	715	291.0	288.0	11.5	6.8	4.6	5.5	100.3	62	
564	6.7	49.4	696	291.0	288.0	11.0	6.5	4.3	5.5	100.3	64	
565	6.4	49.3	620	291.0	288.0	11.0	6.5	5.3	5.5	100.3	64	
566	6.4	49.8	617	291.0	288.0	11.0	6.6	7.0	5.5	100.3	64	
567	6.5	49.3	628	291.0	288.0	11.0	5.6	6.2	5.5	100.3	64	
568	6.9	49.8	698	291.0	288.0	11.4	6.8	0.0	-35.1	60.1	0	
569	7.1	49.1	741	291.0	288.0	11.6	7.3	0.0	-35.1	60.1	0	
570	6.8	49.1	727	291.0	288.0	11.5	7.2	5.8	5.5	100.3	64	
571	6.8	49.1	737	291.0	288.0	11.6	6.6	5.0	5.5	100.3	64	
572	6.5	49.4	894	291.0	288.0	11.7	4.0	0.0	-35.1	60.1	0	
573	7.8	49.7	789	291.0	288.0	11.6	7.3	0.0	-35.1	60.1	0	
574	6.6	49.8	864	291.0	288.0	11.7	7.5	0.0	-35.1	60.1	0	
575	6.8	49.9	829	291.0	288.0	11.6	7.3	0.0	-35.1	60.1	0	
576	7.4	49.8	748	291.0	288.0	11.6	7.4	0.0	-35.1	60.1	0	
577	7.2	49.1	724	291.0	288.0	11.5	6.5	0.0	-35.1	60.1	0	
578	6.42	49.2	642	291.0	288.0	11.1	6.4	0.0	-35.1	60.1	0	
579	5.34	49.0	534	291.0	288.0	10.3	4.9	0.0	-35.1	60.1	0	
580	4.52	49.0	291.0	288.0	9.7	4.4	0.0	-35.1	60.1	0		
581	4.47	49.0	291.0	288.0	9.7	5.0	0.0	-35.1	60.1	0		
582	5.00	291.0	288.0	10.1	5.9	0.0	-35.1	60.1	0			
583	5.53	291.0	288.0	10.5	6.3	0.0	-35.1	60.1	0			
584	5.83	291.0	288.0	10.7	6.3	0.0	-35.1	60.1	0			
585	6.3	47.9	563	291.0	288.0	10.6	5.3	6.2	5.6	100.3	61	
586	6.2	47.4	549	291.0	288.0	10.5	5.6	5.6	5.6	100.3	61	
587	6.5	48.5	579	291.0	288.0	10.7	6.7	5.0	5.6	100.3	61	
588	6.3	49.7	568	291.0	288.0	10.7	6.1	5.2	5.6	100.3	61	
589	6.3	48.0	588	291.0	288.0	10.8	6.9	5.9	5.6	100.3	61	
590	6.3	47.8	578	291.0	288.0	10.7	6.6	5.4	5.6	100.3	61	
591	6.3	47.5	566	291.0	288.0	10.6	6.6	5.6	5.6	100.3	61	
592	5.73	291.0	288.0	10.7	6.7	0.0	-35.1	60.1	0			
593	6.4	47.3	600	291.0	288.0	10.9	6.2	4.4	5.6	100.3	61	
594	6.5	47.4	645	291.0	288.0	11.1	7.0	6.5	5.6	100.3	61	
595	6.5	47.3	630	291.0	288.0	11.0	5.5	5.9	5.6	100.3	61	
596	6.4	48.0	600	291.0	288.0	10.9	5.9	6.0	5.6	100.3	63	
597	6.3	47.9	576	291.0	288.0	10.7	5.6	4.6	5.6	100.3	63	
598	6.2	48.0	534	291.0	288.0	10.4	6.1	5.0	5.6	100.3	63	
599	6.1	47.5	511	291.0	288.0	10.2	6.1	5.4	5.6	100.3	63	
600	6.0	47.1	481	291.0	288.0	10.1	6.1	4.3	5.6	100.3	62	
601	5.9	46.7	467	291.0	288.0	9.9	5.9	5.2	5.6	100.3	62	
602	6.0	47.3	458	291.0	288.0	10.1	5.9	4.6	5.6	100.3	62	
603	6.0	47.8	500	291.0	288.0	10.1	5.5	5.1	5.6	100.3	62	
604	6.0	47.7	480	291.0	288.0	10.0	5.8	5.9	5.6	100.3	62	
605	6.0	46.7	497	291.0	288.0	10.1	5.9	5.6	5.6	100.3	62	
606	6.0	47.0	484	291.0	288.1	10.0	4.9	4.8	5.6	100.3	63	
607	5.8	46.8	443	291.0	290.4	9.7	5.9	5.1	5.6	100.3	63	
608	5.8	46.8	435	291.0	290.4	9.5	5.5	5.2	5.6	100.3	63	
609	5.9	46.1	464	291.0	290.6	9.8	5.8	5.3	5.6	100.3	63	
610	6.0	46.4	493	291.0	290.8	10.1	5.2	5.1	5.6	100.3	63	
611	6.0	47.1	481	291.0	290.8	10.0	5.6	4.6	5.6	100.3	63	
612	6.0	47.9	499	291.0	290.8	10.1	5.5	4.5	5.7	100.3	63	
613	6.2	46.8	539	291.0	290.8	10.4	6.3	5.3	5.7	100.3	63	
614	6.1	47.3	504	291.0	290.8	10.1	5.6	4.7	5.7	100.3	63	
615	5.7	47.2	419	291.0	290.8	9.4	5.2	4.9	5.7	100.3	63	
616	5.4	46.7	352	291.0	290.8	8.8	4.8	4.9	5.7	100.3	63	

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

Data Point #	Standardized Wind Speed	LAeq	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 (hPa)	Relative Humidity (%)
617	5.1	44.7	297	291.0	291.6	8.4	4.3	5.2	5.7	100.3	63	
618	5.1	44.6	287	291.0	294.7	8.2	4.5	4.8	5.7	100.3	62	
619	5.3	45.9	333	291.0	295.0	8.7	5.5	5.1	5.7	100.3	62	
620	5.9	46.2	467	291.0	295.0	9.8	6.4					

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	LAeq	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 (hPa)	Relative Humidity (%)
705	6.7	47.9	703	291.0	297.8	11.4	6.1	5.6	6.3	100.3	59	
706	6.8	48.4	727	291.0	297.8	11.5	6.3	5.3	6.3	100.3	59	
707	6.6	48.7	653	291.0	297.8	11.1	5.7	5.6	6.3	100.3	59	
708	6.6	48.0	679	291.0	297.8	11.3	6.5	5.3	6.3	100.3	57	
709	7.4	47.8	925	291.0	297.8	11.8	6.4	5.8	6.3	100.3	57	
710	7.4	48.8	931	291.0	297.8	11.6	7.7	6.1	6.3	100.3	57	
711	7.2	48.1	855	291.0	297.8	11.6	7.0	6.5	6.3	100.3	57	
712	6.9	49.0	750	291.0	297.8	11.5	6.6	6.1	6.3	100.3	57	
713	6.8	49.0	742	291.0	297.8	11.6	7.2	5.4	6.3	100.3	57	
714	6.5	48.9	641	291.0	297.8	11.0	6.1	5.3	6.4	100.3	56	
715	6.1	48.4	508	291.0	297.8	10.2	5.1	4.8	6.4	100.3	56	
716	5.7	46.4	418	291.0	297.8	9.4	4.4	5.1	6.4	100.3	56	
717	5.5	44.9	367	291.0	297.8	9.0	4.8	4.6	6.4	100.3	56	
718	5.4	43.7	349	291.0	297.8	8.8	4.7	3.4	6.4	100.3	56	
719	5.5	43.2	362	291.0	297.8	9.2	5.2	5.7	6.4	100.3	55	
720	6.0	43.3	483	291.0	297.8	10.0	6.4	4.8	6.4	100.3	57	
721	6.5	44.8	632	291.0	297.8	11.0	7.0	7.2	6.4	100.3	57	
722	6.7	46.9	690	291.0	297.8	11.3	6.5	5.9	6.4	100.3	57	
723	7.1	47.7	816	291.0	296.1	11.7	6.9	5.9	6.4	100.3	57	
724	6.8	48.7	720	291.0	295.2	11.4	6.1	5.1	6.4	100.3	57	
725	6.4	49.1	614	291.0	295.2	10.9	5.2	5.8	6.4	100.3	57	
726	6.2	48.2	555	291.0	295.2	10.5	5.4	5.1	6.5	100.3	55	
727	6.0	46.7	498	291.0	295.2	10.2	5.3	5.2	6.5	100.3	55	
728	5.9	46.1	459	291.0	295.2	9.9	5.7	6.7	6.5	100.3	55	
729	5.6	45.7	389	291.0	295.2	9.3	4.8	6.5	6.5	100.3	55	
730	5.8	44.3	437	291.0	295.2	9.6	5.2	5.5	6.5	100.3	55	
731	6.4	43.9	592	291.0	295.2	10.8	6.9	6.2	6.5	100.3	55	
732	7.0	46.2	794	291.0	295.2	11.6	7.8	5.3	6.5	100.3	57	
733	7.0	48.3	786	291.0	295.2	11.6	7.2	6.2	6.5	100.3	55	
734	6.8	46.1	751	291.0	295.2	11.5	5.0	5.6	6.5	100.3	55	
735	6.8	48.7	723	291.0	298.2	11.5	7.0	4.8	6.5	100.3	55	
736	6.6	48.4	659	291.0	298.5	11.2	6.3	5.0	6.5	100.3	55	
737	6.4	48.3	607	291.0	298.5	10.9	6.3	5.9	6.5	100.3	55	
738	6.4	47.5	596	291.0	298.5	10.8	5.9	5.8	6.5	100.3	54	
739	6.2	47.5	556	291.0	298.5	10.5	5.8	4.4	6.5	100.3	54	
740	5.4	44.2	362	291.0	298.1	9.1	4.4	7.1	7.5	100.3	40	
741	6.0	43.8	478	291.0	298.1	10.0	5.7	6.2	7.5	100.3	40	
742	6.3	43.5	567	291.0	298.1	10.7	4.9	8.3	7.5	100.3	49	
743	6.4	45.4	608	291.0	298.1	10.9	6.1	4.7	7.5	100.3	42	
744	6.6	46.8	654	291.0	292.1	11.2	6.9	4.9	7.5	100.3	42	
745	6.4	47.4	617	291.0	292.1	11.0	5.9	5.0	7.5	100.3	42	
746	6.4	47.5	613	291.0	292.1	11.0	6.9	5.8	7.5	100.3	42	
747	6.4	46.9	598	291.0	292.1	10.9	5.3	5.6	7.5	100.3	42	
748	6.3	47.1	562	291.0	292.1	10.8	5.0	5.8	7.5	100.3	42	
749	6.4	46.7	617	291.0	292.1	11.0	4.4	4.6	7.7	100.3	38	
750	6.8	46.7	737	291.0	292.1	11.6	7.0	4.0	7.7	100.3	38	
751	6.9	47.4	758	291.0	292.1	11.6	7.2	5.0	7.7	100.3	38	
752	6.7	48.7	691	291.0	292.1	11.3	5.1	4.1	7.7	100.3	38	
753	6.2	48.5	546	291.0	292.1	10.5	4.8	3.4	7.7	100.3	38	
754	5.6	47.5	398	291.0	290.2	9.4	4.2	5.1	7.5	100.3	38	
755	5.2	45.7	360	291.0	290.1	8.5	3.5	6.1	7.7	100.3	38	
756	4.8	43.6	241	291.0	288.1	7.9	6.6	6.1	7.7	100.3	41	
757	4.9	42.1	252	291.0	288.1	8.0	4.1	6.3	7.7	100.3	41	
758	5.3	41.0	335	291.0	288.1	8.8	4.9	6.5	7.7	100.3	41	
759	5.6	41.3	404	291.0	288.1	9.4	4.4	6.4	7.7	100.3	41	
760	5.8	42.9	430	291.0	288.1	9.6	5.0	4.8	7.7	100.3	41	
761	5.9	44.1	456	291.0	287.3	9.8	5.2	5.6	7.8	100.3	41	
762	5.9	44.6	462	291.0	287.3	9.8	5.7	4.6	7.8	100.3	41	
763	5.9	44.9	452	291.0	286.1	9.3	4.8	4.7	7.8	100.3	41	
764	5.7	44.9	418	291.0	286.1	9.5	4.9	7.7	7.8	100.3	41	
765	5.5	44.9	374	291.0	280.5	9.1	5.0	6.6	7.8	100.3	41	
766	5.4	44.8	363	291.0	280.5	9.0	5.3	7.7	7.8	100.3	41	
767	5.6	43.6	389	291.0	280.5	9.2	4.6	7.1	7.9	100.3	37	
768	5.6	43.8	401	291.0	280.5	9.3	4.3	9.5	7.9	100.3	37	
769	5.6	43.9	401	291.0	280.5	9.3	5.8	7.4	7.9	100.3	37	
770	5.6	44.0	401	291.0	280.5	9.4	4.7	9.1	7.9	100.3	37	
771	6.0	43.9	479	291.0	280.5	10.0	5.0	6.9	7.8	100.3	37	
772	6.4	44.2	618	291.0	280.5	11.0	6.7	6.5	7.9	100.3	37	
773	6.5	45.6	651	291.0	280.5	11.2	5.7	7.7	7.8	100.3	37	
774	6.5	47.7	629	291.0	278.5	11.1	6.3	6.6	7.8	100.3	37	
775	6.7	47.4	686	291.0	276.9	11.4	6.5	7.0	7.8	100.3	37	
776	6.8	47.8	735	291.0	276.9	11.6	6.7	6.0	7.8	100.3	37	
777	6.9	48.0	767	291.0	276.9	11.5	6.9	5.4	7.8	100.3	37	
778	6.3	46.7	591	291.0	276.9	10.8	6.6	6.3	7.7	100.3	37	
779	6.1	48.1	507	291.0	276.9	10.2	4.2	8.4	7.7	100.3	39	
780	5.9	46.6	464	291.0	276.9	9.9	4.9	8.3	7.7	100.3	39	
781	5.8	46.1	430	291.0	276.9	9.6	4.7	8.9	7.7	100.3	39	
782	5.9	45.4	465	291.0	276.9	10.0	6.6	7.7	7.7	100.3	39	
783	6.3	44.4	581	291.0	276.9	10.8	6.6	6.3	7.7	100.3	39	
784	6.5	45.8	625	291.0	277.2	11.1	6.6	7.9	7.7	100.3	39	
785	6.4	47.4	687	291.0	276.5	10.9	4.4	8.5	7.6	100.3	38	
786	6.1	46.0	504	291.0	279.7	10.1	4.8	8.9	7.6	100.3	38	
787	5.9	47.3	468	291.0	279.7	9.9	5.4	5.6	7.6	100.3	38	
788	6.5	45.6	630	291.0	279.7	11.1	7.0	5.0	7.6	100.3	38	
789	7.1	45.6	816	291.0	279.7	11.7	7.9	5.0	7.6	100.3	38	
790	6.9	47.9	767	291.0	279.7	11.6	6.6	5.9	7.6	100.3	38	
791	7.1	48.7	818	291.0	279.9	11.7	6.7	5.8	7.6	100.3	38	
792	7.2	48.2	868	291.0	282.4	11.7	6.6	6.7	7.6	100.3	38	

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

Data Point #	Standardized Wind Speed	LAeq	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 (hPa)	Relative Humidity (%)
793	6.8	48.7	734	291.0	282.7	11.5	6.8	6.2	7.6	100.3	38	
794	6.4	48.8	609	291.0	282.7	10.9	5.5	6.5	7.6	100.3	38	
795	6.1	48.1	505	291.0	282.7	10.2	5.0	7.5	7.6	100.3	38	
796	5.											

Table E.01 Measurement data - Turbine ON

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Data Point #	Standardized Wind Speed	LAEq	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 (hPa)	Relative Humidity (%)
881	7.2	48.6	868	291.0	289.8	11.7	7.0	7.6	8.1	100.3	36	
882	7.0	48.5	799	291.0	289.9	11.6	7.1	6.3	8.1	100.3	36	
883	6.6	48.7	678	291.0	292.6	11.3	6.2	5.1	8.1	100.3	36	
884	6.7	50.6	700	291.0	293.6	11.4	6.3	6.2	8.1	100.3	36	
885	6.8	48.1	721	291.0	293.6	11.5	5.7	6.3	8.1	100.3	36	
886	6.7	48.7	703	291.0	293.6	11.4	5.2	6.0	8.1	100.3	36	
887	6.7	48.4	693	291.0	293.6	11.3	5.0	6.2	8.1	100.3	35	
888	6.3	48.2	564	291.0	293.6	10.8	5.1	6.1	8.1	100.3	35	
889	6.1	47.9	513	291.0	293.6	10.3	5.6	6.3	8.1	100.3	35	
890	6.2	46.0	548	291.0	293.6	10.6	6.1	6.6	8.1	100.3	35	
891	6.2	46.3	556	291.0	293.6	10.6	5.1	6.0	8.1	100.3	35	
892	6.0	46.5	493	291.0	293.6	10.2	4.2	6.5	8.1	100.3	35	
893	5.8	46.0	449	291.0	293.6	9.9	4.8	5.4	8.2	100.3	34	
894	5.9	45.1	162	291.0	293.6	10.0	5.2	5.5	8.2	100.3	34	
895	5.3	44.6	562	291.0	293.6	10.8	6.0	7.0	8.2	100.3	34	
896	6.6	45.6	670	291.0	293.6	11.3	6.3	6.1	8.2	100.3	34	
897	6.3	47.3	580	291.0	293.6	10.8	4.8	6.6	8.2	100.3	34	
898	6.2	48.2	558	291.0	293.6	10.6	5.4	5.8	8.2	100.3	34	
899	6.4	47.1	601	291.0	293.6	10.9	5.7	8.1	8.2	100.3	35	
900	6.6	46.6	671	291.0	293.6	11.3	5.7	6.8	8.2	100.3	35	
901	6.8	47.4	739	291.0	293.6	11.6	6.1	7.1	8.2	100.3	35	
902	5.5	48.1	860	291.0	293.6	11.8	6.8	7.1	8.2	100.3	35	
903	8.0	48.8	1170	291.0	292.3	11.9	7.3	6.7	8.2	100.3	35	
904	8.5	49.0	1336	291.0	290.1	11.8	8.3	6.9	8.2	100.3	35	
905	8.2	49.0	1239	291.0	290.0	11.6	8.2	6.8	8.3	100.3	35	
906	7.6	48.8	1010	291.0	290.0	11.5	7.2	6.7	8.3	100.3	35	
907	7.4	48.9	928	291.0	288.3	11.6	7.2	6.6	8.3	100.3	35	
908	7.7	48.3	1045	291.0	286.6	11.7	6.7	6.6	8.3	100.3	35	
909	7.6	49.0	1019	291.0	286.6	11.7	6.7	6.6	8.3	100.3	35	
910	7.4	48.7	923	291.0	286.0	11.5	6.9	6.9	8.3	100.3	35	
911	7.9	48.6	1106	291.0	286.6	11.8	6.3	6.8	8.3	100.3	35	
912	7.8	48.6	1089	291.0	286.6	11.7	7.7	9.9	8.3	100.3	35	
913	7.4	49.6	942	291.0	287.0	11.5	8.0	8.1	8.3	100.3	35	
914	7.3	49.8	884	291.0	289.7	11.6	7.2	7.0	8.3	100.3	35	
915	7.1	50.1	822	291.0	290.0	11.6	6.7	5.2	8.3	100.3	35	
916	7.9	49.2	1112	291.0	290.1	11.9	7.4	6.4	8.3	100.3	35	
917	9.3	48.7	1118	291.0	290.0	11.7	7.6	7.2	8.3	100.3	34	
918	7.7	48.7	1035	291.0	290.1	11.6	7.7	8.2	8.3	100.3	34	
919	8.0	48.7	1155	291.0	290.1	11.8	8.3	7.5	8.3	100.3	34	
920	8.5	49.2	1348	291.0	290.1	11.8	8.7	7.8	8.3	100.3	34	
921	8.8	49.2	1447	291.0	290.1	11.8	9.2	6.9	8.3	100.3	34	
922	8.7	49.0	1409	291.0	290.1	11.6	8.8	5.7	8.3	100.3	34	
923	8.3	49.0	1271	291.0	290.1	11.5	8.3	6.0	8.2	100.3	33	
924	8.4	48.7	1294	291.0	290.1	11.6	8.8	6.0	8.2	100.3	33	
925	8.0	48.5	1153	291.0	290.1	11.5	4.4	6.6	8.2	100.3	33	
926	8.0	49.1	1172	291.0	290.1	11.7	7.2	7.1	8.2	100.3	33	
927	7.8	48.6	1072	291.0	290.1	11.6	8.3	7.0	8.2	100.3	33	
928	7.6	48.7	1003	291.0	290.1	11.6	8.1	7.7	8.2	100.3	33	
929	7.2	48.6	864	291.0	292.5	11.5	7.7	7.5	8.2	100.3	34	
930	7.2	48.5	848	291.0	293.5	11.6	7.0	6.3	8.2	100.3	34	
931	7.2	48.3	845	291.0	293.5	11.6	6.9	7.9	8.2	100.3	34	
932	7.4	48.4	963	291.0	293.5	11.7	6.5	7.0	8.2	100.3	34	
933	7.4	49.2	942	291.0	293.5	11.6	7.7	7.2	8.3	100.3	34	
934	7.5	48.8	975	291.0	293.5	11.7	6.0	6.5	8.2	100.3	34	
935	7.8	48.4	1083	291.0	293.5	11.7	7.0	7.4	8.2	100.3	35	
936	7.7	49.3	1058	291.0	293.5	11.6	7.1	7.8	8.2	100.3	35	
937	7.6	48.9	1014	291.0	293.5	11.6	8.2	7.9	8.2	100.3	35	
938	7.2	48.8	870	291.0	293.5	11.5	7.1	7.0	8.3	100.3	35	
939	6.8	48.0	720	291.0	293.5	11.5	6.3	6.2	8.2	100.3	35	
940	7.1	48.4	840	291.0	293.5	11.6	5.8	6.8	8.2	100.3	35	
941	7.6	48.3	1026	291.0	293.5	11.8	7.2	5.0	8.3	100.3	38	
942	7.4	49.4	931	291.0	292.0	11.6	6.2	6.1	8.3	100.3	38	
943	6.9	48.9	759	291.0	288.7	11.5	6.5	5.4	8.3	100.3	38	
944	6.9	48.5	754	291.0	288.6	11.6	6.6	7.6	8.3	100.3	38	
945	6.5	48.2	644	291.0	288.6	11.1	6.3	6.8	8.3	100.3	38	
946	7.3	48.5	909	291.0	288.6	11.8	7.5	4.9	8.3	100.3	38	
947	5.5	47.4	967	291.0	288.6	11.7	7.7	6.9	8.4	100.3	35	
948	7.6	48.9	1003	291.0	288.6	11.7	6.8	5.7	8.4	100.3	35	
949	7.4	48.8	936	291.0	288.6	11.6	6.9	7.8	8.4	100.3	35	
950	7.3	48.6	903	291.0	288.5	11.6	7.6	7.8	8.4	100.3	35	
951	7.5	48.7	959	291.0	286.7	11.7	7.9	7.5	8.4	100.3	35	
952	7.9	48.8	1119	291.0	285.6	11.8	7.5	7.5	8.4	100.3	35	
953	8.0	48.8	1155	291.0	285.6	11.7	7.2	6.7	8.5	100.3	33	
954	8.3	48.9	1250	291.0	285.6	11.7	8.1	6.3	8.5	100.3	33	
955	8.2	49.1	1245	291.0	285.6	11.7	8.1	6.5	8.5	100.3	33	
956	8.8	49.0	1440	291.0	285.6	11.8	8.8	5.9	8.5	100.3	33	
957	9.3	49.4	1558	291.0	285.6	11.8	9.4	6.8	8.5	100.3	33	
958	9.7	49.0	1628	291.0	285.6	11.7	10.0	6.3	8.5	100.3	33	
959	10.5	49.4	1690	291.0	285.6	11.8	10.3	8.4	8.5	100.3	33	
960	1762	291.0	285.6	12.3	9.8	7.7	8.5	100.3	33			
961	10.6	49.4	1776	291.0	285.6	12.4	10.4	6.2	8.5	100.3	33	
962	10.3	50.2	1731	291.0	285.6	12.1	10.1	6.9	8.5	100.3	33	
963	1725	291.0	285.6	12.1	9.7	8.2	8.5	100.3	33			
964	9.9	49.9	1655	291.0	285.6	11.7	9.8	7.3	8.5	100.3	33	
965	8.6	49.2	1382	291.0	285.6	11.4	9.0	8.4	8.5	100.3	32	
966	8.0	48.7	1169	291.0	285.6	11.4	7.4	6.7	8.5	100.3	32	
967	7.9	48.6	1110	291.0	285.6	11.5	8.0	8.0	8.5	100.3	32	
968	7.6	49.0	1000	291.0	285.6	11.5	6.8	8.7	8.5	100.3	32	

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

Data Point #	Standardized Wind Speed	LAEq	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 (hPa)	Relative Humidity (%)
969	8.5	49.4	1315	291.0	288.6	11.9	7.4	8.3	8.5	100.3	32	
970	9.0	49.7	1493	291.0	290.4	11.8	8.9	7.1	8.5	100.3	32	
971	8.4	49.6	1294	291.0	290.4	11.5</						

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	LAEq	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 (hPa)	Relative Humidity (%)	
1057	8.3	48.5	1256	291.0	280.2	11.8	8.7	7.1	8.7	100.3	36		
1058	8.0	49.1	1151	291.0	280.2	11.6	7.5	7.5	8.7	100.3	36		
1059	7.6	48.9	1016	291.0	280.2	11.5	6.9	5.9	8.7	100.3	36		
1060	7.8	49.0	1094	291.0	280.2	11.7	8.1	8.1	8.7	100.3	36		
1061	8.1	48.9	1177	291.0	280.2	11.7	7.6	7.2	8.8	100.3	32		
1062	7.8	49.0	1100	291.0	280.2	11.6	7.4	7.0	8.8	100.3	32		
1063	7.4	49.2	945	291.0	280.2	11.5	7.3	6.5	8.8	100.3	33		
1064	7.5	48.6	962	291.0	280.2	11.7	7.2	7.3	8.8	100.3	32		
1065	7.4	48.5	935	291.0	280.2	11.6	7.6	7.2	8.8	100.3	32		
1066	7.2	49.0	877	291.0	280.2	11.6	7.0	5.4	8.8	100.3	32		
1067	7.3	48.4	916	291.0	280.2	11.7	7.6	6.3	8.8	100.3	31		
1068	7.7	48.4	1063	291.0	280.2	11.8	8.0	7.1	8.8	100.3	31		
1069	7.3	48.8	910	291.0	280.2	11.5	7.3	7.6	8.8	100.3	31		
1070	7.0	48.8	782	291.0	280.2	11.6	6.3	5.9	8.8	100.3	31		
1071	6.6	48.7	1021	291.0	281.0	11.8	6.5	7.0	8.8	100.3	31		
1072	7.6	48.7	1007	291.0	284.1	11.6	7.6	7.0	8.8	100.3	31		
1073	7.5	49.1	966	291.0	284.2	11.7	6.5	6.3	8.7	100.3	32		
1074	7.6	49.0	1026	291.0	284.2	11.7	7.0	5.9	8.7	100.3	32		
1075	7.5	49.6	975	291.0	284.2	11.6	7.3	6.4	8.7	100.3	32		
1076	7.3	51.1	893	291.0	284.2	11.6	7.0	6.2	8.7	100.3	32		
1077	7.0	48.8	823	291.0	284.2	11.6	6.7	6.5	8.7	100.3	32		
1078	7.0	48.8	291.0	284.2	11.7	6.1	5.7	8.7	100.3	32			
1079	7.2	52.1	851	291.0	284.2	11.6	6.8	6.0	8.7	100.3	33		
1080	6.9	48.9	753	291.0	284.2	11.6	7.2	5.9	8.7	100.3	33		
1081	7.6	48.6	1021	291.0	284.2	11.9	7.4	7.0	8.7	100.3	33		
1082	7.6	48.5	1002	291.0	284.2	11.6	7.3	7.2	8.7	100.3	33		
1083	7.6	49.0	1021	291.0	284.2	11.7	7.1	6.3	8.7	100.3	33		
1084	7.9	48.8	1108	291.0	282.0	285.5	11.7	5.8	4.9	8.7	100.3	32	
1085	8.0	49.0	1156	291.0	279.1	11.7	8.1	4.6	8.8	100.3	34		
1086	7.7	48.5	1052	291.0	280.0	11.5	7.7	7.1	8.8	100.3	34		
1087	7.3	49.2	909	291.0	278.9	11.5	6.7	9.0	8.8	100.3	34		
1088	6.7	50.0	701	291.0	278.9	11.4	6.2	8.9	8.8	100.3	34		
1089	6.5	49.2	650	291.0	278.9	11.2	5.7	8.1	8.8	100.3	34		
1090	6.7	48.5	701	291.0	278.9	11.4	5.7	8.9	8.8	100.3	34		
1091	6.8	47.7	731	291.0	278.9	11.6	6.0	10.2	8.8	100.3	33		
1092	7.0	48.4	795	291.0	278.0	11.7	6.4	8.8	8.8	100.3	33		
1093	5.5	48.0	975	291.0	278.0	11.8	6.8	7.5	8.8	100.3	33		
1094	8.6	49.9	1354	291.0	278.9	12.0	8.8	8.8	8.8	100.3	33		
1095	8.9	49.8	1456	291.0	278.9	11.8	8.5	7.5	8.8	100.3	33		
1096	8.8	49.7	1429	291.0	278.9	11.6	7.9	6.9	8.8	100.3	33		
1097	8.9	49.6	1455	291.0	278.9	11.7	8.0	6.3	8.8	100.3	33		
1098	9.3	49.2	1553	291.0	278.9	11.7	8.3	6.7	8.8	100.3	33		
1099	1.9	49.6	1699	291.0	278.9	11.8	9.6	7.8	8.8	100.3	33		
1100	9.5	49.6	1533	291.0	279.0	11.5	10.0	9.5	8.8	100.3	33		
1101	8.7	49.2	1406	291.0	278.9	11.5	9.2	7.4	8.8	100.3	33		
1102	8.4	48.6	1286	291.0	278.9	11.5	8.9	6.9	8.8	100.3	33		
1103	7.7	48.9	1054	291.0	278.9	11.5	8.1	7.7	8.8	100.3	32		
1104	8.0	48.9	1165	291.0	278.9	11.7	7.7	7.6	8.8	100.3	32		
1105	8.5	49.1	1339	291.0	280.0	11.8	8.4	7.1	8.8	100.3	32		
1106	8.4	49.1	1310	291.0	282.3	11.6	8.8	7.9	8.8	100.3	32		
1107	8.1	49.5	1169	291.0	280.3	11.8	8.7	8.0	8.8	100.3	32		
1108	8.0	48.3	1166	291.0	282.3	11.6	8.0	7.1	8.8	100.3	32		
1109	7.9	48.9	1125	291.0	282.3	11.6	7.9	8.2	8.8	100.3	30		
1110	7.7	49.0	1035	291.0	282.3	11.6	6.9	7.9	8.8	100.3	30		
1111	7.5	48.7	974	291.0	282.3	11.6	7.9	7.9	8.8	100.3	30		
1112	7.2	48.8	872	291.0	282.3	11.5	7.2	6.7	8.8	100.3	30		
1113	7.4	48.8	924	291.0	282.4	11.7	6.8	6.1	8.8	100.3	30		
1114	7.7	48.7	1041	291.0	282.4	11.8	7.3	6.3	8.8	100.3	30		
1115	8.2	48.9	1241	291.0	282.4	11.8	6.8	5.6	8.7	100.3	32		
1116	7.8	48.8	1103	291.0	282.4	11.6	7.3	7.4	8.7	100.3	32		
1117	7.9	48.8	1131	291.0	282.4	11.7	7.9	5.4	8.7	100.3	32		
1118	8.2	48.7	1211	291.0	282.4	11.7	7.9	6.3	8.7	100.3	32		
1119	8.3	49.4	1248	291.0	282.4	11.7	8.4	5.9	8.7	100.3	32		
1120	8.0	48.8	1147	291.0	282.4	11.6	7.6	6.0	8.7	100.3	32		
1121	8.6	48.8	1366	291.0	282.4	11.8	8.7	5.1	8.7	100.3	32		
1122	8.7	49.0	1385	291.0	282.4	11.7	9.1	6.6	8.7	100.3	33		
1123	8.2	48.9	1241	291.0	282.4	11.5	6.8	5.6	8.7	100.3	33		
1124	8.3	48.9	1246	291.0	282.4	11.7	8.9	6.1	8.7	100.3	33		
1125	8.0	48.8	1162	291.0	282.4	11.5	7.5	5.5	8.7	100.3	33		
1126	7.8	49.2	1071	291.0	282.4	11.6	7.8	6.2	8.7	100.3	33		
1127	8.2	48.9	1234	291.0	282.4	11.8	7.3	5.6	8.7	100.3	32		
1128	8.8	48.8	1428	291.0	282.4	11.8	8.5	5.6	8.7	100.3	32		
1129	8.7	49.5	1393	291.0	282.4	11.6	8.6	4.2	8.7	100.3	32		
1130	8.9	48.4	1127	291.0	282.4	11.4	6.8	5.2	8.7	100.3	34		
1131	7.2	49.1	862	291.0	281.8	11.4	6.9	6.9	8.7	100.3	34		
1132	7.3	49.0	904	291.0	279.5	11.6	6.4	7.1	8.7	100.3	32		
1133	6.9	50.0	761	291.0	279.4	11.5	5.8	7.3	8.8	100.3	34		
1134	7.0	49.1	795	291.0	279.4	11.7	5.8	8.6	8.8	100.3	34		
1135	7.9	48.4	1115	291.0	277.3	11.9	7.4	8.0	8.8	100.3	34		
1136	7.6	48.9	1026	291.0	276.0	11.6	7.2	7.6	8.8	100.3	34		
1137	7.6	49.4	969	291.0	276.0	11.7	5.3	5.2	8.8	100.3	34		
1138	7.9	48.8	1138	291.0	276.0	11.8	7.1	7.8	8.8	100.3	34		
1139	8.3	49.4	1265	291.0	276.0	11.8	8.3	9.5	8.9	100.3	32		
1140	12.4	49.0	1246	291.0	275.8	11.6	8.1	6.3	8.9	100.3	32		
1141	11.1	291.0	273.4	11.6	7.3	6.7	8.9	100.3	32				
1142	11.5	291.0	273.1	11.7	8.2	7.4	8.9	100.3	32				
1143	11.7	291.0	273.1	11.7	8.5	6.9	8.9	100.3	32				
1144	12.8	291.0	273.1	11.8	8.5	8.0	8.9	100.3	32				

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

Data Point #	Standardized Wind Speed	LAEq	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 (hPa)	Relative Humidity (%)
1145	7.9	49.1	1453	291.0	273.1	11.8	8.9	6.1	8.9	100.3	31	
1146	7.8	49.1	1394	291.0	273.1	11.6	8.7	6.0	8.9	100.3	31</td	

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	LAeq	Turbine Power Output (kW)	Reference yaw	Yaw Angle	Pitch	Rotor RPM	Nacelle Anemometer Wind Speed (m/s)	10m Anemometer Wind Speed (m/s)	Air Temperature (°C)	Pressure (hPa)	Relative Humidity (%)
1233	1126	291.0	274.9	11.6	7.9	8.3	10.4	100.2	28			
1234	1490	291.0	272.4	12.0	7.4	8.1	10.4	100.2	28			
1235	1517	291.0	271.4	11.6	7.7	11.4	10.4	100.2	28			
1236	1353	291.0	271.4	11.6	7.3	10.1	10.4	100.2	28			
1237	1493	291.0	271.4	11.8	8.1	10.7	10.4	100.2	29			
1238	1685	291.0	271.4	11.8	8.9	13.1	10.4	100.2	29			
1239	1768	291.0	273.3	12.4	9.5	11.7	10.4	100.2	29			
1240	1808	291.0	274.1	12.5	10.6	11.3	10.4	100.2	29			
1241	1760	291.0	274.1	12.2	10.5	9.4	10.4	100.2	29			
1242	1746	291.0	274.1	12.1	10.9	7.9	10.4	100.2	29			
1243	1748	291.0	274.1	12.1	10.2	9.2	10.6	100.2	30			
1244	1733	291.0	274.1	12.0	10.0	9.4	10.6	100.2	30			
1245	1708	291.0	274.1	11.8	9.3	8.6	10.6	100.2	30			
1246	1682	291.0	274.1	11.7	9.7	8.2	10.6	100.2	30			
1247	1619	291.0	274.1	11.6	9.6	8.7	10.5	100.2	30			
1248	1522	291.0	274.1	11.6	9.5	8.1	10.6	100.2	30			
1249	1456	291.0	274.1	11.6	9.5	8.4	10.6	100.2	26			
1250	1437	291.0	274.9	11.6	9.3	6.3	10.6	100.2	26			
1251	1400	291.0	277.7	11.6	8.8	9.1	10.6	100.2	26			
1252	1519	291.0	277.7	11.7	9.0	8.0	10.6	100.2	26			
1253	1676	291.0	277.7	12.0	9.0	6.3	10.6	100.2	26			
1254	1630	291.0	277.7	12.7	9.3	6.5	10.6	100.2	26			
1255	1821	291.0	276.2	12.7	10.9	7.4	10.5	100.2	29			
1256	1817	291.0	274.3	12.6	10.9	6.9	10.5	100.2	29			
1257	1691	291.0	274.3	11.7	11.7	7.1	10.5	100.2	29			
1258	1738	291.0	274.3	12.2	11.0	9.1	10.5	100.2	29			
1259	1748	291.0	274.3	12.2	10.6	12.3	10.5	100.2	29			
1260	1675	291.0	274.3	11.7	9.9	9.1	10.5	100.2	29			
1261	1785	291.0	274.2	12.5	10.0	8.7	10.5	100.2	29			
1262	1602	291.0	274.1	12.4	9.3	12.1	10.5	100.2	29			
1263	1755	291.0	272.0	12.3	12.2	9.5	10.5	100.2	29			
1264	1726	291.0	271.5	12.0	12.4	9.4	10.5	100.2	29			
1265	1764	291.0	271.5	12.3	12.7	11.6	10.5	100.2	29			
1266	1746	291.0	271.4	12.1	11.4	8.5	10.5	100.2	29			
1267	11.9	49.9	1763	280.0	273.2	12.3	11.6	10.8	11.1	100.2	29	
1268	11.9	50.1	1765	280.0	273.2	12.0	11.6	11.3	11.1	100.2	29	
1269	11.3	48.5	1749	280.0	272.2	12.2	11.1	10.4	11.1	100.2	29	
1270	1699	280.0	271.3	11.9	9.2	12.2	11.2	100.2	27			
1271	1739	280.0	270.0	12.1	7.9	11.2	11.2	100.2	27			
1272	1801	280.0	270.0	12.5	8.5	13.4	11.2	100.2	27			
1273	10.6	49.9	1767	280.0	270.0	12.3	10.3	15.5	11.2	100.2	27	
1274	9.2	50.3	1546	280.0	272.7	11.5	8.0	14.5	11.2	100.2	27	
1275	8.2	51.1	1227	280.0	275.8	11.3	8.6	12.4	11.2	100.2	27	
1276	9.3	50.2	1562	280.0	270.9	12.0	9.1	11.5	11.3	100.2	26	
1277	10.3	49.4	1758	280.0	275.9	12.3	11.1	10.7	11.3	100.2	26	
1278	11.5	50.0	1867	280.0	275.9	13.2	11.3	8.2	11.3	100.2	26	
1279	11.4	50.2	1795	280.0	278.2	12.6	11.1	10.7	11.3	100.2	26	
1280	10.0	50.9	1666	280.0	278.7	11.7	10.7	11.0	11.3	100.2	26	
1281	10.5	48.4	1769	280.0	278.7	12.4	10.2	10.4	11.3	100.2	26	
1282	12.9	49.1	1863	280.0	278.7	13.1	12.7	10.9	11.3	100.2	26	
1283	12.0	49.7	1736	280.0	278.7	12.1	9.8	11.1	11.3	100.2	26	
1284	9.3	48.7	1768	280.0	277.7	12.5	13.0	8.6	11.3	100.2	26	
1285	12.9	48.4	1743	280.0	278.7	12.1	12.6	8.0	11.3	100.2	26	
1286	13.1	49.8	1788	280.0	278.7	12.5	12.8	8.9	11.3	100.2	26	
1287	13.1	47.9	1781	280.0	278.7	12.5	12.9	9.5	11.3	100.2	26	
1288	13.7	49.9	1751	280.0	278.7	12.3	13.5	8.1	11.3	100.2	27	
1289	13.7	49.2	1748	280.0	278.7	12.3	13.4	12.1	11.3	100.2	27	
1290	14.4	48.2	1785	280.0	278.7	12.4	14.1	9.9	11.3	100.2	27	
1291	13.0	46.0	1722	280.0	278.7	12.5	13.3	13.3	11.3	100.2	27	
1292	13.7	49.0	1713	280.0	278.7	11.9	13.4	10.1	11.3	100.2	27	
1293	12.9	47.7	1701	280.0	278.7	11.8	12.6	11.5	11.3	100.2	27	
1294	12.8	47.6	1721	280.0	278.7	12.0	12.5	9.7	11.4	100.2	25	
1295	11.4	48.1	1733	280.0	278.7	12.0	11.2	10.7	11.4	100.2	25	
1296	13.0	48.9	1800	280.0	278.7	12.5	12.7	12.8	11.4	100.2	25	
1297	12.9	48.5	1759	280.0	278.7	12.2	12.4	11.4	10.0	100.2	25	
1298	14.2	48.9	1825	280.0	278.7	12.7	13.9	10.0	11.4	100.2	25	
1299	12.6	48.3	1761	280.0	278.7	12.5	13.3	14.4	10.2	100.2	25	
1300	12.3	49.7	1719	280.0	279.4	12.0	12.0	9.3	11.3	100.2	27	
1301	10.0	49.1	1674	280.0	283.0	11.8	11.3	11.1	11.3	100.2	27	
1302	12.0	47.6	1755	280.0	283.5	12.3	11.8	9.8	11.3	100.2	27	
1303	12.2	48.0	1707	280.0	284.0	11.9	11.9	9.8	11.3	100.2	27	
1304	12.2	48.8	1693	280.0	286.4	11.8	11.9	9.3	11.3	100.2	27	
1305	12.4	47.8	1759	280.0	286.4	12.3	12.1	8.4	11.3	100.2	27	
1306	10.1	50.9	1630	280.0	286.4	11.7	9.5	13.6	11.2	100.2	28	
1307	1760	280.0	286.4	12.3	9.5	7.9	11.2	100.2	28			
1308	1765	280.0	286.4	12.3	8.9	9.1	11.2	100.2	28			
1309	10.4	53.4	1749	280.0	286.4	12.2	10.2	8.5	11.2	100.2	28	
1310	10.4	52.4	1714	280.0	286.4	12.0	10.2	8.1	11.2	100.2	28	
1311	10.5	49.2	1724	280.0	286.4	12.0	10.3	7.6	11.2	100.2	28	
1312	10.0	51.1	1673	280.0	286.4	11.7	9.7	7.7	11.3	100.2	27	
1313	1767	280.0	286.4	12.3	9.5	6.2	11.3	100.2	27			
1314	10.6	49.4	1778	280.0	286.4	12.4	10.4	8.9	11.3	100.2	27	
1315	1770	280.0	286.4	12.3	9.9	8.4	11.3	100.2	27			
1316	1761	280.0	286.4	12.2	10.0	6.7	11.3	100.2	27			
1317	12.0	49.2	1793	280.0	286.4	12.5	11.8	8.4	11.3	100.2	27	
1318	10.3	49.0	1703	280.0	286.4	11.8	10.1	9.0	11.4	100.2	27	
1319	1808	280.0	286.4	12.6	10.0	6.9	11.4	100.2	27			
1320	10.9	49.2	1747	280.0	286.4	12.2	10.7	6.1	11.4	100.2	27	

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

Data Point #	Standardized Wind Speed	LAeq	Turbine Power Output (kW)	Reference yaw	Yaw Angle	Pitch	Rotor RPM	Nacelle Anemometer Wind Speed (m/s)	10m Anemometer Wind Speed (m/s)	Air Temperature (°C)	Pressure (hPa)	Relative Humidity (%)
1321	1690	280.0	286.4	11.8	9.7	9.7	11.8	8.9	8.9	11.4	100.2	27
1322	10.0	47.5	1672	280.0	286.4	11.7	9.0	8.0	7.6	11.4	100.2	27
1323	10.0	48.6	1669	280.0	286.4	11.9	8.0	7.2	11.			

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.

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



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Table E.02 Measurement data - Background

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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	LdEq	RPM	10m Anemometer Wind Speed (m/s)	Air Temperature (°C)	Pressure (kPa)	Relative Humidity (%)	
1				11.6	4.4	2	100.2	72
2				11.4	3.8	2	100.2	72
3				11.4	4.5	2	100.2	72
4				11.5	4.2	2	100.2	72
5				11.5	4.5	2	100.2	72
6				11.4	3.8	2	100.2	72
7				11.5	4.4	2	100.2	72
8				11.6	4.4	2	100.2	72
9				11.7	4.1	2	100.2	72
10				11.5	4.4	2	100.2	72
11				11.6	4.5	2	100.2	72
12				11.7	4.1	2	100.2	72
13				11.6	3.9	2	100.2	72
14				11.6	4.2	2	100.2	72
15				11.6	3.7	2	100.2	72
16				11.6	3.8	2	100.2	72
17				11.5	4.4	2	100.2	72
18				11.5	4.1	2	100.2	72
19				11.4	4.1	2	100.2	72
20				11.4	4.7	2	100.2	72
21				11.4	4.1	2	100.2	72
22				11.5	4.2	2	100.2	72
23				11.7	4.2	2	100.2	72
24				11.6	4.1	2	100.2	72
25				11.6	3.8	2	100.2	72
26				11.5	3.9	2	100.2	72
27				11.5	4.2	2	100.2	72
28				11.5	4.1	2	100.2	73
29				11.5	4.4	2	100.2	73
30				11.4	3.9	2	100.2	73
31				11.3	3.7	2	100.2	73
32				11.4	3.9	2	100.2	73
33				11.6	3.5	2	100.2	73
34				11.7	3.8	2	100.2	73
35				11.6	4.0	2	100.2	73
36				11.6	4.2	2	100.2	73
37				11.7	3.5	2	100.2	73
38				11.7	3.8	2	100.2	73
39				11.7	4.2	2	100.2	73
40				11.6	3.6	2	100.2	73
41				11.7	3.6	2	100.2	73
42				11.7	4.2	2	100.2	73
43				11.6	3.9	2	100.2	73
44				11.6	3.8	2	100.2	73
45				11.7	4.4	2	100.2	73
46				11.7	3.8	2	100.2	73
47				11.6	3.7	2	100.2	73
48				11.6	3.8	2	100.2	73
49				11.6	3.8	2	100.2	73
50				11.7	3.9	2	100.2	73
51				11.7	4.5	2	100.2	73
52				11.7	3.8	2	100.3	73
53				11.7	3.8	2	100.3	73
54				11.7	4.1	2	100.3	73
55				11.7	4.1	2	100.3	73
56				11.6	4.4	2	100.3	73
57				11.7	3.8	2	100.3	73
58				11.5	3.9	2	100.3	73
59				11.3	3.6	2	100.3	73
60				11.5	3.4	2	100.3	73
61				11.6	3.5	2	100.3	73
62				11.8	3.7	2	100.3	73
63				11.7	4.6	2	100.3	73
64				11.7	4.0	2	100.3	73
65				11.7	3.7	2	100.3	73
66				11.6	4.4	2	100.3	73
67				11.6	4.1	2	100.3	73
68				11.7	4.4	2	100.3	73
69				11.7	4.1	2	100.3	73
70				11.7	4.0	2	100.3	73
71				11.7	3.9	2	100.3	73
72				11.7	4.4	2	100.3	73
73				11.7	4.4	2	100.3	73
74				11.6	3.4	2	100.3	73
75				11.7	3.5	2	100.3	73
76				11.7	3.6	2	100.3	74
77				11.7	3.4	2	100.3	74
78				11.7	3.7	2	100.3	74
79				11.6	3.4	2	100.3	74
80				11.7	3.4	2	100.3	74
81				11.6	3.8	2	100.3	74
82				11.6	3.6	2	100.3	74
83				11.7	3.5	2	100.3	74

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

Data Point #	Standardized Wind Speed	LAI ₀	Rotor RPM	10m Anemometer Wind Speed (m/s)	Air Temperature (°C)	Pressure (kPa)	Relative Humidity (%)	
84			11.6	3.3	2	100.3	74	
85			11.7	3.5	2	100.3	74	
86			11.7	3.6	2	100.3	74	
87			11.7	4.4	2	100.3	74	
88			11.6	3.6	2	100.3	74	
89			11.7	3.2	2	100.3	74	
90			11.6	3.4	2	100.3	74	
91			11.6	4.2	2	100.3	74	
92			11.6	4.2	2	100.3	74	
93			11.7	3.4	2	100.3	74	
94			11.6	3.6	2	100.3	74	
95			11.6	3.2	2	100.3	74	
96			11.7	3.7	2	100.3	74	
97			11.7	3.4	2	100.3	74	
98			11.2	3.2	2	100.3	74	
99				7.3	3.3	2	100.3	74
100	5.4	43.8	2.2	3.8	2	100.3	74	
101	5.6	43.6	0.8	4.0	2	100.3	74	
102	4.5	43.3	0.5	3.2	2	100.3	74	
103			0.4	4.1	2	100.3	74	
104	4.9	44.1	0.4	3.5	2	100.3	74	
105	5.4	44.6	0.4	3.8	2	100.3	74	
106	5.2	42.9	0.4	3.7	2	100.3	74	
107	5.1	41.6	0.4	3.6	2	100.3	74	
108	6.8	42.6	0.4	4.8	2	100.3	74	
109	5.1	42.5	0.4	3.6	2	100.3	74	
110	5.1	40.8	0.4	3.6	2	100.3	74	
111	4.9	43.1	0.4	3.5	2	100.3	74	
112	4.9	43.9	0.3	3.5	2	100.3	74	
113	4.9	41.7	0.4	3.5	2	100.3	74	
114	6.6	44.0	0.4	4.7	2	100.3	74	
115	6.3	40.5	0.4	4.5	2	100.3	74	
116	6.2	43.0	0.4	4.4	2	100.3	74	
117	6.6	45.8	0.4	4.7	2	100.3	74	
118	6.2	43.4	0.4	4.4	2	100.3	74	
119	6.9	43.5	0.4	4.9	2	100.3	74	
120	5.8	39.9	0.4	4.1	2	100.3	74	
121	5.9	40.5	0.4	4.2	2	100.3	74	
122	6.5	40.2	0.2	4.6	2	100.3	74	
123	6.8	39.5	0.1	4.8	2	100.3	74	
124	5.8	40.4	0.1	4.1	2	100.3	73	
125	5.4	39.6	0.0	3.8	2	100.3	73	
126	5.1	39.8	0.0	3.6	2	100.3	73	
127	5.8	45.1	0.0	4.1	2	100.3	73	
128	5.8	42.1	0.3	4.4	2	100.3	73	
129	6.3	39.9	0.4	4.5	2	100.3	73	
130	6.3	44.7	0.4	4.5	2	100.3	74	
131	6.2	42.6	0.4	4.4	2	100.3	74	
132	5.9	43.3	0.4	4.2	2	100.3	74	
133	6.6	42.8	0.4	4.7	2	100.3	74	
134	5.9	43.5	0.5	4.2	2	100.3	74	
135	6.3	42.9	0.4	4.5	2	100.3	74	
136	5.4	41.7	0.4	3.8	2	100.3	74	
137	5.9	42.4	0.4	4.2	2	100.3	74	
138	5.9	41.6	0.4	4.2	2	100.3	74	
139	6.1	44.3	0.4	4.4	2	100.3	74	
140			0.4	5.1	2	100.3	74	
141			0.4	4.4	2	100.3	74	
142			0.4	4.6	2	100.3	73	
143			0.4	4.0	2	100.3	73	
144			0.4	4.1	2	100.3	73	
145			0.4	5.2	2	100.3	73	
146			0.4	4.1	2	100.3	73	
147			0.4	4.2	2	100.3	73	
148			0.4	4.2	3	100.3	73	
149			0.5	3.7	3	100.3	73	
150			0.5	0.0	-35	60.1	0	
151			0.4	3.0	3	100.3	73	
152			0.4	4.0	3	100.3	73	
153			0.4	4.4	3	100.3	73	
154			0.5	3.8	3	100.3	74	
155			0.4	3.4	3	100.3	74	
156			0.5	3.9	3	100.3	74	
157			0.4	3.8	3	100.3	74	
158			0.5	4.2	3	100.3	74	
159	4.5	39.1	0.4	3.2	3	100.3	74	
160	5.8	39.5	0.4	4.1	3	100.3	74	
161	4.9	40.9	0.4	3.5	3	100.3	74	
162	5.6	38.9	0.5	4.0	3	100.3	74	
163	5.8	41.1	0.5	4.1	3	100.3	74	
164	5.6	38.6	0.4	4.0	3	100.3	74	
165	4.9	40.8	0.4	3.5	3	100.3	74	
166	5.6	41.3	0.4	3.2	3	100.3	74	

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

Data Point #	Wind Speed	LAI@	Rotor RPM	10m Anemometer Wind Speed (m/s)	Air Temperature (°C)	Pressure (kPa)	Humidity (%)
167	4.5	38.9	0.5	3.2	3	100.3	74
168	6.9	42.7	0.4	4.9	3	100.3	74
169	4.9	42.0	0.5	3.5	3	100.3	74
170	5.9	41.3	0.5	4.2	3	100.3	74
171	5.4	42.5	0.4	3.8	3	100.3	74
172	5.4	42.0	0.5	3.8	3	100.3	74
173	4.9	38.6	0.4	3.5	3	100.3	74
174	6.2	42.7	0.4	4.4	3	100.3	74
175	4.9	40.7	0.5	3.5	3	100.3	74
176	6.3	39.4	0.5	4.5	3	100.3	74
177	5.2	38.1	0.4	3.7	3	100.3	74
178	6.1	38.6	0.4	4.3	3	100.3	74
179	5.6	39.8	0.4	4.0	3	100.3	74
180	4.7	38.9	0.4	3.3	3	100.3	74
181	5.2	40.1	0.4	3.7	3	100.3	74
182	6.1	41.2	0.4	4.3	3	100.3	74
183	5.4	40.7	0.4	3.8	3	100.3	74
184	5.2	40.7	0.5	3.7	3	100.3	74
185	5.6	39.2	0.4	4.4	3	100.3	74
186	5.4	40.4	0.4	3.6	3	100.3	74
187	5.9	39.2	0.4	4.2	3	100.3	74
188	5.5	41.3	0.4	3.9	3	100.3	74
189	5.5	38.0	0.4	3.9	3	100.3	73
190	5.8	38.3	0.4	4.1	3	100.3	73
191	5.1	40.1	0.4	3.6	3	100.3	73
192	6.1	41.6	0.5	4.3	3	100.3	73
193	5.6	39.5	0.4	4.0	3	100.3	73
194	5.1	40.3	0.4	3.6	3	100.3	74
195	5.2	40.0	0.4	3.7	3	100.3	74
196	4.2	43.1	0.4	3.0	3	100.3	74
197	4.4	43.7	0.4	3.1	3	100.3	74
198	5.8	43.7	0.4	4.1	3	100.3	74
199	6.5	43.0	0.4	4.6	3	100.3	74
200	6.2	43.9	0.4	4.4	3	100.3	74
201	7.2	41.3	0.4	5.1	3	100.3	73
202	5.5	43.4	0.4	3.9	3	100.3	73
203	7.0	44.1	0.5	5.0	3	100.3	73
204	5.6	44.6	0.4	4.0	3	100.3	73
205	6.3	45.1	0.4	4.5	3	100.3	73
206	5.6	45.0	0.4	4.0	3	100.3	73
207	5.2	45.6	0.4	3.7	3	100.3	73
208			0.4	4.3	3	100.3	73
209	5.2	44.5	0.4	3.7	3	100.3	73
210			0.4	5.5	3	100.3	73
211	5.5	44.8	0.4	3.9	3	100.3	73
212	6.3	43.8	0.4	4.5	3	100.3	73
213	7.0	41.9	0.5	5.0	3	100.3	73
214	6.6	44.3	0.4	4.7	3	100.3	73
215	5.6	42.7	0.5	4.0	3	100.3	73
216	4.8	43.6	0.5	3.4	3	100.3	73
217	5.5	41.6	0.4	3.9	3	100.3	73
218	6.3	44.4	0.4	4.5	3	100.3	73
219	9.0	44.9	0.5	6.4	3	100.3	73
220	7.0	42.4	0.4	5.0	3	100.3	73
221	6.3	42.3	0.4	4.5	3	100.3	73
222	6.5	43.0	0.4	4.6	3	100.3	73
223	6.1	44.7	0.5	4.3	3	100.3	73
224	5.1	42.6	0.4	3.6	3	100.3	73
225	5.1	39.8	0.4	3.6	3	100.3	71
226	6.5	41.7	0.4	4.6	3	100.3	71
227	5.6	40.5	0.4	4.0	3	100.3	71
228	8.0	40.7	0.5	5.7	3	100.3	71
229	6.8	41.5	0.4	4.8	3	100.3	71
230	6.1	40.9	0.4	4.3	3	100.3	71
231	5.9	41.5	0.4	4.2	4	100.3	70
232	6.3	41.2	0.4	4.5	4	100.3	70
233	6.6	41.6	0.4	4.7	4	100.3	70
234	7.0	41.5	0.4	5.0	4	100.3	70
235	5.5	41.6	0.4	3.9	4	100.3	70
236	4.8	40.2	0.4	3.4	4	100.3	70
237	6.6	41.8	0.4	4.7	4	100.3	72
238	8.2	41.8	0.4	5.8	4	100.3	72
239	6.9	39.8	0.5	4.9	4	100.3	72
240	5.5	39.8	0.4	3.9	4	100.3	72
241	7.5	41.1	0.4	5.3	4	100.3	72
242	5.5	39.9	0.4	3.9	4	100.3	71
243	7.3	42.1	0.4	5.2	4	100.3	71
244	4.7	41.0	0.5	3.3	4	100.3	71
245	5.4	44.9	0.4	3.8	4	100.3	71
246	5.8	42.7	0.4	4.1	4	100.3	71
247	5.9	43.5	0.4	4.2	4	100.3	71
248	5.2	42.3	0.4	3.7	4	100.3	71
249	6.2	42.0	0.4	4.0	4	100.3	70

Table E.02 Measurement data - Background

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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	LAEQ	Rotor RPM	10m Anemometer Wind Speed (m/s)	Air Temperature (°C)	Pressure (kPa)	Relative Humidity (%)
250	5.6	43.8	0.4	4.0	4	100.3	70
251	5.2	42.9	0.4	5.7	4	100.3	50
252	6.8	43.8	0.4	4.8	4	100.3	70
253	6.8	44.4	0.4	4.8	4	100.3	70
254	6.8	42.9	0.4	4.8	4	100.3	70
255	5.8	42.9	0.4	4.1	4	100.3	70
256	7.0	43.2	0.4	5.0	4	100.3	70
257	6.8	40.0	0.4	4.8	4	100.3	70
258	6.8	43.2	0.4	4.8	4	100.3	70
259	5.8	41.9	0.4	4.1	4	100.3	70
260	4.7	43.5	0.4	3.3	4	100.3	70
261	4.1	44.6	0.4	2.9	4	100.3	70
262	8.4	41.2	0.2	6.0	7	100.3	54
263	11.2	37.5	0.3	8.0	7	100.3	53
264	10.0	37.0	0.4	7.1	7	100.3	53
265	9.7	38.1	0.3	6.9	7	100.3	53
266	9.4	37.4	0.2	6.7	7	100.3	53
267	7.2	35.7	0.2	5.1	7	100.3	53
268	7.0	35.0	0.2	5.0	7	100.3	53
269	6.2	39.3	0.1	4.4	7	100.3	50
270	6.2	39.2	0.1	4.4	7	100.3	50
271	6.3	38.1	0.2	4.5	7	100.3	50
272	6.2	35.7	0.2	4.4	7	100.3	50
273	8.4	34.6	0.2	6.0	7	100.3	50
274	8.4	34.6	0.2	6.0	7	100.3	50
275	7.9	34.9	0.3	5.6	7	100.3	53
276	6.9	35.5	0.4	4.9	7	100.3	53
277	10.4	40.8	0.3	7.4	7	100.3	53
278	8.3	39.2	0.2	5.9	7	100.3	53
279	9.1	36.7	0.2	6.5	7	100.3	53
280	8.8	35.9	0.2	6.3	7	100.3	53
281	8.2	35.6	0.1	5.8	7	100.3	52
282	7.5	37.3	0.1	5.3	7	100.3	52
283	6.2	36.7	0.1	5.3	7	100.3	52
284	8.3	43.0	0.0	5.9	7	100.3	51
285	6.9	41.3	0.0	4.9	7	100.3	52
286	7.0	37.6	0.0	5.0	7	100.3	51
287	8.3	38.4	0.1	5.9	7	100.3	54
288	8.2	38.8	0.3	5.8	7	100.3	54
289	8.4	39.2	0.3	6.0	7	100.3	54
290	7.9	41.9	0.3	5.6	7	100.3	54
291	7.7	42.0	0.2	5.5	7	100.3	54
292	6.1	41.4	0.2	4.3	7	100.3	54
293	7.6	40.5	0.2	5.4	7	100.3	52
294	7.9	43.4	0.2	5.6	7	100.3	52
295	5.9	40.4	0.3	4.2	7	100.3	52
296	7.5	38.2	0.2	5.3	7	100.3	52
297	7.5	40.3	0.2	5.3	7	100.3	52
298	7.7	40.5	0.2	5.5	7	100.3	52
299	6.6	39.0	0.2	4.7	7	100.3	53
300	7.9	39.4	0.2	5.6	7	100.3	53
301	7.7	38.1	0.2	5.5	7	100.3	53
302	6.8	40.0	0.2	4.8	7	100.3	53
303	8.2	40.1	0.2	5.8	7	100.3	53
304	8.7	37.5	0.2	6.2	7	100.3	53
305	8.8	40.9	0.2	6.3	7	100.3	53
306	7.6	38.6	0.3	5.4	7	100.3	53
307	10.9	40.8	0.3	7.8	7	100.3	53
308	10.4	39.7	0.3	7.4	7	100.3	53
309	9.5	38.2	0.3	6.8	7	100.3	53
310	9.7	42.2	0.4	6.9	7	100.3	53
311	9.8	42.0	0.4	7.0	7	100.3	51
312	9.1	38.2	0.3	6.5	7	100.3	51
313	8.8	39.8	0.2	6.3	7	100.3	51
314	9.6	41.2	0.2	6.8	7	100.3	51
315	8.0	41.9	0.2	5.7	7	100.3	51
316	9.3	41.1	0.2	6.6	7	100.3	51
317	9.7	41.0	0.2	6.9	7	100.3	50
318	10.3	43.8	0.1	7.3	7	100.3	50
319	9.8	43.6	0.1	7.0	7	100.3	50
320	10.0	39.6	0.0	7.1	7	100.3	50
321	10.0	40.7	0.0	7.1	7	100.3	50
322	10.9	40.2	0.0	7.8	7	100.3	50
323	10.1	37.7	0.0	7.2	7	100.3	50
324	9.8	36.8	0.3	7.0	7	100.3	50
325	9.6	41.3	0.4	6.8	7	100.3	50
326	8.7	40.5	0.4	6.2	7	100.3	50
327	9.0	38.4	0.4	6.4	7	100.3	50
328	8.7	41.3	0.2	6.9	7	100.3	50
329	8.1	41.9	0.2	6.5	7	100.3	51
330	8.8	42.9	0.4	6.3	7	100.3	51
331	8.2	35.5	0.4	5.8	7	100.3	51
332	10.4	39.6	0.4	7.4	7	100.3	51

***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 (kPa)	Relative Humidity (%)
333	9.6	42.0	0.3	6.8	7	100.3	51
334	10.4	40.9	0.1	7.4	7	100.3	51
335	8.8	38.6	0.3	6.3	7	100.3	51
336	10.0	41.6	0.2	7.1	7	100.3	51
337	8.6	39.6	0.3	6.1	7	100.3	51
338	6.3	40.6	0.3	4.5	7	100.3	51
339	8.2	39.6	0.3	5.8	7	100.3	51
340	7.6	39.8	0.4	5.4	7	100.3	51
341	8.0	34.6	0.3	5.7	7	100.3	51
342	9.1	41.0	0.3	6.5	7	100.3	51
343	8.7	41.5	0.4	6.2	7	100.3	51
344	9.5	38.1	0.2	6.6	7	100.3	51
345	9.1	36.7	0.3	6.5	7	100.3	51
346	9.3	37.2	0.2	6.6	7	100.3	51
347	9.5	36.3	0.3	6.8	7	100.3	49
348	8.7	35.7	0.3	6.2	7	100.3	49
349	6.6	37.3	0.3	4.7	7	100.3	49
350	7.0	35.7	0.2	5.0	7	100.3	49
351	6.6	35.4	0.2	4.7	7	100.3	49
352	6.9	35.8	0.2	4.9	7	100.3	49
353	7.0	35.9	0.2	5.0	7	100.3	52
354	7.4	35.7	0.2	5.1	7	100.3	52
355	6.9	37.2	0.2	4.9	7	100.3	52
356	6.4	35.0	0.3	6.0	7	100.3	52
357	7.7	34.7	0.2	5.5	7	100.3	52
358	8.7	34.9	0.2	6.2	7	100.3	52
359	6.9	34.2	0.3	4.9	7	100.3	50
360	10.7	34.8	0.3	7.6	7	100.3	50
361	7.9	38.1	0.4	5.6	7	100.3	50
362	8.0	35.5	0.2	5.7	7	100.3	50
363	7.7	36.7	0.2	5.5	7	100.3	50
364	6.8	36.0	0.1	4.8	7	100.3	50
365	7.3	35.2	0.1	5.2	7	100.3	48
366	8.8	35.1	0.0	4.8	7	100.3	48
367	5.6	34.8	0.0	4.0	7	100.3	48
368	8.7	34.8	0.3	6.2	7	100.3	48
369	8.4	34.3	0.3	6.0	7	100.3	48
370	7.0	35.2	0.3	5.0	7	100.3	48
371	7.5	34.8	0.2	5.3	7	100.3	49
372	7.5	34.7	0.2	5.3	7	100.3	49
373	6.5	35.0	0.1	4.6	7	100.3	49
374	7.0	33.8	0.1	5.0	7	100.3	49
375	7.7	34.4	0.1	5.5	7	100.3	49
376	7.0	34.0	0.1	5.0	7	100.3	49
377	5.8	35.4	0.1	4.2	7	100.3	49
378	6.8	35.6	0.1	4.0	7	100.3	49
379	6.8	33.6	0.2	4.8	7	100.3	49
380	6.6	33.6	0.2	4.7	7	100.3	49
381	6.5	33.9	0.2	4.6	7	100.3	49
382	7.7	34.2	0.3	5.5	7	100.3	49
383	7.2	33.3	0.3	5.1	7	100.3	50
384	7.2	34.3	0.3	5.1	7	100.3	50
385	10.9	35.2	0.2	7.8	7	100.3	50
386	10.3	36.1	0.2	7.3	7	100.3	50
387	6.8	37.4	0.2	4.8	7	100.3	50
388	6.5	37.4	0.1	4.6	7	100.3	50
389	5.8	36.1	0.2	4.1	7	100.3	50
390	4.4	37.0	0.3	5.1	7	100.3	50
401	4.8	36.6	0.3	3.4	7	100.3	52
402	5.2	36.4	0.2	3.7	7	100.3	52
403	6.5	39.2	0.1	4.6	7	100.3	52
404	5.6	39.4	0.1	4.0	7	100.3	52
405	6.3	39.5	0.1	4.5	7	100.3	52
406	5.4	39.1	0.1	3.8	7	100.3	52
407	7.7	42.4	0.1	5.5	7	100.3	52
408	5.4	40.4	0.2	3.8	7	100.3	52
409	8.3	36.5	0.1	5.9	7	100.3	52
410	7.2	36.8	0.2	5.1	7	100.3	52
411	8.8	38.4	0				

Table E.02 Measurement data - Background

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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	L _{Aeq}	Rotor RPM	10m Anemometer Wind Speed (m/s)	Air Temperature (°C)	Pressure (kPa)	Relative Humidity (%)
498	8.7	35.2	0.3	6.2	7	100.3	44
500	10.0	37.4	0.3	7.1	7	100.3	44
501	9.7	39.8	0.4	6.9	7	100.3	44
502	10.1	37.8	0.4	7.2	7	100.3	44
503	8.7	35.4	0.5	6.2	7	100.3	45
504	8.3	38.5	0.5	5.9	7	100.3	45
505	9.8	38.2	0.5	7.0	7	100.3	45
506	7.2	35.7	0.5	5.1	7	100.3	45
507	11.2	36.3	0.3	8.0	7	100.3	45
508	10.1	37.0	0.3	7.2	7	100.3	45
509	10.3	36.7	0.3	7.3	7	100.3	44
510	9.3	36.3	0.4	7.0	7	100.3	44
511	10.5	35.6	0.3	7.5	7	100.3	44
512	11.8	37.1	0.2	8.4	7	100.3	44
513	9.4	36.2	0.1	6.7	7	100.3	44
514	7.9	37.4	0.1	5.6	7	100.3	44
515	6.6	36.4	0.3	4.7	7	100.3	42
516	7.2	38.8	0.2	5.1	7	100.3	42
517	8.2	36.1	0.1	5.8	7	100.3	42
518	6.5	38.2	0.1	4.6	7	100.3	42
519	7.6	38.0	0.2	5.4	7	100.3	42
520	8.4	37.4	0.2	6.0	7	100.3	43
521	7.3	35.2	0.3	5.2	7	100.3	43
522	7.5	37.5	0.2	5.3	7	100.3	43
523	8.3	37.6	0.2	5.9	7	100.3	43
524	7.3	40.5	0.1	5.2	7	100.3	43
525	7.5	39.4	0.2	5.3	7	100.3	43
526	7.6	34.6	0.2	5.4	7	100.3	43
527	6.9	36.3	0.2	4.9	7	100.3	44
528	7.0	34.3	0.2	5.0	7	100.3	44
529	5.9	35.0	0.2	4.2	7	100.3	44
530	10.0	34.9	0.3	7.1	7	100.3	44
531	10.4	34.0	0.2	7.4	7	100.3	44
532	10.0	35.0	0.1	7.1	7	100.3	44
533	8.7	36.1	0.1	6.2	8	100.3	38
534	10.1	35.9	0.2	7.2	8	100.3	38
535	11.6	36.5	0.4	8.2	8	100.3	39
536	10.0	36.7	0.5	7.1	8	100.3	38
537	8.8	34.7	0.5	6.3	8	100.3	38
538	10.3	35.6	0.4	7.3	8	100.3	38
539	9.7	36.6	0.3	6.9	8	100.3	41
540	8.8	38.6	0.3	6.3	8	100.3	41
541	7.7	38.6	0.3	5.5	8	100.3	41
542	7.5	36.9	0.2	5.3	8	100.3	41
543	7.7	37.1	0.2	5.5	8	100.3	41
544	9.6	35.9	0.3	4.1	8	100.3	41
545	8.6	34.6	0.4	6.3	7	100.3	40
546	9.4	36.0	0.4	6.7	7	100.3	40
547	8.8	37.8	0.4	6.3	7	100.3	40
548	7.2	38.2	0.4	5.1	7	100.3	40
549	9.3	38.8	0.5	6.6	7	100.3	40
550	8.7	37.4	0.5	6.2	7	100.3	40
551	12.8	44.0	0.5	9.1	9	100.3	32
552	12.6	42.0	0.5	9.0	9	100.3	32
553	12.2	39.7	0.3	8.7	9	100.3	32
554	11.5	39.7	0.2	8.2	9	100.3	29
555	10.0	40.6	0.1	6.4	9	100.3	29
556	8.3	38.5	0.1	5.9	9	100.3	29
557	11.1	38.0	0.0	7.9	9	100.3	29
558	11.2	41.5	0.0	8.0	9	100.3	29
559	10.1	43.2	0.1	7.2	9	100.3	29
560	9.6	43.7	0.4	6.8	9	100.3	31
561	10.0	42.2	0.4	7.1	9	100.3	31
562	9.0	41.0	0.4	6.4	9	100.3	31
563	11.4	42.8	0.2	8.1	9	100.3	31
564	9.6	41.6	0.4	6.8	9	100.3	31
565	8.8	41.8	0.4	6.3	9	100.3	31
566	10.7	40.9	0.4	7.6	10	100.3	32
567	12.1	42.0	0.4	8.6	10	100.3	32
568	11.8	44.8	0.4	8.4	10	100.3	32
569	11.1	43.6	0.4	7.9	10	100.3	32
570	13.2	42.3	0.5	9.4	10	100.3	32
571	13.7	45.2	0.4	9.8	10	100.3	32
572	11.9	43.3	0.4	8.5	10	100.3	30
573	11.4	44.7	0.5	8.1	10	100.3	30
574	11.8	44.0	0.7	8.4	10	100.3	30
575	11.9	44.6	0.3	8.5	10	100.3	30
576	12.2	41.9	0.3	8.7	10	100.3	30
577	11.6	38.8	0.4	8.3	10	100.3	30
578	13.3	40.2	0.5	9.5	10	100.3	30
579	11.9	40.8	0.3	8.6	10	100.3	30
580	10.9	40.5	0.3	7.8	10	100.3	30
581	11.2	45.5	0.3	8.0	10	100.3	30

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

Data Point #	Standardized Wind Speed	L _{Aeq}	Rotor RPM	10m Anemometer Wind Speed (m/s)	Air Temperature (°C)	Pressure (kPa)	Relative Humidity (%)
582	11.1	41.7	0.3	7.9	10	100.3	30
583	12.5	40.4	0.4	8.9	10	100.3	30
584	10.7	37.5	0.3	7.6	10	100.3	31
585	8.7	38.2	0.4	6.2	10	100.3	31
586	11.6	39.1	0.4	8.3	10	100.3	31
587	13.2	38.9	0.5	9.4	10	100.3	31
588	12.6	40.0	0.4	9.0	10	100.3	31
589	12.5	41.1	0.3	8.9	10	100.3	31
590	10.7	42.6	0.5	7.6	10	100.3	31
591	10.8	42.1	0.5	7.7	10	100.3	31
592	11.1	40.3	0.4	7.9	10	100.3	31
593	12.1	43.7	0.5	8.6	10	100.3	31
594	13.6	43.4	0.6	9.7	10	100.3	31
595	10.9	40.5	0.4	7.8	10	100.3	31
596	10.7	43.9	0.4	7.6	10	100.3	31
597	12.9	42.6	0.4	9.2	10	100.3	31
598	11.9	40.3	0.3	8.5	10	100.3	31
599	10.4	43.1	0.4	7.4	10	100.3	31
600	10.5	42.3	0.6	7.5	10	100.3	31
601	10.9	41.0	0.7	7.8	10	100.3	31
602	11.1	42.5	0.6	7.9	10	100.3	30
603	9.7	41.5	0.5	6.9	10	100.3	30
604	13.7	42.7	0.6	9.8	10	100.3	30
605	12.9	43.8	0.6	9.2	10	100.3	30
606	11.8	45.9	0.3	8.4	10	100.3	30
607	12.2	43.6	0.7	8.7	10	100.3	30
608	13.3	41.6	0.5	9.5	10	100.3	31
609	13.7	40.4	0.3	9.8	10	100.3	31
610	11.5	39.1	0.4	8.2	10	100.3	31
611	9.6	42.0	0.4	6.8	10	100.3	31
612	7.9	45.7	0.4	5.6	10	100.3	31
613	11.9	41.5	0.3	8.5	10	100.3	31
614	12.6	39.1	0.3	9.0	10	100.3	29
615	11.4	38.6	0.5	8.1	10	100.3	29
616	10.0	40.5	0.5	7.1	10	100.3	29
617	10.9	43.2	0.3	7.8	10	100.3	29
618	11.2	42.6	0.3	8.0	10	100.3	29
619	10.4	39.4	0.4	7.4	10	100.3	29
620	8.7	43.2	0.4	6.2	10	100.3	30
621	8.9	39.7	0.3	6.3	10	100.3	30
622	10.7	40.7	0.4	7.6	10	100.3	30
623	10.7	40.9	0.4	7.6	10	100.3	30
624	12.9	38.7	0.7	9.2	10	100.3	30
625	12.6	40.1	0.8	9.0	10	100.3	30
626	10.3	41.4	0.7	7.3	10	100.3	30
627	12.4	43.3	0.6	8.0	10	100.3	30
628	12.9	45.3	0.5	8.7	10	100.3	30
629	10.1	40.8	0.4	7.2	10	100.3	30
630	10.8	38.1	0.8	7.7	10	100.3	30
631	12.9	38.7	0.7	9.2	10	100.3	30
632	12.6	40.1	0.8	9.0	10	100.3	30
633	10.3	41.4	0.7	7.3	10	100.3	30
634	11.5	43.3	0.6	8.2	10	100.3	30
635	12.4	39.3	0.6	8.8	10	100.3	30
636	15.3	43.3	0.5	10.9	10	100.3	30
637	10.1	43.7	0.5	7.2	10	100.3	30
638	11.5	41.5	0.5	8.2	10	100.3	30
639	12.2	44.0	0.5	8.7	10	100.3	30
640	9.6	43.3	0.4	6.8	10	100.3	30
641	11.6	42.9	0.4	8.3	10	100.3	30
642	10.4	42.9	0.4	8.8	10	100.3	30
643	12.4	45.2	0.3	8.8	10	100.3	30
644	12.4	42.4	0.4	8.8	10	100.3	30
645	12.9	41.3	0.5	9.2	10	100.3	30
646	11.2	39.7	0.5	8.0	10	100.3	30
647	9.7	38.9	0.4	6.9	10	100	

Table E.02 Measurement data - Background

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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	LAEQ	Rotor RPM	10m Anemometer Wind Speed (m/s)	Air Temperature (°C)	Pressure (kPa)	Relative Humidity (%)
748	0.5	11.9	12	100.2	26		
749	14.9	45.6	0.5	10.5	12	100.3	26
750	0.5	9.8	12	100.2	26		
751	0.4	9.1	12	100.2	26		
752	12.8	44.7	0.4	9.1	12	100.1	26
753	0.4	9.5	12	100.2	26		
754	0.5	10.2	12	100.2	26		
755	0.4	9.3	12	100.1	26		
756	0.4	12.8	12	100.2	26		
757	13.9	44.3	0.6	9.9	12	100.1	26
758	16.0	41.6	0.5	11.4	12	100.1	26
759	14.2	45.3	0.5	10.1	12	100.1	26
760	0.5	9.8	12	100.2	26		
761	0.5	8.9	12	100.2	26		
762	0.5	7.5	12	100.2	26		
763	0.5	9.6	12	100.2	26		
764	0.6	11.5	12	100.1	27		
765	0.5	8.4	12	100.1	27		
766	10.3	45.4	0.5	7.3	12	100.1	27
767	10.4	45.2	0.5	7.4	12	100.1	27
768	16.1	41.7	0.3	11.5	12	100.2	27
769	0.4	10.6	12	100.1	27		
770	14.4	41.9	0.5	10.3	12	100.1	27
771	16.1	41.8	0.5	11.5	12	100.2	27
772	15.5	45.3	0.6	11.1	12	100.2	27
773	11.4	42.1	0.7	8.1	12	100.2	27
774	0.4	10.3	12	100.2	27		
775	0.3	8.6	12	100.2	27		
776	13.9	44.7	0.3	9.9	12	100.2	26
777	11.6	43.3	0.2	8.3	12	100.2	26
778	15.0	44.6	0.5	10.7	12	100.2	26
779	15.7	44.8	0.6	11.2	12	100.2	26
780	11.9	41.6	0.6	8.5	12	100.1	26
781	14.7	41.2	0.5	10.5	12	100.2	26
782	14.9	45.6	0.4	9.2	12	100.1	26
783	14.6	44.6	0.5	10.4	12	100.2	26
784	14.2	42.7	0.6	10.1	12	100.1	26
785	14.3	46.0	0.8	10.2	12	100.1	26
786	17.8	42.7	0.7	12.7	12	100.1	26
787	14.7	43.4	0.7	10.5	12	100.1	26
788	13.2	44.4	0.6	9.4	12	100.2	27
789	16.8	41.1	0.4	12.0	12	100.2	27
790	17.5	37.7	0.4	12.5	12	100.1	27
791	15.3	40.4	0.3	10.9	12	100.1	27
792	16.5	43.5	0.4	11.8	12	100.1	27
793	15.5	40.0	0.5	11.1	12	100.1	26
794	17.1	41.6	0.6	12.2	12	100.1	26
795	0.4	11.2	12	100.1	26		
796	0.5	9.4	12	100.1	26		
797	0.6	7.6	12	100.1	26		
798	0.7	7.4	12	100.1	26		
799	0.5	8.9	12	100.1	26		
800	0.6	10.5	12	100.1	28		
801	0.5	9.8	12	100.1	28		
802	0.4	11.3	12	100.1	28		
803	0.5	10.7	12	100.1	28		
804	0.4	11.5	12	100.1	28		
805	0.5	11.4	12	100.1	28		
806	0.5	14.0	12	100.1	26		
807	13.3	44.0	0.4	9.5	12	100.1	26
808	13.0	41.0	0.6	9.3	12	100.1	26
809	12.4	39.7	0.7	8.8	12	100.1	26
810	13.5	39.3	0.6	9.6	12	100.1	26
811	13.2	44.1	0.6	9.4	12	100.1	26
812	0.7	9.8	12	100.1	28		
813	14.0	43.7	0.5	10.0	12	100.1	28
814	0.4	11.9	12	100.2	28		
815	0.5	11.8	12	100.2	28		
816	16.5	41.8	0.4	11.8	12	100.1	28
817	0.5	9.0	12	100.1	28		
818	14.3	45.9	0.4	10.2	12	100.2	27
819	11.9	42.4	0.3	8.5	12	100.2	27
820	12.6	42.1	0.5	9.0	12	100.2	27
821	13.9	41.9	0.5	9.9	12	100.2	27
822	12.6	43.0	0.7	9.0	12	100.2	27
823	12.9	40.8	0.7	9.2	12	100.2	27
824	13.0	41.4	0.5	9.3	12	100.1	27
825	14.2	38.6	0.5	10.1	12	100.1	27
826	14.0	40.5	0.4	10.0	12	100.1	27
827	12.2	41.0	0.6	9.4	12	100.1	27
828	16.4	39.9	0.4	11.7	12	100.1	27
829	11.5	40.9	0.6	8.2	12	100.1	27
830	13.9	42.0	0.7	9.9	12	100.1	29

***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 (kPa)	Relative Humidity (%)
831			0.6	9.4	12	100.1	29
832	20.0	46.0	0.5	14.3	12	100.1	29
834			0.7	13.1	12	100.1	29
835			0.7	10.5	12	100.1	29
836			0.7	13.6	12	100.1	28
837			0.8	14.4	12	100.1	28
838			0.8	12.3	12	100.1	28
839			0.6	10.6	12	100.1	28
840			0.7	12.1	12	100.1	28
841			0.6	13.1	12	100.1	27
842			0.7	11.9	12	100.1	27
843			0.7	12.7	12	100.1	27
844			0.6	12.3	12	100.1	27
845			0.7	13.2	12	100.1	27
846	16.8	45.2	0.6	12.0	12	100.1	27
847	15.1	45.5	0.6	10.8	12	100.1	27
848			0.6	11.7	12	100.1	28
849	17.9	43.7	0.4	12.8	12	100.1	28
850	13.3	39.5	0.4	9.5	12	100.1	28
851	12.1	39.8	0.5	8.6	12	100.1	28
852	11.1	44.0	0.5	7.9	12	100.1	28
853	0.1	45.0	0.5	7.2	12	100.1	28
854	10.7	43.0	0.6	7.6	12	100.1	31
855	12.2	45.0	0.6	8.7	12	100.1	31
856			0.5	10.5	12	100.1	31
857			0.4	10.4	12	100.1	31
858			0.5	10.3	12	100.1	31
859			0.7	10.0	12	100.1	31
860			0.6	10.1	12	100.1	30
861			0.5	9.8	12	100.1	30
862			0.5	9.1	12	100.1	30
863			0.6	9.4	12	100.1	30
864	13.5	44.8	0.4	9.5	12	100.1	30
865			0.5	6.2	12	100.1	30
866	15.3	44.9	0.6	10.9	12	100.1	28
867	16.0	45.7	0.7	11.4	12	100.1	28
868	15.7	44.8	0.5	11.2	12	100.1	28
869	13.6	42.5	0.8	9.7	12	100.1	28
870	13.9	43.3	0.7	9.9	12	100.1	28
871	15.1	43.7	0.5	10.8	12	100.1	28
872			0.6	11.0	12	100.1	28
873			0.7	9.8	12	100.1	28
874			0.8	8.7	12	100.1	28
875			0.6	12.2	12	100.1	28
876			0.6	11.6	12	100.1	27
877			0.6	11.4	12	100.1	28
878			0.6	12.0	12	100.1	28
879			0.5	10.3	12	100.1	28
880			0.5	10.3	12	100.1	28
881			0.5	9.2	12	100.1	28
882			0.5	12.2	12	100.1	28
883	14.4	44.8	0.6	10.3	12	100.1	28
884			0.7	10.2	12	100.1	29
885			0.5	11.2	12	100.1	29
886			0.6	9.9	12	100.1	27
887	15.1	45.2	0.5	10.8	12	100.1	29
888	15.4	44.4	0.4	11.0	12	100.1	29
889	15.5	43.3	0.2	11.1	12	100.1	29
890			0.3	12.3	12	100.1	28
891			0.2	9.2	12	100.1	28
892			0.2	9.2	12	100.1	28
893			0.3	12.0	12	100.1	28
894			0.3	12.4	12	100.1	28
895			0.5	10.6	12	100.1	28
896			0.6	11.8	12	100.1	27
897			0.6	11.4	12	100.1	28
898			0.7	11.3	12	100.1	29
899			0.6	10.3	12	100.1	29
900			0.6	8.9	12	100.1	27
901			0.6	8.8	12	100.1	27
902			0.6	10.0	12	100.1	30
903			0.5	11.8	12	100.1	30
904	19.3	44.3	0.6	13.8	12	100.1	30
905	17.0	44.5	0.7	12.1	12	100.1	30
906			0.5	12.6	12	100.1	30

Appendix F **Information for the Regulator**

Appendix F.01 **Calibration Certificates**

Certificate number: **2020-22143211**

Adjustment report

Product type: Simcenter SCADAS

Calibration Suite: **Calibration Software**
Calibration Suite Version: **2.15.0001**

Customer:

Company name : Aeroustics Engineering Ltd
Location (city / country) : Missisauga, ON / Canada
Contact person : Tim Preager

System:

System type(s) : SCR202
Serial number(s) : 22143211

Adjustment conditions:

TAC reference number : 9670788
Location (factory, office or on-site) : Factory
Date : June 5, 2020
Ambient temperature : 23,4 °C
Previous adjustment / calibration date : June 2018

Adjustment results (refer to page 2 for details) :

Adjustment successful : YES
Within published specification : YES
Within test specification : YES

Report approved by:

Name : Mr. H. Dam, Customer Service Engineer



Certificate number: **2020-22143211**

Summary of the adjustment results

Adjustment findings:

- *None*

Corrective actions:

- *None*

Preventive actions:

- *None*

Hardware incompatibilities:

- *None*

Siemens Industry Software Weidehek 53 4824 AT Breda The Netherlands Phone: +31 76 573 6363	Siemens Industry Software 222-0033 Kanagawa Shin-Yokohama, Kohoku-ku Japan Phone: + +81 454 784 800	Siemens Industry Software 150 Avenue de la République 92320 Chatillon France Phone :+33 1 3067 0100	Siemens PLM Software 5755 New King Street Troy, MI 48098 USA Phone: +1 248 952 5664
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Certificate number: **2020-22143211**

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Certificate number: **2020-22143211**

1 ***Introduction***

Siemens guarantees the published specifications of their signal conditioning and data acquisition hardware upon delivery. Although most of the specifications are guaranteed by design, there are a number of system or module properties that can fluctuate as a function of temperature or time. These properties need to be calibrated and can be adjusted, preferably on a yearly basis, to ensure that they continue to meet their specification.

The *Adjustment report* provides you with a guarantee that your Simcenter SCADAS front-end will meet or exceed its specifications for at least one year.

Siemens Industry Software Weidehek 53 4824 AT Breda The Netherlands Phone: +31 76 573 6363	Siemens Industry Software 222-0033 Kanagawa Shin-Yokohama, Kohoku-ku Japan Phone: + +81 454 784 800	Siemens Industry Software 150 Avenue de la République 92320 Chatillon France Phone :+33 1 3067 0100	Siemens PLM Software 5755 New King Street Troy, MI 48098 USA Phone: +1 248 952 5664
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Certificate number: **2020-22143211**

2 Explanation of the adjustment procedure

Calibration of the Simcenter SCADAS front-ends consists of determining and correcting the amplitude and offset deviations of all input and output channels, in all relevant configurations of those channels.

Input channels: offset deviations are determined using an absolute zero reference, which is available for every input channel. Amplitude deviations are determined by applying a signal with known amplitude to the input channels. This signal is generated by an internal reference, which in turn has been calibrated against an external reference (see: used equipment).

Output channels: offset and amplitude deviations of the output channels are determined using an external reference (see: used equipment).

The deviations are stored locally on every module in non-volatile memory, to be used later as correction factors during measurement or signal generation. The correction factors are applied on-line, resulting in accurate measurement or signal generation data.

The adjustment procedure, as documented in this adjustment report, performs the following actions:

- Before the actual adjustment is started, the “as found” correction factors are read from the non-volatile memory on the modules
- The adjustment process itself will produce a new set of “as left” correction factors, that are written to the non-volatile memory on the modules, leaving the instrument and all modules in an accurate state
- Finally, the differences between the “as found” and “as left” correction factors are calculated and the value is compared against two criteria: *published specification* and *test specification*. The test specification is in all cases stricter than the published specification, because it applies to controlled environmental conditions.

Three qualifications can result:

- **Out of specification (white font on black background):**
Value does not meet published specification, possibly meaning that previous measurement results should be reviewed
- **Within published specification (black font on grey background):**
Value does not meet test specification but is within published specification
- **Within specification (black font on white background):**
Value is within test specification



Certificate number: **2020-22143211**

3 Adjustment qualification limits

All published specifications and test specifications that are used as a reference during the adjustment process can be found in the tables below.

SCADAS III and SCADAS Mobile / Recorder/Lab frequency error limit: ±50ppm

SCADAS Mobile / Recorder/Lab XSI and SYSCON generator gain error limits used for adjustment qualification

Gain error published spec	0.2%
Gain error test spec	0.1%

Note: offsets are not adjusted, as the generator channels have automatic offset correction.

SCADAS Mobile / Recorder / Lab V4(-II), V8(-II, -E), VS8(-II, -E), VD8-E, VM8(-E), VC8(-E) (voltage mode), M4 and V24 offset and gain error limits used for adjustment qualification

Input range:	10/12V	3.16V	1V	0.316V
Offset published spec	20mV	10mV	5mV	2.5mV
Offset test spec	10mV	5mV	2mV	1mV
Gain error published spec	0.2%	0.2%	0.2%	0.2%
Gain error test spec	0.1%	0.1%	0.1%	0.1%

SCADAS Mobile / Recorder / Lab VCF4 (voltage mode) gain error limits used for adjustment qualification

Input range:	10V	3.16V	1V	316mV	100mV
Gain error published spec	0.2%	0.2%	0.2%	0.2%	0.2%
Gain error test spec	0.1%	0.1%	0.1%	0.1%	0.1%

SCADAS Mobile / Recorder / Lab VC8(-E) (charge mode) gain error limits used for adjustment qualification

Input range:	10nC	3.16nC	1nC	316pC
Gain error published spec	0.2%	0.2%	0.2%	0.2%
Gain error test spec	0.1%	0.1%	0.1%	0.1%

SCADAS Mobile / Recorder / Lab VCF4 (charge mode) gain error limits used for adjustment qualification

Input range:	316nC	100nC	31.6nC	10nC	3.16nC	1nC	316pC	100pC
Gain error published spec	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%
Gain error test spec	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%



Certificate number: **2020-22143211**

SCADAS Mobile / Recorder / Lab VB8(-E) offset and gain error limits used for adjustment qualification

Input range:	10V	3.16V	1V	316mV	100mV	31.6mV	10mV	3.16mV
Offset published spec	20mV	10mV	5mV	2.5mV	1mV	500µV	250µV	100µV
Offset test spec	10mV	5mV	2mV	1mV	500µV	200µV	100µV	50µV
Gain error published spec	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%
Gain error test spec	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%

SCADAS Mobile / Recorder DB8 offset and gain error limits used for adjustment qualification

Input range:	10V	1V	100mV	20mV
Offset published spec	20mV	5mV	1mV	250µV
Offset test spec	10mV	2mV	500µV	100µV
Gain error published spec	0.2%	0.2%	0.2%	0.2%
Gain error test spec	0.1%	0.1%	0.1%	0.1%

SCADAS Mobile / Recorder / Lab DB8-II offset and gain error limits used for adjustment qualification

Input range:	10V	1V	100mV	31.6mV
Offset published spec	20mV	5mV	1mV	500µV
Offset test spec	10mV	2mV	500µV	200µV
Gain error published spec	0.2%	0.2%	0.2%	0.2%
Gain error test spec	0.1%	0.1%	0.1%	0.1%

SCADAS Mobile / Recorder / Lab BDS4 offset and gain error limits used for adjustment qualification

Input range:	10V	3.16V	1V	316mV	100mV	31.6mV	10mV	3.16mV
Offset published spec	20mV	10mV	5mV	2.5mV	1mV	500µV	200µV	100µV
Offset test spec	10mV	5mV	2mV	1mV	500µV	200µV	100µV	50µV
Gain error published spec	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%
Gain error test spec	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%

SCADAS III module gain error limits used for adjustment qualification

Module:	MSC305 DAC	QDAC DDAC	VDAC
Published spec	0.4%	0.5%	0.4%
Test spec	0.2%	0.2%	0.2%

Module:	PQA(-II) filter off	PQA(-II) filter on	V12	PQFA	PQMA	PQBA (all)	PQCA	PQDCA
Published spec	0.4%	2.2%	0.4%	0.4%	0.4%	0.4%	1.4%	0.5%
Test spec	0.2%	1.1%	0.2%	0.2%	0.2%	0.2%	0.7%	0.2%

Note: the gain error specifications apply to all possible input ranges and filter settings of these modules



Certificate number: 2020-22143211

SCADAS III module offset error limits used for adjustment qualification

	25V	12V	10V	8V	5V	4V	3V	2V	1V	0.5V	0.25V	0.2V	0.125V	0.1V	62.5mV	50mV	31.25mV	25mV	10mV	5mV
D/QDAC	x	x	x	x	5mV 2mV	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
MSC305 generator	x	x	5mV 2mV	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
PQA filter off	x	x	30mV 15mV	x	25mV 12.5mV	x	x	7mV 3.5mV	6mV 3mV	5.5mV 2.75mV	5.2mV 2.6mV	x	2.6mV 1.3mV	x	1.3mV 650µV	x	x	x	x	x
PQA filter on	x	x	35mV 18mV	x	30mV 15mV	x	x	7mV 3.5mV	6mV 3mV	5.5mV 2.75mV	5.2mV 2.6mV	x	2.6mV 1.3mV	x	1.3mV 650µV	x	x	x	x	x
PQA-II filter off	x	x	30mV 15mV	x	15mV 7.5mV	x	x	6mV 3mV	3mV 1.5mV	1.5mV 750µV	1mV 475µV	x	1mV 420µV	x	1mV 380µV	x	x	x	x	x
PQA-II filter on	x	x	30mV 15mV	x	15mV 7.5mV	x	x	6mV 3mV	3.2mV 1.6mV	2.7mV 1.35mV	2.4mV 1.2mV	x	1mV 420µV	x	1mV 380µV	x	x	x	x	x
V12	x	x	20mV 10mV	x	10mV 5mV	x	x	5mV 2mV	2.5mV 1mV	x	x	x	x	x	x	x	x	x	x	x
PQFA filter off	x	x	25mV 13mV	x	12.5mV 6.25mV	x	x	7mV 3.5mV	6mV 3mV	5.5mV 2.75mV	x	4.2mV 2.1mV	x	2mV 1mV	x	x	x	x	x	x
PQFA filter on	x	x	25mV 13mV	x	12.5mV 6.25mV	x	x	7mV 3.5mV	6mV 3mV	5.5mV 2.75mV	x	4.2mV 2.1mV	x	2mV 1mV	x	x	x	x	x	x
PQMA filter off	75mV 37mV	x	30mV 15mV	x	25mV 12.5mV	x	x	7mV 3.5mV	6mV 3mV	5.5mV 2.75mV	5.2mV 2.6mV	x	2.6mV 1.3mV	x	1.3mV 650µV	x	x	x	x	x
PQMA filter on	75mV 37mV	x	30mV 15mV	x	25mV 12.5mV	x	x	7mV 3.5mV	6mV 3mV	5.5mV 2.75mV	5.2mV 2.6mV	x	2.6mV 1.3mV	x	1.3mV 650µV	x	x	x	x	x
PQBA	x	x	x	x	x	x	x	5mV 2.5mV	5mV 2.5mV	5mV 2.5mV	x	x	5mV 1mV	x	2mV 500µV	x	1mV 250µV	500µV 100µV	500µV 100µV	
PQBA-E	x	x	x	x	x	10mV 2.5mV	10mV 2.5mV	10mV 2.5mV	5mV 2.5mV	5mV 2.5mV	5mV 2.5mV	x	x	5mV 1mV	x	2mV 500µV	x	1mV 250µV	500µV 100µV	500µV 100µV
PQBA-II	x	20mV 12mV	x	20mV 8mV	x	10mV 4mV	x	5mV 2mV	2.5mV 1mV	2.5mV 500µV	2.5mV 250µV	x	1mV 125µV	x	500µV 62.5µV	x	500µV 31.25µV	x	x	x

Note 1: upper value represents the published specification, lower value stands for the critical specification.

Note 2: PQCA and PQDCA are not adjusted for offset, as they are AC-coupled by nature.

Note 3: VDAC-II has automatic offset correction (always within 2mV).

Certificate number: **2020-22143211****4 Used equipment**

	Type	Serial Number	Cal Certificate	Cal Date
Digital multimeter	Agilent 34401A	MY41040399	201902414.00	June 14, 2019

The used equipment is calibrated on a yearly basis by a calibration laboratory that is ISO17025:2005 accredited by The Dutch Accreditation Council RvA.

The Dutch Accreditation Council is one of the signatories of the Multilateral Agreement of the European Cooperation for Accreditation for mutual recognition of calibration certificates, called the "ILAC agreement". ILAC stands for International Laboratory Accreditation Cooperation. The purpose of the ILAC agreement is to develop a global network of accredited testing and calibration laboratories that can be relied on to provide accurate results. A list of the signatories is available from ILAC and can be found on the ILAC website at <http://www.ilac.org/>.

All calibration standards are traceable to national and international standards that are consistent with the recommendations of the General Conference on Weights and Measures (CGPM). Most standards are directly traceable to the primary standards laboratory of Nederlands Meetinstituut (NMi: Dutch institute for Measurements), which is legally appointed as the Dutch national standards institute.

The measurements have been executed using calibration standards for which the traceability to national and international standards has been demonstrated towards the Dutch Accreditation Council RvA.



Certificate number: **2020-22143211**

5 System configuration

Frame	Backplane Module	Conditioner	Unique number	Hardware version	Software version	Option
Master (0)			0022143211			
	V8_E (1)		2013333008	18	0	
	V8_E (2)		2013333032	18	0	
	SYSCON_REC (3)		2013215010	11	0	
		SYSCPB (0)	2013376010	3	0	
	PS12-2 MOB (4)		2014154022	17	11	



Certificate number: **2020-22143211**

6 V8_E_h18s0

6.1 Applied gain factor Adjustment

AdcBw 102400Hz, Range 0.316V,	
<i>Chan</i>	<i>Value</i>
0,1,x,0	0.00%
0,1,x,1	0.00%
0,1,x,2	0.00%
0,1,x,3	-0.01%
0,1,x,4	0.00%
0,1,x,5	-0.01%
0,1,x,6	0.00%
0,1,x,7	0.00%
0,2,x,5	0.00%
0,2,x,6	0.00%
0,2,x,7	-0.01%
0,2,x,0	-0.01%
0,2,x,1	0.00%
0,2,x,2	0.00%
0,2,x,3	0.00%
0,2,x,4	0.00%
0,2,x,5	0.00%
0,2,x,6	0.00%
0,2,x,7	0.00%

AdcBw 102400Hz, Range 3.16V,	
<i>Chan</i>	<i>Value</i>
0,1,x,0	0.00%
0,1,x,1	0.00%
0,1,x,2	0.00%
0,1,x,3	-0.01%
0,1,x,4	0.00%
0,1,x,5	0.00%
0,1,x,6	0.00%
0,1,x,7	0.00%
0,2,x,0	-0.01%
0,2,x,1	0.00%
0,2,x,2	0.00%
0,2,x,3	0.00%
0,2,x,4	0.00%
0,2,x,5	0.00%
0,2,x,6	0.00%
0,2,x,7	0.00%

AdcBw 51200Hz, Range 0.316V,	
<i>Chan</i>	<i>Value</i>
0,1,x,0	0.00%
0,1,x,1	0.00%
0,1,x,2	0.00%
0,1,x,3	-0.01%
0,1,x,4	0.00%
0,1,x,5	-0.01%
0,1,x,6	0.00%
0,1,x,7	0.00%
0,2,x,0	0.00%
0,2,x,1	0.00%
0,2,x,2	0.00%
0,2,x,3	0.00%
0,2,x,4	0.00%
0,2,x,5	0.00%
0,2,x,6	0.00%
0,2,x,7	0.00%

AdcBw 51200Hz, Range 3.16V,	
<i>Chan</i>	<i>Value</i>
0,1,x,0	0.00%
0,1,x,1	0.00%
0,1,x,2	0.00%
0,1,x,3	0.00%
0,1,x,4	0.00%
0,1,x,5	0.00%
0,1,x,6	0.00%
0,1,x,7	0.00%
0,2,x,0	0.00%
0,2,x,1	0.00%
0,2,x,2	0.00%
0,2,x,3	0.00%
0,2,x,4	0.00%
0,2,x,5	0.00%
0,2,x,6	0.00%
0,2,x,7	0.00%

AdcBw 102400Hz, Range 1V,	
<i>Chan</i>	<i>Value</i>
0,1,x,0	0.00%
0,1,x,1	0.00%
0,1,x,2	0.00%
0,1,x,3	-0.01%
0,1,x,4	0.00%
0,1,x,5	-0.01%
0,1,x,6	0.00%
0,1,x,7	0.00%
0,2,x,0	-0.01%
0,2,x,1	-0.01%
0,2,x,2	0.00%
0,2,x,3	0.00%
0,2,x,4	0.00%
0,2,x,5	0.00%
0,2,x,6	0.00%
0,2,x,7	0.00%

AdcBw 102400Hz, Range 10V,	
<i>Chan</i>	<i>Value</i>
0,1,x,0	0.00%
0,1,x,1	0.00%
0,1,x,2	0.00%
0,1,x,3	0.00%
0,1,x,4	0.00%
0,1,x,5	0.00%
0,1,x,6	0.00%
0,1,x,7	0.00%
0,2,x,0	0.00%
0,2,x,1	0.00%
0,2,x,2	0.00%
0,2,x,3	0.00%
0,2,x,4	0.00%
0,2,x,5	0.00%
0,2,x,6	0.00%
0,2,x,7	0.00%

AdcBw 51200Hz, Range 1V,	
<i>Chan</i>	<i>Value</i>
0,1,x,0	0.00%
0,1,x,1	0.00%
0,1,x,2	0.00%
0,1,x,3	-0.01%
0,1,x,4	0.00%
0,1,x,5	-0.01%
0,1,x,6	0.00%
0,1,x,7	0.00%
0,2,x,0	-0.01%
0,2,x,1	-0.01%
0,2,x,2	0.00%
0,2,x,3	0.00%
0,2,x,4	0.00%
0,2,x,5	0.00%
0,2,x,6	-0.01%
0,2,x,7	0.00%

AdcBw 51200Hz, Range 10V,	
<i>Chan</i>	<i>Value</i>
0,1,x,0	0.00%
0,1,x,1	0.00%
0,1,x,2	0.00%
0,1,x,3	0.00%
0,1,x,4	0.00%
0,1,x,5	0.00%
0,1,x,6	0.00%
0,1,x,7	0.00%
0,2,x,0	0.00%
0,2,x,1	0.00%
0,2,x,2	0.00%
0,2,x,3	0.00%
0,2,x,4	0.00%
0,2,x,5	0.00%
0,2,x,6	0.00%
0,2,x,7	0.00%



Certificate number: **2020-22143211**

AdcBw 25600Hz, Range 0.316V,	
<i>Chan</i>	<i>Value</i>
0,1,x,0	0.00%
0,1,x,1	0.00%
0,1,x,2	0.00%
0,1,x,3	-0.01%
0,1,x,4	0.00%
0,1,x,5	-0.01%
0,1,x,6	0.00%
0,1,x,7	0.00%
0,2,x,0	0.00%
0,2,x,1	0.00%
0,2,x,2	0.00%
0,2,x,3	0.00%
0,2,x,4	0.00%
0,2,x,5	0.00%
0,2,x,6	0.00%
0,2,x,7	0.00%

AdcBw 25600Hz, Range 3.16V,	
<i>Chan</i>	<i>Value</i>
0,1,x,0	0.00%
0,1,x,1	0.00%
0,1,x,2	0.00%
0,1,x,3	0.00%
0,1,x,4	0.00%
0,1,x,5	0.00%
0,1,x,6	0.00%
0,1,x,7	0.00%
0,2,x,0	0.00%
0,2,x,1	0.00%
0,2,x,2	0.00%
0,2,x,3	0.00%
0,2,x,4	0.00%
0,2,x,5	0.00%
0,2,x,6	0.00%
0,2,x,7	0.00%

AdcBw 25600Hz, Range 1V,	
<i>Chan</i>	<i>Value</i>
0,1,x,0	0.00%
0,1,x,1	0.00%
0,1,x,2	0.00%
0,1,x,3	-0.01%
0,1,x,4	0.00%
0,1,x,5	-0.01%
0,1,x,6	0.00%
0,1,x,7	0.00%
0,2,x,0	-0.01%
0,2,x,1	-0.01%
0,2,x,2	0.00%
0,2,x,3	0.00%
0,2,x,4	0.00%
0,2,x,5	0.00%
0,2,x,6	0.00%
0,2,x,7	0.00%

AdcBw 25600Hz, Range 10V,	
<i>Chan</i>	<i>Value</i>
0,1,x,0	0.00%
0,1,x,1	0.00%
0,1,x,2	0.00%
0,1,x,3	0.00%
0,1,x,4	0.00%
0,1,x,5	0.00%
0,1,x,6	0.00%
0,1,x,7	0.00%
0,2,x,0	0.00%
0,2,x,1	0.00%
0,2,x,2	0.00%
0,2,x,3	0.00%
0,2,x,4	0.00%
0,2,x,5	0.00%
0,2,x,6	0.00%
0,2,x,7	0.00%



Certificate number: **2020-22143211**

6.2 Applied offset value Adjustment

AdcBw 102400Hz, Range 0.316V,	
<i>Chan</i>	<i>Value</i>
0,1,x,0	0.006 mV
0,1,x,1	-0.002 mV
0,1,x,2	0.020 mV
0,1,x,3	0.009 mV
0,1,x,4	0.027 mV
0,1,x,5	0.009 mV
0,1,x,6	-0.005 mV
0,1,x,7	0.014 mV
0,2,x,0	0.013 mV
0,2,x,1	0.003 mV
0,2,x,2	0.002 mV
0,2,x,3	0.010 mV
0,2,x,4	0.021 mV
0,2,x,5	0.013 mV
0,2,x,6	0.012 mV
0,2,x,7	0.007 mV

AdcBw 102400Hz, Range 3.16V,	
<i>Chan</i>	<i>Value</i>
0,1,x,0	0.108 mV
0,1,x,1	0.096 mV
0,1,x,2	0.201 mV
0,1,x,3	0.139 mV
0,1,x,4	0.217 mV
0,1,x,5	0.138 mV
0,1,x,6	0.186 mV
0,1,x,7	0.171 mV
0,2,x,0	0.110 mV
0,2,x,1	0.066 mV
0,2,x,2	0.089 mV
0,2,x,3	0.114 mV
0,2,x,4	0.238 mV
0,2,x,5	0.181 mV
0,2,x,6	0.065 mV
0,2,x,7	0.061 mV

AdcBw 51200Hz, Range 0.316V,	
<i>Chan</i>	<i>Value</i>
0,1,x,0	0.007 mV
0,1,x,1	-0.001 mV
0,1,x,2	0.024 mV
0,1,x,3	0.002 mV
0,1,x,4	0.027 mV
0,1,x,5	0.006 mV
0,1,x,6	-0.007 mV
0,1,x,7	0.016 mV
0,2,x,0	0.013 mV
0,2,x,1	0.005 mV
0,2,x,2	0.003 mV
0,2,x,3	0.012 mV
0,2,x,4	0.024 mV
0,2,x,5	0.013 mV
0,2,x,6	0.011 mV
0,2,x,7	0.008 mV

AdcBw 51200Hz, Range 3.16V,	
<i>Chan</i>	<i>Value</i>
0,1,x,0	0.108 mV
0,1,x,1	0.090 mV
0,1,x,2	0.201 mV
0,1,x,3	0.126 mV
0,1,x,4	0.219 mV
0,1,x,5	0.137 mV
0,1,x,6	0.180 mV
0,1,x,7	0.173 mV
0,2,x,0	0.108 mV
0,2,x,1	0.059 mV
0,2,x,2	0.102 mV
0,2,x,3	0.104 mV
0,2,x,4	0.233 mV
0,2,x,5	0.173 mV
0,2,x,6	0.073 mV
0,2,x,7	0.063 mV

AdcBw 102400Hz, Range 1V,	
<i>Chan</i>	<i>Value</i>
0,1,x,0	0.031 mV
0,1,x,1	0.021 mV
0,1,x,2	0.065 mV
0,1,x,3	0.036 mV
0,1,x,4	0.072 mV
0,1,x,5	0.039 mV
0,1,x,6	0.040 mV
0,1,x,7	0.054 mV
0,2,x,0	0.037 mV
0,2,x,1	0.018 mV
0,2,x,2	0.024 mV
0,2,x,3	0.037 mV
0,2,x,4	0.069 mV
0,2,x,5	0.050 mV
0,2,x,6	0.025 mV
0,2,x,7	0.021 mV

AdcBw 102400Hz, Range 10V,	
<i>Chan</i>	<i>Value</i>
0,1,x,0	0.346 mV
0,1,x,1	0.336 mV
0,1,x,2	0.612 mV
0,1,x,3	0.450 mV
0,1,x,4	0.680 mV
0,1,x,5	0.450 mV
0,1,x,6	0.650 mV
0,1,x,7	0.569 mV
0,2,x,0	0.319 mV
0,2,x,1	0.184 mV
0,2,x,2	0.293 mV
0,2,x,3	0.342 mV
0,2,x,4	0.767 mV
0,2,x,5	0.564 mV
0,2,x,6	0.187 mV
0,2,x,7	0.184 mV

AdcBw 51200Hz, Range 1V,	
<i>Chan</i>	<i>Value</i>
0,1,x,0	0.031 mV
0,1,x,1	0.021 mV
0,1,x,2	0.065 mV
0,1,x,3	0.035 mV
0,1,x,4	0.074 mV
0,1,x,5	0.034 mV
0,1,x,6	0.035 mV
0,1,x,7	0.052 mV
0,2,x,0	0.036 mV
0,2,x,1	0.019 mV
0,2,x,2	0.023 mV
0,2,x,3	0.034 mV
0,2,x,4	0.077 mV
0,2,x,5	0.050 mV
0,2,x,6	0.025 mV
0,2,x,7	0.018 mV

AdcBw 51200Hz, Range 10V,	
<i>Chan</i>	<i>Value</i>
0,1,x,0	0.349 mV
0,1,x,1	0.336 mV
0,1,x,2	0.620 mV
0,1,x,3	0.437 mV
0,1,x,4	0.712 mV
0,1,x,5	0.453 mV
0,1,x,6	0.620 mV
0,1,x,7	0.534 mV
0,2,x,0	0.328 mV
0,2,x,1	0.217 mV
0,2,x,2	0.300 mV
0,2,x,3	0.353 mV
0,2,x,4	0.745 mV
0,2,x,5	0.550 mV
0,2,x,6	0.226 mV
0,2,x,7	0.177 mV



Certificate number: **2020-22143211**

AdcBw 25600Hz, Range 0.316V,	
<i>Chan</i>	<i>Value</i>
0,1,x,0	0.006 mV
0,1,x,1	0.000 mV
0,1,x,2	0.022 mV
0,1,x,3	0.006 mV
0,1,x,4	0.028 mV
0,1,x,5	0.005 mV
0,1,x,6	-0.008 mV
0,1,x,7	0.013 mV
0,2,x,0	0.011 mV
0,2,x,1	0.005 mV
0,2,x,2	0.002 mV
0,2,x,3	0.013 mV
0,2,x,4	0.022 mV
0,2,x,5	0.013 mV
0,2,x,6	0.012 mV
0,2,x,7	0.008 mV

AdcBw 25600Hz, Range 3.16V,	
<i>Chan</i>	<i>Value</i>
0,1,x,0	0.113 mV
0,1,x,1	0.098 mV
0,1,x,2	0.190 mV
0,1,x,3	0.124 mV
0,1,x,4	0.219 mV
0,1,x,5	0.143 mV
0,1,x,6	0.168 mV
0,1,x,7	0.169 mV
0,2,x,0	0.105 mV
0,2,x,1	0.062 mV
0,2,x,2	0.081 mV
0,2,x,3	0.100 mV
0,2,x,4	0.222 mV
0,2,x,5	0.170 mV
0,2,x,6	0.066 mV
0,2,x,7	0.064 mV

AdcBw 25600Hz, Range 1V,	
<i>Chan</i>	<i>Value</i>
0,1,x,0	0.034 mV
0,1,x,1	0.025 mV
0,1,x,2	0.062 mV
0,1,x,3	0.034 mV
0,1,x,4	0.075 mV
0,1,x,5	0.040 mV
0,1,x,6	0.035 mV
0,1,x,7	0.049 mV
0,2,x,0	0.035 mV
0,2,x,1	0.020 mV
0,2,x,2	0.022 mV
0,2,x,3	0.035 mV
0,2,x,4	0.069 mV
0,2,x,5	0.049 mV
0,2,x,6	0.025 mV
0,2,x,7	0.020 mV

AdcBw 25600Hz, Range 10V,	
<i>Chan</i>	<i>Value</i>
0,1,x,0	0.350 mV
0,1,x,1	0.335 mV
0,1,x,2	0.607 mV
0,1,x,3	0.409 mV
0,1,x,4	0.641 mV
0,1,x,5	0.487 mV
0,1,x,6	0.598 mV
0,1,x,7	0.536 mV
0,2,x,0	0.307 mV
0,2,x,1	0.208 mV
0,2,x,2	0.274 mV
0,2,x,3	0.317 mV
0,2,x,4	0.717 mV
0,2,x,5	0.554 mV
0,2,x,6	0.156 mV
0,2,x,7	0.190 mV

Certificate number: **2020-22143211**

7 SYS CON_REC_h11s0

7.1 Applied DAC gain factor correction

DacLevel 10V, DacBw 102400Hz,	
<i>Chan</i>	<i>Value</i>
0,x,x,0	-0.01%
0,x,x,1	0.01%

DacLevel 10V, DacBw 51200Hz,	
<i>Chan</i>	<i>Value</i>
0,x,x,0	-0.01%
0,x,x,1	0.01%

DacLevel 10V, DacBw 25600Hz,	
<i>Chan</i>	<i>Value</i>
0,x,x,0	-0.01%
0,x,x,1	0.01%



Certificate number: **2020-22143211**

7.2 Frequency Test

Deviation,	
Chan	Value
0,x,x,x	6.25 ppm

West Caldwell Calibration Laboratories Inc.

Certificate of Calibration

for

MICROPHONE& PREAMPLIFIER

Manufactured by: BRUEL & KJAER
Model No: 4189-2671
Serial No: 2888707-2369794
Calibration Recall No: 31492

Submitted By:

Customer: Iwona Stasiewicz
Company: Aeroustics Engineering Ltd
Address: 5335 Lucas Circle
Mississauga, ON. Canada L4Z 4A9

The subject instrument was calibrated to the indicated specification using standards traceable to the SI through the National Institute of Standards and Technology or to accepted values of natural physical constants. This document certifies that the instrument met the following specification upon its return to the submitter.

West Caldwell Calibration Laboratories Procedure No. 4189-2671 BRUE

Upon receipt for Calibration, the instrument was found to be:

Within (X)

tolerance of the indicated specification. See attached Report of Calibration.

The information supplied relates to the calibrated item listed above and statement of conformance for ALL given specifications and standards fall under the decision rule: $A = (L - (U_{95})^*M)$, where A is acceptance limit, L is manufacturer specifications, U₉₅ is confidence level of 95% at k=2, and M is managed guard-band multiplier. The guard-band multiplier increases false-accept risk in favor of decreasing false-reject risk. Although the false accept risk increases, it is still below the Z540.3 2% risk requirement. The decision rule has been communicated and approved by customer during contract review.

West Caldwell Calibration Laboratories' calibration control system meets the following requirements, ISO 10012-1 MIL-STD-45662A, ANSI/NCSL Z540-1, IEC Guide 25, ISO 9001:2015, and ISO 17025.

Note: With this Certificate, Report of Calibration is included.

Approved by: *JZ*

Calibration Date: 08-Dec-20

James Zhu

Certificate No: 31492 -1

Quality Manager

ISO/IEC 17025:2017

QA Doc. #1051 Rev. 3.0 5/29/20

Certificate Page 1 of 1

uncompromised calibration
**West Caldwell
Calibration
Laboratories, Inc.**

1575 State Route 96, Victor, NY 14564, U.S.A.



Calibration Lab. Cert. # 1533.01



Calibration Lab. Cert. # 1533.01

REPORT OF CALIBRATION

for

Brüel & Kjær Microphone & Preamplifier **Model No.: 4189&2671**
Mic. Model No.: 4189
Preamp Model No.: 2671

Serial No.: 2888707-2369794
Serial No.: 2888707
Serial No.: 2369794
I. D. No.: XXXX

Company: Aercoustics Engineering Ltd.

Calibration results:

Before & after data same: ...X...

Ambient Temperature:	20.6	°C
Ambient Humidity:	25.3	% RH
Ambient Pressure:	98.955	kPa
Calibration Date:	8-Dec-2020	
Re-calibration Due:	8-Dec-2021	
Report Number:	31492 -1	
Control Number:	31492	

Combined Sensitivity @ 250 Hz and pressure of 98.955 kPa
(Sens. with mic. and preamp.) 0 Volts Polarization voltage (External):
-25.98 dB re.1V/Pascal
50.21 mV/Pascal
-0.02 Ko (- dB re 50 mV/Pascal)

Sensitivity: Pass
Freq. Response: Pass
All tests: Pass

The above listed instrument meets or exceeds the tested manufacturer's specifications.

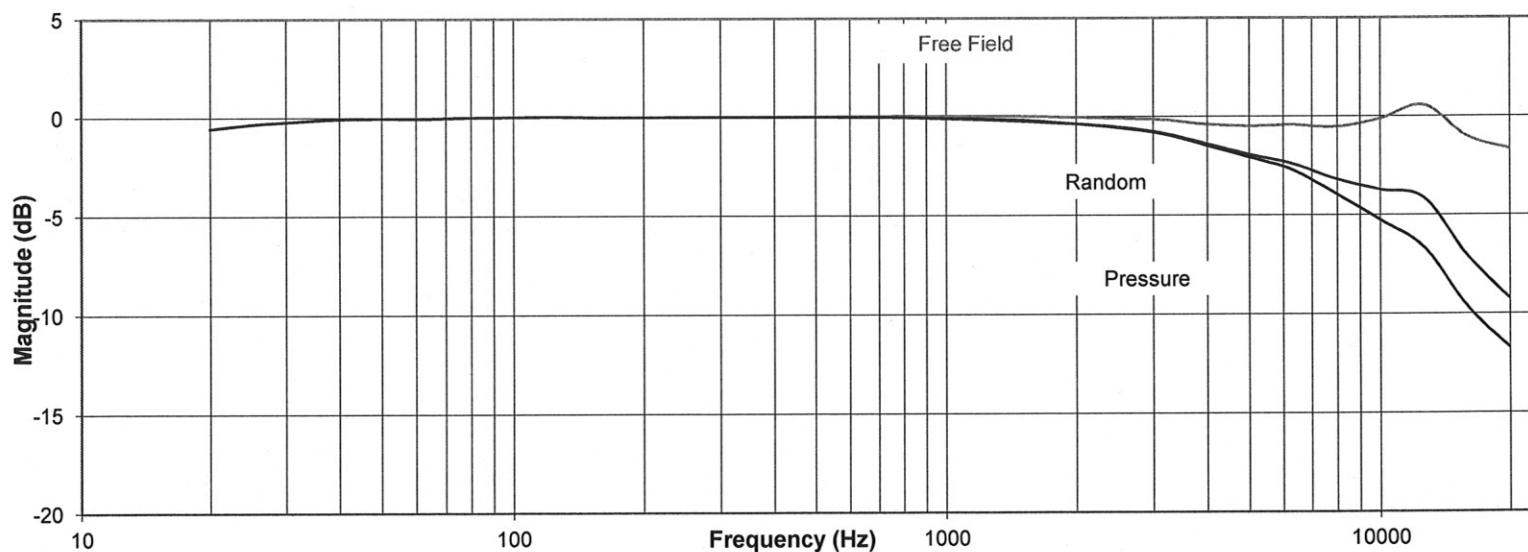
The IEC 651:1979 & 1993 Type 1 and ANSI S1.4 1983 Type 2 specification passed.

This Calibration is traceable through NIST test numbers: 684.07/O-0000001126-20

The expanded uncertainty of calibration: 0.19 dB at 95% confidence level with a coverage factor of k=2.

The pressure response recorded with electroacoustic method.

Frequency Response



The above listed instrument was checked using calibration procedure documented in West Caldwell Calibration Laboratories Inc. procedure : Rev. 7.0 Jan. 24, 2014 Doc. # 1038 P4189&2671B&K

Calibration was performed by West Caldwell Calibration Laboratories Inc. under Operating Procedures

intended to implement the requirements of ISO10012-1, IEC Guide 25, ANSI/NCSL Z540-1, (MIL-STD-45662A) and ISO 9001:2015, ISO 17025

Measurements performed by:

James Zhu

Calibrated on WCCL system type 9700

This document shall not be reproduced, except in full, without the written approval from West Caldwell Cal. Labs. Inc.

Rev. 7.0 Jan. 24, 2014/Doc. # 1038 P4189&2671B&K

West Caldwell Calibration Laboratories Inc.

1575 State Route 96, Victor NY 14564
 Tel. (585) 586-3900 FAX (585) 586-4327

Calibration Data Record

Brüel & Kjær Microphone & Preamplifier
 Company: Aercoustics Engineering Ltd.

for
 Model No.: 4189&2671

Serial No.: 2888707-2369794
 I. D. No.: XXXX

Frequency Response (Reference = 0 dB @ 250Hz)

Frequency [Hz]	Pressure [dB]	Free Field (dB)	Random (dB)
19.95	-0.57	-0.57	-0.57
25.12	-0.34	-0.34	-0.34
31.62	-0.19	-0.19	-0.19
39.81	-0.08	-0.08	-0.08
50.12	-0.05	-0.05	-0.05
63.10	-0.06	-0.06	-0.06
79.43	0.00	0.00	0.00
100.00	0.01	0.01	0.01
125.89	0.03	0.03	0.03
158.49	0.00	0.00	0.00
199.53	0.00	0.00	0.00
251.19	0.00	0.00	0.00
316.23	0.00	0.01	0.00
398.11	0.00	0.01	0.00
501.19	-0.01	0.02	-0.01
630.96	-0.02	0.02	-0.02
794.33	-0.03	0.03	-0.03
1000.00	-0.08	0.02	-0.10
1258.93	-0.12	0.03	-0.16
1584.89	-0.21	0.01	-0.26
1995.26	-0.37	-0.05	-0.38
2511.89	-0.58	-0.10	-0.54
3162.28	-0.90	-0.19	-0.86
3981.07	-1.48	-0.41	-1.39
5011.87	-2.08	-0.51	-1.94
6309.57	-2.73	-0.45	-2.41
7943.28	-3.93	-0.55	-3.18
10000.00	-5.26	-0.14	-3.73
12589.25	-6.65	0.54	-4.14
15848.93	-9.61	-1.02	-7.03
19952.62	-11.71	-1.66	-9.23

Freq. response: Expanded Uncertainty (dB) with coverage factor K = 2
 20 to 63Hz 0.22 dB, 63 to 12.5kHz 0.20 dB, 12.5k to 16kHz 0.22 dB, 16k to 20kHz 0.5 dB.

Instruments used for calibration:		Date of Cal.	Traceability No.	Re-cal. Due Date
Brüel & Kjær	4226	S/N 1445428	9-Jul-2020	684.07/O-0000001126-20
Brüel & Kjær	3560	S/N 2241893	30-Jun-2020	684.07/O-0000001126-20
HP	33120A	S/N US360089	9-Jul-2020	,610119
HP	34401A	S/N US360942	9-Jul-2020	,610119

Cal. Date: 8-Dec-2020

Tested by: James Zhu

Calibrated on WCCL system type 9700

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Rev. 7.0 Jan. 24, 2014 Doc. # 1038 P4189&2671B&K

West Caldwell Calibration Laboratories Inc.

Certificate of Calibration

for

ICP SENSOR SIGNAL CONDITIONER
Manufactured by: **PCB PIEZOTRONICS**
Model No: **480E09**
Serial No: **34208**
Calibration Recall No: **30781**

Submitted By:

Customer: **Iwona Stasiewicz**
Company: **Aercoustics Engineering Ltd**
Address: **1004 Middlegate Road
Mississauga, ON.Cana L4Y0G1**

The subject instrument was calibrated to the indicated specification using standards traceable to the SI through the National Institute of Standards and Technology or to accepted values of natural physical constants. This document certifies that the instrument met the following specification upon its return to the submitter.

West Caldwell Calibration Laboratories Procedure No. **480E09** PCB PI

Upon receipt for Calibration, the instrument was found to be:

Within (X)

tolerance of the indicated specification. See attached Report of Calibration.

The information supplied relates to the calibrated item listed above.

West Caldwell Calibration Laboratories' calibration control system meets the following requirements, ISO 10012-1 MIL STD 45662A, ANSI/NCSL Z540-1, IEC Guide 25, ISO 9001:2015 and ISO 17025

Note: With this Certificate, Report of Calibration is included.

Approved by:


James Zhu

Quality Manager
ISO/IEC 17025:2005



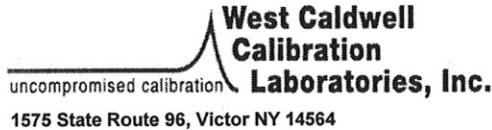
Calibration Lab. Cert. # 1533.01

QA Doc. #1051 Rev. 2.0 10/1/01

Certificate Page 1 of 1

**West Caldwell
Calibration
Laboratories, Inc.**

uncompromised calibration
1575 State Route 96, Victor, NY 14564, U.S.A.



ISO/IEC 17025: 2005



Calibration Lab. Cert. # 1533.01

REPORT OF CALIBRATION

for

PCB Piezotronics ICP Signal Conditioner
Company: Aeroustics Engineering Ltd.

Model No.: 480E09

Serial No.: 34208
ID No.: XXXX

Calibration results:

Before & after data same: ...X...

DC Current and voltage:	Pass
Gain:	Pass
Noise:	Pass
Distortion:	Pass
Freq. Response:	Pass
All tests:	Pass

Laboratory Environment:

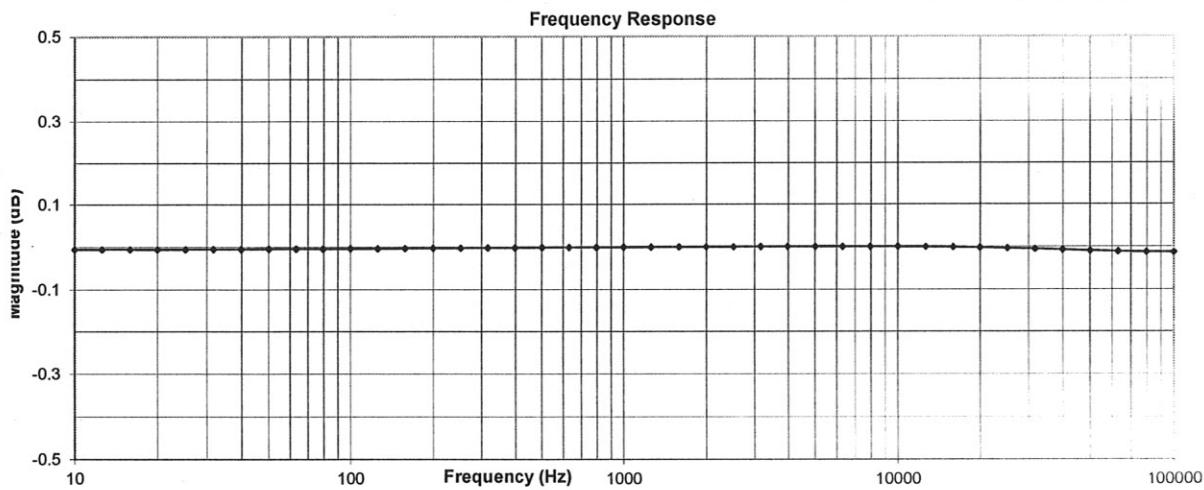
Ambient Temperature:	20.4	°C
Ambient Humidity:	28.8	% RH
Ambient Pressure:	101.031	kPa
Calibration Date:	16-Mar-2020	
Calibration Due:	16-Mar-2021	
Report Number:	30781 -2	
Control Number:	30781	

The above listed instrument meets or exceeds the tested manufacturer's specifications.

This Calibration is traceable through NIST test numbers: , 1010733

The absolute uncertainty of calibration: See last page. Unless otherwise noted, the reported values are both "as found" and "as left" data.

The curve is the response recorded with accelerometer simulated 100mV input @ X1 Position.



The above listed instrument was checked using calibration procedure documented in West Caldwell
Calibration Laboratories Inc. procedure : Rev. 7.0 Jan. 24, 2014 Doc. # 1038 480E09PCB

Calibration was performed by West Caldwell Calibration Laboratories Inc. under Operating Procedures

intended to implement the requirements of ISO10012-1, IEC Guide 25, ANSI/NCSL Z540-1, (MIL-STD-45662A), ISO 9001:2015 and ISO 17025

Calibrated on WCCL system type 9700

This document shall not be reproduced, except in full, without the written approval from West Caldwell Cal. Labs. Inc.

Measurements performed by:
MS
Matthew Smith

Rev. 7.0 Jan. 24, 2014 Doc. # 1038 480E09PCB

West Caldwell Calibration Laboratories Inc.

1575 State Route 96, Victor NY 14564

Tel. (585) 586-3900 FAX (585) 586-4327

Calibration Data Record

for
PCB Piezotronics ICP Signal Conditioner
 Company: Aeroustics Engineering Ltd.

Model No.: 480E09

Serial No.: 34208

Frequency Response (Reference = 0 dB @ 1000Hz) + - 0.2dB

Freq. (Hz)	Response [dB]	Freq. (Hz)	Response [dB]	Freq. (Hz)	Response [dB]
10.00	-0.01	316.23	0.00	10000.00	0.00
12.59	0.00	398.11	0.00	12589.25	0.00
15.85	-0.01	501.19	0.00	15848.93	0.00
19.95	-0.01	630.96	0.00	19952.62	0.00
25.12	0.00	794.33	0.00	25118.84	0.00
31.62	0.00	1000.00	0.00	31622.72	0.00
39.81	0.00	1258.93	0.00	39810.61	-0.01
50.12	0.00	1584.89	0.00	50118.55	-0.01
63.10	0.00	1995.26	0.00	63095.47	-0.01
79.43	0.00	2511.89	0.00	79432.43	-0.01
100.00	0.00	3162.28	0.00	99999.42	-0.01
125.89	0.00	3981.07	0.00		
158.49	0.00	5011.87	0.00		
199.53	0.00	6309.57	0.00		
251.19	0.00	7943.28	0.00		

Test	Function	Tolerance			Measured values	
		Min	Max		Data	Out
1.0	Current Voltage	1.8	4.2		2.96	
		15	30		26.98	
2.0	Gain accuracy (dB)	X 1	-0.2	0.2	-0.02	
		X 10	-0.2	0.2	-0.02	
		X 100	-0.2	0.2	-0.03	
3.0	Frequency response	See above			Pass	
4.0	Noise (uV) 2 to 22.4kHz				Pass	
5.0	Distortion				Pass	

Instruments used for calibration:	Date of Cal.	Traceability No.	Cal. Due Date
HP 33120A S/N SG400116	3-Jul-2019	,1010733	3-Jul-2020
Brüel & Kjær 2636 S/N 1487493	10-Jul-2019	683/290345-18	10-Jul-2020
HP 34401A S/N US361009	3-Jul-2019	,1010733	3-Jul-2020

The expanded uncertainty of calibration at 95% confidence level with a coverage factor of k=2.

Parameter	Test Instrumentation	DUT	Total DUT
	Uncertainty	Uncertainty	Uncertainty
Electrical Frequency Response(10 Hz to 20 kHz):	0.024	0.1	0.124
Electrical Frequency Response(10 kHz to 50 kHz):	0.04	0.1	0.14
Electrical Frequency Response(50 kHz to 100 kHz):	0.06	0.1	0.16
Random Noise Measure (100 Hz to 10 kHz):	0.3	0.1	0.40
DC Voltage Measure (10 V to 100 V):	0.20 %		
DC Current Measure (0.1 A to 1 A):	0.039 %		
AC Voltage Measure (1 V)(40 Hz to 1 kHz):	0.011 %		
AC Voltage Measure (1 V)(1 kHz to 20 kHz):	0.022 %		

Cal. Date: 16-Mar-2020

Tested by: Matthew Smith

Calibrated on WCCL system type 9700

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Rev. 7.0 Jan. 24, 2014 Doc. # 1038 480E09PCB

West Caldwell Calibration Laboratories Inc.

Certificate of Conformance

for

ACOUSTICAL CALIBRATOR

Manufactured by: BRUEL & KJAER
Model No: 4231
Serial No: 2053016
Calibration Recall No: 31157

Submitted By:

Customer: Iwona Stasiewicz
Company: Aeroustics Engineering Ltd
Address: 1004 Middlegate Road
Mississauga, ON.Cana L4Y0G1

The subject instrument was calibrated to the indicated specification using standards traceable to the SI through the National Institute of Standards and Technology or to accepted values of natural physical constants. This document certifies that the instrument met the following specification upon its return to the submitter.

West Caldwell Calibration Laboratories Procedure No. 4231 BRUE

Upon receipt for Calibration, the instrument was found to be:

Within (X)

tolerance of the indicated specification. See attached Report of Calibration.

The information supplied relates to the calibrated item listed above and statement of conformance for ALL given specifications and standards fall under the decision rule: A=(L-(U95)), where A is acceptance limit, L is manufacturer specifications and U95 is confidence level of 95% at k=2. This includes but not limited to: 1. Measured value does not meet manufacturer's tolerance, 2. Manufacturer's tolerance is too small compared to calibration and measurement capability uncertainties, 3. Test uncertainty ratio does not meet the 4:1 ratio due to test instrumentation limitations. The decision rule has been communicated and approved by customer during contract

West Caldwell Calibration Laboratories' calibration control system meets the following requirements, ISO 10012-1 MIL-STD-45662A, ANSI/NCSL Z540-1, IEC Guide 25, ISO 9001:2015, and ISO 17025.

Note: With this Certificate, Report of Calibration is included.

Approved by:

James Zhu

Quality Manager
ISO/IEC 17025:2017



ACCREDITED

Calibration Date: 14-Aug-20

Certificate Page 1 of 1

Certificate No: 31157 - 1

QA Doc. #1051 Rev. 3.0 5/29/20

**West Caldwell
Calibration
Laboratories, Inc.**
uncompromised calibration
1575 State Route 96, Victor, NY 14564, U.S.A.

Calibration Lab. Cert. # 1533.01



REPORT OF CALIBRATION

for

Brüel & Kjær Acoustical Calibrator
Company: Aercoustics Engineering Ltd.

Model No.: 4231

Serial No.: 2053016
ID No.: XXXX

Calibration results:

Before data: After data:

Before & after data same: ...X.....

Sound Pressure Level at 999.9 Hz and pressure of 1013 hPa (mbar)
was 113.98 dB re 20 µPa

(Calibrator tested with ½" adaptor UC 0210)

IEC 1094-4 Type WS 2 P Microphone was used for measurement.

	114 dB	94 dB
Sound Pressure Level:	Pass	Pass
Frequency:	Pass	Pass
Distortion:	Pass	Pass
Stability:	Pass	Pass
All tested parameters:		Pass

Laboratory Environment:

Ambient Temperature:	23.5	°C
Ambient Humidity:	41.4	% RH
Ambient Pressure:	99.684	kPa
Calibration Date:	14-Aug-2020	
Calibration Due:	14-Aug-2021	

Report Number: 31157 -1
Control Number: 31157

The above listed instrument meets or exceeds the tested manufacturer's specifications

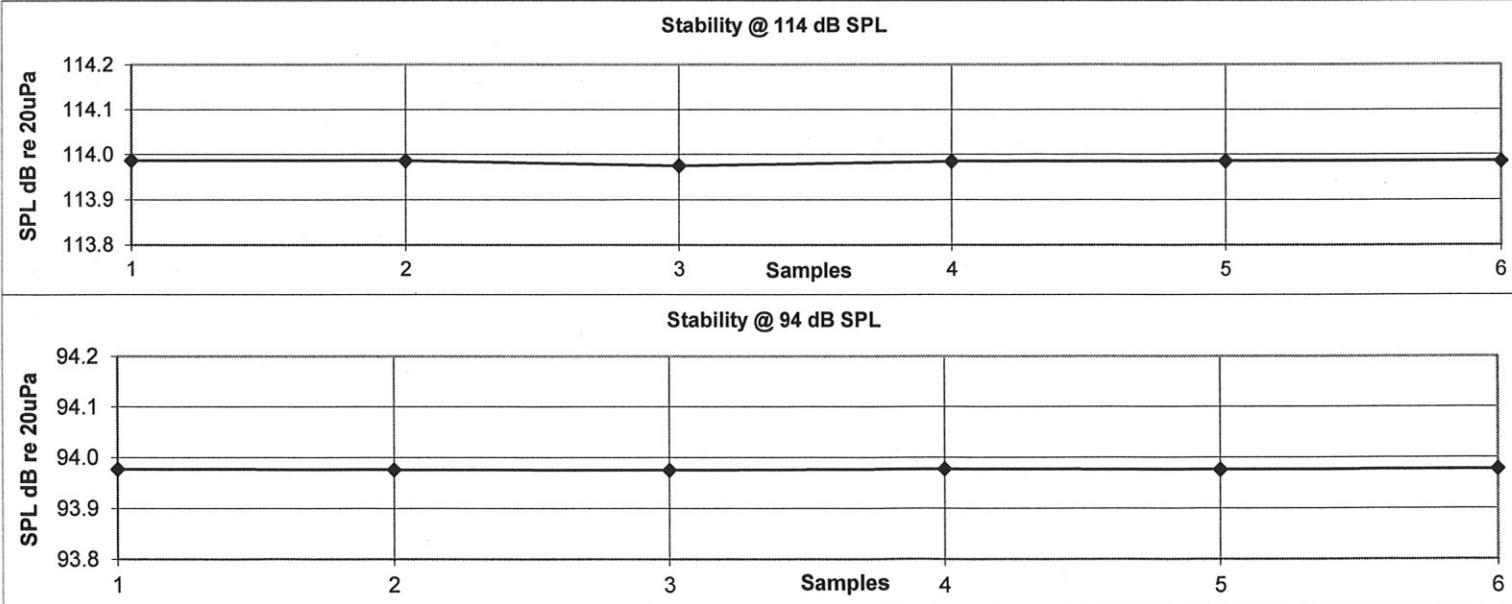
The IEC 942:1998 Class 1 specifications, passed.

The ANSI S1.40-1984 specifications, passed.

This Calibration is traceable through NIST test numbers: 684.07/O-0000001126-20

The absolute uncertainty of calibration: See last page. Unless otherwise noted, the reported values are both "as found" and "as left" data.

Graph represents six samples of Sound Pressure Level measured at 5 sec. interval.



The above listed instrument was checked using calibration procedure documented in West Caldwell

Calibration Laboratories Inc. procedure :

Rev. 7.0 Jan. 24, 2014 Doc. # 1038 4231B&K

Calibration was performed by West Caldwell Calibration Laboratories Inc. under Operating Procedures

intended to implement the requirements of ISO10012-1, IEC Guide 25, ANSI/NCSL Z540-1, (MIL-STD-45662A), ISO 9001:2015 and ISO 17025

Cal. Date: 14-Aug-2020

Measurements performed by:

MS
Matthew Smith

Calibrated on WCCL system type 9700

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Rev. 7.0 Jan. 24, 2014 Doc. # 1038 4231B&K

West Caldwell Calibration Laboratories Inc.

1575 State Route 96, Victor NY 14564

Tel. (585) 586-3900 FAX (585) 586-4327

Calibration Data Record

for

Model No.: 4231

Serial No.: 2053016

Brüel & Kjær Acoustical Calibrator
Company: Aercoustics Engineering Ltd.

All tested parameters: Pass

Measured Sound Pressure Level (Six samples measured at 5 sec. interval)

Sample	1	113.99 dB re 20 µPa	93.98 dB re 20 µPa
	2	113.99	93.98
	3	113.98	93.97
	4	113.99	93.98
	5	113.99	93.98
	6	113.99	93.98
Average		113.98 Spec. 114dB ± 0.2dB	93.98 Spec. 94 dB ± 0.2 dB

Frequency measured (Three samples at 30 sec. Interval)

Sample	1	999.86 Hz	999.89 Hz
	2	999.87	999.85
	3	999.86	999.87
Average		999.86	999.87 Spec. 1000 Hz ±0.1%

Distortion measured	-53.1 dB	-49.1 dB	Spec. ≤40 dB
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The expanded uncertainty of calibration at 95% confidence level with a coverage factor of k=2.

Parameter	Test Instrumentation Uncertainty	DUT Uncertainty	Total DUT Uncertainty
Acoustic Level ([114 & 94] @ 1 kHz):	0.18	0.1	0.28
Attenuator accuracy (Attenuation Measure):	0.46	0.1	0.56
Frequency Measure (DC to 10 MHz):	6.0 parts in [10^6] Hz		

Instruments used for calibration:	Date of Cal.	Traceability No.	Re-cal. Due Date
Brüel & Kjær 4231 S/N 2205492	2-Jul-2020	684.07/O-0000001126-20	2-Jul-2021
Brüel & Kjær 4134 S/N 1768848	2-Jul-2020	684.07/O-0000001126-20	2-Jul-2021
Brüel & Kjær 2669 S/N 1835080	2-Jul-2020	684.07/O-0000001126-20	2-Jul-2021
HP 34401A S/N US361025	3-Jul-2020	,610119	3-Jul-2021
Brüel & Kjær 2636 S/N 1487493	3-Jul-2020	684.07/O-0000001126-20	3-Jul-2021
HP 33120A S/N SG400116	3-Jul-2020	,610119	3-Jul-2021

Cal. Date: 14-Aug-2020

Tested by: Matthew Smith

Calibrated on WCCL system type 9700

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Rev. 7.0 Jan. 24, 2014 Doc. # 1038 4231B&K



SOH Wind Engineering LLC

141 Leroy Road · Williston, VT 05495 · USA

Tel 802.316.4368 · Fax 802.735.9106 · www.sohwind.com

CERTIFICATE FOR CALIBRATION OF SONIC ANEMOMETER

Certificate number: 20.US2.03809

Date of issue: July 14, 2020

Type: Vaisala Weather Transmitter, WXT520

Serial number: K2420011

Manufacturer: Vaisala, Oyj, Pl 26, FIN-00421 Helsinki, Finland

Client: Aeroustics Engineering Ltd., 1004 Middlegate RD, Suite 1100, S.Tower, Mississauga, ON L4Y 1M4, Canada

Anemometer received: July 08, 2020

Anemometer calibrated: July 10, 2020

Calibrated by: MEJ

Procedure: MEASNET, IEC 61400-12-1:2017 Annex F

Certificate prepared by: EJF

Approved by: Calibration engineer, EJF

Calibration equation obtained: $v \text{ [m/s]} = 0.96490 \cdot U \text{ [m/s]} + 0.36804$

Standard uncertainty, slope: 0.00484

Standard uncertainty, offset: 0.13613

Covariance: -0.0002182 (m/s)²/m/s

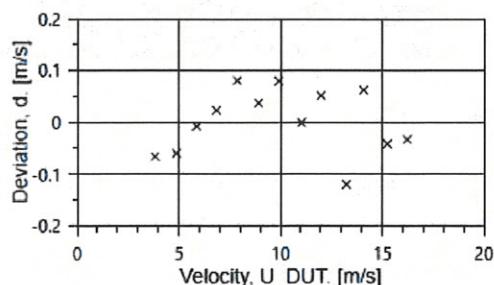
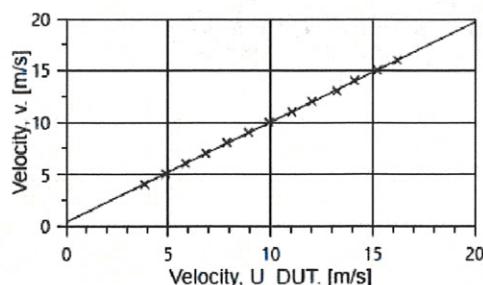
Coefficient of correlation: $\rho = 0.999871$

Absolute maximum deviation: -0.121 m/s at 13.026 m/s

Barometric pressure: 1002.0 hPa

Relative humidity: 56.9%

Succession	Velocity pressure, q. [Pa]	Temperature in wind tunnel [°C]	Temperature in d.p. box [°C]	Wind velocity, v. [m/s]	Anemometer Output, U. [m/s]	Deviation, d. [m/s]	Uncertainty u _c (k=2) [m/s]
1-first	9.24	28.2	27.6	4.010	3.8433	-0.067	0.023
13-last	14.47	28.4	27.7	5.019	4.8833	-0.061	0.026
2	20.81	28.2	27.6	6.017	5.8633	-0.008	0.030
12	28.14	28.4	27.7	7.001	6.8500	0.023	0.034
3	37.10	28.1	27.7	8.036	7.8633	0.080	0.039
11	46.69	28.4	27.7	9.019	8.9267	0.037	0.043
4	57.80	28.1	27.7	10.029	9.9300	0.080	0.047
10	69.78	28.4	27.7	11.026	11.0467	-0.001	0.051
5	82.92	28.2	27.6	12.015	12.0167	0.052	0.056
9	97.37	28.4	27.7	13.026	13.2433	-0.121	0.060
6	113.13	28.2	27.7	14.035	14.1000	0.062	0.064
8	129.66	28.4	27.7	15.031	15.2400	-0.042	0.068
7	146.80	28.3	27.7	15.992	16.2267	-0.034	0.073



AC-1746



Page 1 of 2

EQUIPMENT USED

Serial Number	Description
Njord2	Wind tunnel, blockage factor = 1.0035
13924	Control cup anemometer
-	Mounting tube, D = 19 mm
TT002	Summit Electronics, 1XPT100, 0-10V Output, wind tunnel temp.
TP001	PR Electronics 5102, 0-10V Output, differential pressure box temp.
DP007	Setra Model 239, 0-1inWC, differential pressure transducer
HY003	Dwyer RHP-2D20, 0-10V Output, humidity transmitter
BP002	Setra M278, 0-5VDC Output, barometer
PL3	Pitot tube
XB001	Computer Board. 16 bit A/D data acquisition board
Njord2-PC	PC dedicated to data acquisition

The accuracies of all measurements were traceable to the SI through NIST or CIPM recognized NMI's.

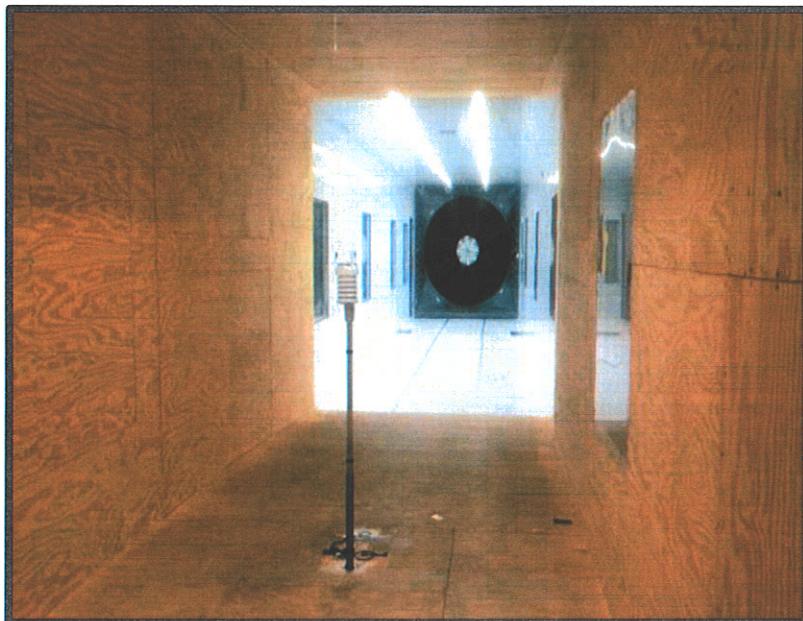


Photo of the wind tunnel setup. The cross-sectional area is 2.5m x 2.5m.

UNCERTAINTIES

The documented uncertainty is the total combined uncertainty at 95% confidence level ($k=2$) in accordance with EA-4/02. The uncertainty at 10 m/s comply with the requirements in the IEC 61400-12-1:2005 procedure. See Document US.12.01.004 for further details.

COMMENTS

This sensor was oriented in the 90° position during calibration.

Certificate number: 20.US2.03809

The results on this certificate relate only to the serial number listed.

All calibrations are done in the "As Left" condition unless otherwise noted.

This certificate must not be reproduced, except in full, without the approval of SOH Wind Engineering LLC

CERTIFICATE OF CALIBRATION

Customer: AERCOUSTICS ENGINEERING LTD
1004 MIDDLEGATE ROAD
SUITE 1100
MISSISSAUGA, ON L4Y 0G1
PO Number: TR2020.07.21

Certificate/SO Number: 9-Q1R3O-20-1 Revision 0

Manufacturer: Noveval
Model Number: 7470
Description: Serial to Analog Converter
Serial Number: A165152
ID: 00849



Issue Date: Aug 04, 2020
Calibration Date: Aug 04, 2020
Due Date: Aug 04, 2022

Calibrated To: Manufacturer Specification

Calibration Procedure: 1-AC58014-0

Transcat Calibration Laboratories have been audited and found in compliance with ISO/IEC 17025:2017. Accredited calibrations performed within the Lab's Scope of Accreditation are indicated by the presence of the Accrediting Body's Logo and Certificate Number. Any measurements on an accredited calibration not covered by that Lab's Scope of Accreditation are listed in the notes section of the certificate. SCC, NRC, CLAS or ANAB do not guarantee the accuracy of an individual calibration by accredited laboratories.

Transcat calibrations, as applicable, are performed in compliance with the requirements of the Transcat Quality Manual QAC-P01-000, the customer's Purchase Order and/or Quality Agreement requirements, ISO 9001:2015, ANSI/NCSL Z540-1:1994 (R2002) or NQA-1, as applicable. Complete records of work performed are maintained by Transcat and are available for inspection. Laboratory standards used in the performance of this calibration are listed on this certificate.

Transcat documents the traceability of measurements to the SI units through the National Institute of Standards and Technology(NIST), or the National Research Council of Canada (NRC), or other national measurement institutes (NMI) that are signatories to the CIPM Mutual Recognition Arrangement, or accepted fundamental and/or natural physical constants, or by the use of specified methods, consensus standards or ratio type measurements. Documentation supporting traceability information is available for review upon written request at a Transcat facility. The measured quantity and the measurement uncertainty are required for further dissemination or traceability.

A binary decision rule, utilizing simple acceptance, and simple rejection criteria is used for the determination of compliance. When compliance statements are present, they are reported without factoring in the effects of uncertainty and comply with the guidelines established by ASME B89.7.3-2001 (R2019) as follows:
-The acceptance zone is defined as: less than or equal to the high limit, and/or greater than or equal to the low limit. The rejection zones are defined as greater than the high limit and/or less than the low limit.
-Single measurement results in the acceptance zone are identified as in-tolerance. Single measurement results in the rejection zone are identified as out-of-tolerance (OOT).
-When all measurement results are in the acceptance zone for repeated measurements, for the same characteristic, the test is identified as in-tolerance. For repeated characteristic measurements, a single measurement result in the rejection zone, will cause the test to be identified as out-of-tolerance (OOT).

Uncertainties are reported with a coverage factor k=2, providing a level of confidence of approximately 95%. All calibrations have been performed using processes having a TUR of 4:1 or better (3:1 for mass calibrations), unless otherwise noted. The Test Uncertainty Ratio (TUR) is calculated in accordance with NCSL International RP-18. For mass calibrations: Conventional mass referenced to 8.0 g/cm³.

The results in this report relate only to the item calibrated or tested. Recorded calibration data is valid at the time of calibration within the stated uncertainties at the environmental conditions noted. The determination of compliance to the specification is specific to the model/serial no./ID no. referenced above based on the tolerances shown; these tolerances are either the original equipment manufacturers (OEM's) warranted specifications or the client's requested specifications. This certificate may not be reproduced except in full, without the written approval of Transcat. Additional information, if applicable may be included on separate report(s).

CERTIFICATE OF CALIBRATION

Customer: AERCOUSTICS ENGINEERING LTD
 1004 MIDDLEGATE ROAD
 SUITE 1100
 MISSISSAUGA, ON L4Y 0G1
 PO Number: TR2020.07.21



Certificate/SO Number: 9-Q1R3O-20-1 Revision 0

As Found/As Left Data

Description	Setpoints	Accuracy	As Found/As Left Data			Cal Process O Uncertainty T (k=2; ±)	Measurement O Uncertainty (k=2; ±)	Units	TUR
			Low Limit	High Limit	As Found / As Left				
DC Current % Source - 4-20mA Ch #1									
4 - 20mA	0%	±(0.1% Span)	3.984	4.016	4.001 mA	1.6e-004	1.2e-003	mA	100.0 : 1
	25%	±(0.1% Span)	7.984	8.016	7.998 mA	2.6e-004	1.2e-003	mA	61.5 : 1
	50%	±(0.1% Span)	11.984	12.016	12.002 mA	1.1e-003	1.6e-003	mA	14.5 : 1
	75%	±(0.1% Span)	15.984	16.016	16.000 mA	1.3e-003	1.8e-003	mA	12.3 : 1
	100%	±(0.1% Span)	19.984	20.016	20.000 mA	1.4e-003	1.8e-003	mA	11.4 : 1
DC Current % Source - 4-20mA Ch #2									
4 - 20mA	0%	±(0.1% Span)	3.984	4.016	3.997 mA	1.6e-004	1.2e-003	mA	100.0 : 1
	25%	±(0.1% Span)	7.984	8.016	7.997 mA	2.6e-004	1.2e-003	mA	61.5 : 1
	50%	±(0.1% Span)	11.984	12.016	11.997 mA	1.1e-003	1.6e-003	mA	14.5 : 1
	75%	±(0.1% Span)	15.984	16.016	16.002 mA	1.3e-003	1.8e-003	mA	12.3 : 1
	100%	±(0.1% Span)	19.984	20.016	20.000 mA	1.4e-003	1.8e-003	mA	11.4 : 1
DC Current % Source - 4-20mA Ch #3									
4 - 20mA	0%	±(0.1% Span)	3.984	4.016	3.998 mA	1.6e-004	1.2e-003	mA	100.0 : 1
	25%	±(0.1% Span)	7.984	8.016	8.001 mA	2.6e-004	1.2e-003	mA	61.5 : 1
	50%	±(0.1% Span)	11.984	12.016	12.000 mA	1.1e-003	1.6e-003	mA	14.5 : 1
	75%	±(0.1% Span)	15.984	16.016	15.998 mA	1.3e-003	1.8e-003	mA	12.3 : 1
	100%	±(0.1% Span)	19.984	20.016	20.000 mA	1.4e-003	1.8e-003	mA	11.4 : 1
DC Current % Source - 4-20mA Ch #4									
4 - 20mA	0%	±(0.1% Span)	3.984	4.016	4.003 mA	1.6e-004	1.2e-003	mA	100.0 : 1
	25%	±(0.1% Span)	7.984	8.016	8.001 mA	2.6e-004	1.2e-003	mA	61.5 : 1
	50%	±(0.1% Span)	11.984	12.016	12.000 mA	1.1e-003	1.6e-003	mA	14.5 : 1
	75%	±(0.1% Span)	15.984	16.016	16.004 mA	1.3e-003	1.8e-003	mA	12.3 : 1
	100%	±(0.1% Span)	19.984	20.016	20.000 mA	1.4e-003	1.8e-003	mA	11.4 : 1

CERTIFICATE OF CALIBRATION

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 MISSISSAUGA, ON L4Y 0G1
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Certificate/SO Number: 9-Q1R3O-20-1 Revision 0

As Found/As Left Data

Description	Setpoints	Accuracy	Low Limit	High Limit	As Found / As Left	Cal Process Uncertainty $(k=2, \pm)$	Measurement Uncertainty $(k=2, \pm)$	Units	TUR
DC Current % Source - 0-20mA Ch #1									
0 - 20mA	0%	$\pm(0.1\% \text{ Span})$	-0.020	0.020	0.004 mA	9.2e-007	1.2e-003	mA	100.0 : 1
	25%	$\pm(0.1\% \text{ Span})$	4.980	5.020	5.001 mA	1.9e-004	1.2e-003	mA	100.0 : 1
	50%	$\pm(0.1\% \text{ Span})$	9.980	10.020	10.001 mA	3.1e-004	1.2e-003	mA	64.5 : 1
	75%	$\pm(0.1\% \text{ Span})$	14.980	15.020	14.999 mA	1.2e-003	1.7e-003	mA	16.7 : 1
	100%	$\pm(0.1\% \text{ Span})$	19.980	20.020	20.000 mA	1.4e-003	1.8e-003	mA	14.3 : 1
DC Current % Source - 0-20mA Ch #2									
0 - 20mA	0%	$\pm(0.1\% \text{ Span})$	-0.020	0.020	0.000 mA	9.2e-007	1.2e-003	mA	100.0 : 1
	25%	$\pm(0.1\% \text{ Span})$	4.980	5.020	4.999 mA	1.9e-004	1.2e-003	mA	100.0 : 1
	50%	$\pm(0.1\% \text{ Span})$	9.980	10.020	9.997 mA	3.1e-004	1.2e-003	mA	64.5 : 1
	75%	$\pm(0.1\% \text{ Span})$	14.980	15.020	15.000 mA	1.2e-003	1.7e-003	mA	16.7 : 1
	100%	$\pm(0.1\% \text{ Span})$	19.980	20.020	20.000 mA	1.4e-003	1.8e-003	mA	14.3 : 1
DC Current % Source - 0-20mA Ch #3									
0 - 20mA	0%	$\pm(0.1\% \text{ Span})$	-0.020	0.020	0.000 mA	9.2e-007	1.2e-003	mA	100.0 : 1
	25%	$\pm(0.1\% \text{ Span})$	4.980	5.020	4.999 mA	1.9e-004	1.2e-003	mA	100.0 : 1
	50%	$\pm(0.1\% \text{ Span})$	9.980	10.020	10.001 mA	3.1e-004	1.2e-003	mA	64.5 : 1
	75%	$\pm(0.1\% \text{ Span})$	14.980	15.020	15.001 mA	1.2e-003	1.7e-003	mA	16.7 : 1
	100%	$\pm(0.1\% \text{ Span})$	19.980	20.020	20.000 mA	1.4e-003	1.8e-003	mA	14.3 : 1
DC Current % Source - 0-20mA Ch #4									
0 - 20mA	0%	$\pm(0.1\% \text{ Span})$	-0.020	0.020	0.000 mA	9.2e-007	1.2e-003	mA	100.0 : 1
	25%	$\pm(0.1\% \text{ Span})$	4.980	5.020	5.000 mA	1.9e-004	1.2e-003	mA	100.0 : 1
	50%	$\pm(0.1\% \text{ Span})$	9.980	10.020	10.003 mA	3.1e-004	1.2e-003	mA	64.5 : 1
	75%	$\pm(0.1\% \text{ Span})$	14.980	15.020	15.000 mA	1.2e-003	1.7e-003	mA	16.7 : 1
	100%	$\pm(0.1\% \text{ Span})$	19.980	20.020	20.000 mA	1.4e-003	1.8e-003	mA	14.3 : 1

CERTIFICATE OF CALIBRATION

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Certificate/SO Number: 9-Q1R3O-20-1 Revision 0

As Found/As Left Data

Description	Setpoints	Accuracy	Low Limit	High Limit	As Found / As Left	O Cal Process Uncertainty (k=2; \pm)	O Cal Process Uncertainty (k=2; \pm)	Measurement Uncertainty (k=2; \pm)	Units	TUR
DC Voltage % Source - 0-5V Ch#1										
0 -5V	0%	$\pm(0.1\% \text{ Span})$	-0.0050	0.0050	0.0010 V	5.8e-007	1.2e-004	V	100.0 : 1	
	20%	$\pm(0.1\% \text{ Span})$	0.9950	1.0050	1.0000 V	5.6e-006	1.2e-004	V	100.0 : 1	
	40%	$\pm(0.1\% \text{ Span})$	1.9950	2.0050	1.9991 V	1.1e-005	1.2e-004	V	100.0 : 1	
	60%	$\pm(0.1\% \text{ Span})$	2.9950	3.0050	3.0012 V	1.6e-005	1.2e-004	V	100.0 : 1	
	80%	$\pm(0.1\% \text{ Span})$	3.9950	4.0050	4.0010 V	2.1e-005	1.2e-004	V	100.0 : 1	
	100%	$\pm(0.1\% \text{ Span})$	4.9950	5.0050	5.0005 V	2.6e-005	1.2e-004	V	100.0 : 1	
DC Voltage % Source - 0-5V Ch#2										
0 -5V	0%	$\pm(0.1\% \text{ Span})$	-0.0050	0.0050	0.0015 V	5.8e-007	1.2e-004	V	100.0 : 1	
	20%	$\pm(0.1\% \text{ Span})$	0.9950	1.0050	1.0005 V	5.6e-006	1.2e-004	V	100.0 : 1	
	40%	$\pm(0.1\% \text{ Span})$	1.9950	2.0050	1.9992 V	1.1e-005	1.2e-004	V	100.0 : 1	
	60%	$\pm(0.1\% \text{ Span})$	2.9950	3.0050	3.0012 V	1.6e-005	1.2e-004	V	100.0 : 1	
	80%	$\pm(0.1\% \text{ Span})$	3.9950	4.0050	4.0005 V	2.1e-005	1.2e-004	V	100.0 : 1	
	100%	$\pm(0.1\% \text{ Span})$	4.9950	5.0050	4.9999 V	2.6e-005	1.2e-004	V	100.0 : 1	
DC Voltage % Source - 0-5V Ch#3										
0 -5V	0%	$\pm(0.1\% \text{ Span})$	-0.0050	0.0050	0.0021 V	5.8e-007	1.2e-004	V	100.0 : 1	
	20%	$\pm(0.1\% \text{ Span})$	0.9950	1.0050	0.9999 V	5.6e-006	1.2e-004	V	100.0 : 1	
	40%	$\pm(0.1\% \text{ Span})$	1.9950	2.0050	1.9998 V	1.1e-005	1.2e-004	V	100.0 : 1	
	60%	$\pm(0.1\% \text{ Span})$	2.9950	3.0050	3.0002 V	1.6e-005	1.2e-004	V	100.0 : 1	
	80%	$\pm(0.1\% \text{ Span})$	3.9950	4.0050	4.0010 V	2.1e-005	1.2e-004	V	100.0 : 1	
	100%	$\pm(0.1\% \text{ Span})$	4.9950	5.0050	5.0015 V	2.6e-005	1.2e-004	V	100.0 : 1	
DC Voltage % Source - 0-5V Ch#4										
0 -5V	0%	$\pm(0.1\% \text{ Span})$	-0.0050	0.0050	0.0006 V	5.8e-007	1.2e-004	V	100.0 : 1	
	20%	$\pm(0.1\% \text{ Span})$	0.9950	1.0050	1.0017 V	5.6e-006	1.2e-004	V	100.0 : 1	
	40%	$\pm(0.1\% \text{ Span})$	1.9950	2.0050	2.0008 V	1.1e-005	1.2e-004	V	100.0 : 1	
	60%	$\pm(0.1\% \text{ Span})$	2.9950	3.0050	3.0004 V	1.6e-005	1.2e-004	V	100.0 : 1	
	80%	$\pm(0.1\% \text{ Span})$	3.9950	4.0050	4.0003 V	2.1e-005	1.2e-004	V	100.0 : 1	
	100%	$\pm(0.1\% \text{ Span})$	4.9950	5.0050	5.0001 V	2.6e-005	1.2e-004	V	100.0 : 1	

CERTIFICATE OF CALIBRATION

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Certificate/SO Number: 9-Q1R3O-20-1 Revision 0

As Found/As Left Data

Description	Setpoints	Accuracy	Low Limit	High Limit	As Found / As Left	O Cal Process	Measurement Uncertainty (k=2; ±)	Units	TUR
DC Voltage % Source - 0-10V Ch#1									
0 - 10V	0%	±(0.1% Span)	-0.010	0.010	0.001 V	5.8e-007	1.2e-003	V	100.0 : 1
	20%	±(0.1% Span)	1.990	2.010	1.999 V	1.1e-005	1.2e-003	V	100.0 : 1
	40%	±(0.1% Span)	3.990	4.010	4.001 V	2.1e-005	1.2e-003	V	100.0 : 1
	60%	±(0.1% Span)	5.990	6.010	6.000 V	3.1e-005	1.2e-003	V	100.0 : 1
	80%	±(0.1% Span)	7.990	8.010	8.002 V	4.1e-005	1.2e-003	V	100.0 : 1
	100%	±(0.1% Span)	9.990	10.010	9.999 V	5.2e-005	1.2e-003	V	100.0 : 1
DC Voltage % Source - 0-10V Ch#2									
0 - 10V	0%	±(0.1% Span)	-0.010	0.010	0.001 V	5.8e-007	1.2e-003	V	100.0 : 1
	20%	±(0.1% Span)	1.990	2.010	1.999 V	1.1e-005	1.2e-003	V	100.0 : 1
	40%	±(0.1% Span)	3.990	4.010	4.000 V	2.1e-005	1.2e-003	V	100.0 : 1
	60%	±(0.1% Span)	5.990	6.010	6.002 V	3.1e-005	1.2e-003	V	100.0 : 1
	80%	±(0.1% Span)	7.990	8.010	8.000 V	4.1e-005	1.2e-003	V	100.0 : 1
	100%	±(0.1% Span)	9.990	10.010	10.000 V	5.2e-005	1.2e-003	V	100.0 : 1
DC Voltage % Source - 0-10V Ch#3									
0 - 10V	0%	±(0.1% Span)	-0.010	0.010	0.002 V	5.8e-007	1.2e-003	V	100.0 : 1
	20%	±(0.1% Span)	1.990	2.010	2.000 V	1.1e-005	1.2e-003	V	100.0 : 1
	40%	±(0.1% Span)	3.990	4.010	4.001 V	2.1e-005	1.2e-003	V	100.0 : 1
	60%	±(0.1% Span)	5.990	6.010	6.002 V	3.1e-005	1.2e-003	V	100.0 : 1
	80%	±(0.1% Span)	7.990	8.010	8.000 V	4.1e-005	1.2e-003	V	100.0 : 1
	100%	±(0.1% Span)	9.990	10.010	10.000 V	5.2e-005	1.2e-003	V	100.0 : 1
DC Voltage % Source - 0-10V Ch#4									
0 - 10V	0%	±(0.1% Span)	-0.010	0.010	0.001 V	5.8e-007	1.2e-003	V	100.0 : 1
	20%	±(0.1% Span)	1.990	2.010	2.001 V	1.1e-005	1.2e-003	V	100.0 : 1
	40%	±(0.1% Span)	3.990	4.010	4.000 V	2.1e-005	1.2e-003	V	100.0 : 1
	60%	±(0.1% Span)	5.990	6.010	6.000 V	3.1e-005	1.2e-003	V	100.0 : 1
	80%	±(0.1% Span)	7.990	8.010	8.002 V	4.1e-005	1.2e-003	V	100.0 : 1
	100%	±(0.1% Span)	9.990	10.010	10.000 V	5.2e-005	1.2e-003	V	100.0 : 1

CERTIFICATE OF CALIBRATION

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 Field not applicable.



 Field not applicable.

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Traceable Standards

Asset	Manufacturer	Model Number	Description	Cal Date	Due Date	Traceability Number	Use
NT0309	Agilent	3458A Opt 002	Digital Multimeter, 8.5 Digit	18-Mar-20	31-Mar-21	5-&NT0309-24-1	AF/AL

The use of the standard is defined as: AF - used for as-found readings, AL - used for as-left readings.

Environmental Data

Temperature	Relative Humidity	Temp / RH Asset
72.92°F /22.73°C	65.50%	NT0303

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Legend

Topic	Description
Accuracy	UUT specification that establishes expected tolerances and a time limit (calibration interval) over which the instrument is expected to hold these tolerances
As Found	Initial measurement results
As Left	Measurement results after adjustment and/or repair
Blank Data Field	Test is not applicable for the UUT
Cal Process Uncertainty (CPU)	The uncertainty of calibration process for the reported measurement result
Cover Factor (k)	A measure of uncertainty that defines an interval about the measurement result
Low / High Limits	Establishes UUT acceptable performance limits for the test measurement
Measurement Uncertainty	The dispersion of the values attributed to a measured quantity
OOT	Out of Tolerance
Setpoints	Measurement target values
Traceability	Unbroken chain of comparisons relating an instrument's measurements to a known standard(s)
Traceability Number	Unique identifier(s) used to document traceability of calibration standards
TUR	Test Uncertainty Ratio, ratio of the tolerance or specification of the test measurement in relation to the uncertainty in measurement results
UUT	Unit Under test

SCC Accreditation & Design Mark is an Official Mark of the Standards Council of Canada, used under license.

Calibrated At: 916 Gateway Burlington, ON L7L 5K7 800-828-1470	Facility Responsible: 916 Gateway Burlington, ON L7L 5K7 800-828-1470	Calibrated By: Lawrence Loi Electronically Signed By: Lawrence Loi Sean Hastings	Reviewed By: Sean Hastings Electronically Signed By: Sean Hastings Sean Hastings
Unit Barcode: 901B0165659		Lawrence Loi Aug 04, 2020 09:54:15 -04:00	Sean Hastings Aug 04, 2020 13:31:31 -04:00
		Calibration Technician	Lab Manager

Date Received: July 20, 2020
 Service Level : R9

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Customer Number: 9-322110-000
 OPS-F20-014R7 05/29/2020 FP001R7 6/30/2020

Appendix F.02 **Compliance Statement**

1 Summary of Measurement Results

Sound power and tonal audibility levels from 13228.02.T60.RP1 are summarized in Table F1 and Table F2. Sound power levels and tonal audibility values are compared to the design targets for the maximum sound power level and maximum tonal audibility values specified in the Noise Abatement Action Plan (NAAP).

Table F1: Apparent Sound Power values from Table 11 of 13228.02.T60.RP1

Wind Speed (m/s)	Apparent L _{WA} , (dBA)	Maximum allowable Sound Power Level (dBA)* NAAP
7.0	99.5	103.5
7.5	99.8	103.5
8.0	99.2	103.5
8.5	99.4	103.5
9.0	99.6	103.5
9.5	99.6	103.5
10.0	99.6	103.5
10.5	100.2	103.5
11.0	100.0	103.5
11.5	99.1	103.5

* Includes +0.5 dB, per Section E3.1 of the Compliance Protocol for Wind Turbine Noise

Table F2: Tonal Audibility values from Table 14 of 13228.02.T60.RP1

Wind Speed (m/s)	Frequency (Hz)	Tonal audibility, ΔL _a (dB)
7.0		No Reportable Tones
7.5		No Reportable Tones
8.0		No Reportable Tones
8.5		No Reportable Tones
9.0	411	-0.1
9.5	411	0.8
10.0	422	5.4
10.5	420	3.1
11.0	413	0.3
11.5	416	2.5

2 Assessment with Tonal Adjustment

A tonal adjustment has been considered as per the tonal adjustment structure in ISO 1996-2:2007 Annex C. This standard requires that the tonal adjustment would be a positive number between 0 dB and 6 dB based on the degree of tonal audibility. The tonal adjustment is calculated as $L_{ta} - 4$ dB i.e., a tonal audibility of 6.5 dB would incur an adjustment of 2.5 dB on the Turbine sound power.

To demonstrate compliance at all reportable wind bins the Apparent Sound Power Level has been calculated by including a tonal adjustment for required wind bins in Table F3 below.

Table F3: Apparent Sound Power values with Tonal Adjustment

Wind Speed (m/s)	Apparent L_{WA} , (dBA)	Apparent L_{WA} , (dBA) with Tonal Adjustment	Maximum allowable Sound Power Level (dBA)* NAAP
7.0	99.5	99.5	103.5
7.5	99.8	99.8	103.5
8.0	99.2	99.2	103.5
8.5	99.4	99.4	103.5
9.0	99.6	99.6	103.5
9.5	99.6	99.6	103.5
10.0	99.6	101.0	103.5
10.5	100.2	100.2	103.5
11.0	100.0	100.0	103.5
11.5	99.1	99.1	103.5

* Includes +0.5 dB, per Section E3.1 of the Compliance Protocol for Wind Turbine Noise

3 Statement of Compliance

Based on the results presented in Table F1 and Table F3, the maximum apparent sound power level of T60 operating in its derated mode of 1745 kW (100dBA) is less than the maximum sound power level in the required by the NAAP to be compliant at the nearby receptors.

Therefore, based on the guidance in Section E3.1.1 and E3.1.3 of the Protocol, the measured sound power levels and tonal audibility of South Kent T60 are considered acceptable and are compliant with the maximum allowable turbine emission levels specified in the Noise Abatement Action Plan.

Appendix F.03 **E-audit Checklist**

Appendix F.03 - (2017 Compliance Protocol Appendix F6): E-Audit checklist for IEC 61400-11:2013
Wind Energy Project – Screening Document – Acoustic Audit Report – Emission IEC61400-11:2013 Standard
Information Required in the Acoustic Audit Report – Emission

Item #	Description	Complete?	Comment
1	Characterization of the wind turbine Items 1 to 26; IEC61400-11:2013, Section 10.2	✓	Report Section 2.1
2	Physical environment Items 27 to 33; IEC61400-11:2013, Section 10.3, Physical Environment	✓	Report Section 2.2, 3.1.4, 3.5, Appendix A
3	Measurement instrumentation Items 34 to 39; IEC61400-11:2013, Section 10.4, Instrumentation	✓	Report Section 3.1, Appendix F.01
4	Acoustic data Items 40 to 52; IEC61400-11:2013, Section 10.5, Acoustic Data	✓	Report Section 4, 3.3, Appendix C, Appendix D,
5	Non-acoustic data Items 50 to 53, and 56; IEC61400-11:2003 Section 10.6, Non-Acoustic Data Items 59 and 60; NPC-233, Section 12.3, Acoustic Audit – Acoustical Data, bullet point number 8, All necessary and supporting calculations	✓	Report Section 3.3, Appendix C, Appendix E
6	Uncertainty the apparent sound power level at integer wind speeds one-third octave band spectrum of the noise at the reference position at each integer wind speed the Tonality of the sound emissions of the wind turbine measured at the reference position	✓	Report Section 4.3, Appendix C
7	Additional information Item 60; NPC-233, Section 10, Report Format, bullet point number 4, Conclusions and Recommendations Item 61; NPC-233, Section 12.3, Acoustic Audit – Acoustical Data, bullet point number 8, All necessary and supporting calculations Item 62; NPC-233, Section 12.3, Acoustic Audit – Acoustical Data, bullet point number 3, Details of measurement procedure	✓	Report Section 3 and Section 5, Appendix F, data in Excel provided separately
8	Items 68 to 72; IEC61400-11:2013, Section 10.5, Acoustic Data	∅	Optional information, not provided in this report
9	Non-acoustic data Items 73 to 74 are from IEC61400-11:2013, Section 10.6, Non-Acoustic Data	∅	Optional information, not provided in this report

End of Report
