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Report ID: 20019.00.T01.RP1

Romney Wind Energy Centre / Turbine T01
IEC 61400-11 Edition 3.0 Measurement Report

Prepared for:

Romney Energy Centre Limited Partnership
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Prepared by:

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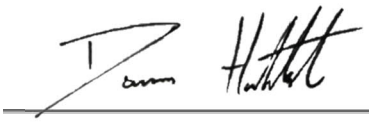

Duncan Halstead, B.A.Sc., P.Eng.

December 23, 2020

Revision History

Version	Description	Author	Reviewed	Date
RP1	Initial Report	HF	DH	December 23, 2020

This report in its entirety, including appendices contains 115 pages.

Statement Qualifications and Limitations

This report was prepared by Aercoustics 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.

Aercoustics 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 Aercoustics Engineering Limited. Further, Aercoustics 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 Aercoustics Engineering Limited makes no other representations with respect to this report or any part thereof.

Any use which a third party makes of this report, or any reliance on or decisions to be made based on it, are the responsibility of such third parties. Aercoustics Engineering Limited accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions based on this report.

Any use of this report is subject to this Statement of Qualifications and Limitations. Any damages arising from improper use of this report or parts thereof shall be borne by the party making such use.

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

Table of Contents

List of Appendices

1 Introduction

Aercoustics Engineering Limited ("Aercoustics") was retained by EDF Renewables Development Inc. on behalf of Romney Energy Centre Limited Partnership to conduct acoustic measurements of the wind turbine T01, located in the Romney Wind Energy Centre. 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 T01.

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 T01 was provided by the client and is summarized in Table 1 to Table 5.

Table 1 - Wind Turbine Details

Wind Turbine Details	
Manufacturer	Vestas
Model Number	V136
Turbine ID (Serial Number)	WTG-1 226332

Table 2 - Operating Details

Operating Details	
Vertical or Horizontal axis wind turbine	Horizontal
Upwind or downwind rotor	Upwind
Hub height	132 m
Horizontal distance from rotor centre to tower axis	2.4 m
Diameter of rotor	136 m
Tower type (lattice or tube)	LDST (Large Diameter Steel Tower)
Passive stall, active stall, or pitch controlled turbine	Pitch controlled
Constant or variable speed	Variable Speed
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	3.45 MW
Control software version	VOB

Table 3 - Rotor Details

Rotor Details	
Rotor control devices	Micro Processor Blade Pitch Control
Presence of aerodynamic add-ons, such as vortex generators, stall strips, serrated trailing edges, etc.	Serrated Edges (trailing)
Blade type	WH BTT 196
Serial number	29053528 WH BTT 196, A945, B928, C942
Number of blades	3

Table 4 - Gearbox Details

Gearbox Details	
Manufacturer	ZF Wind Power
Model number	3.45 MW 125.16
Serial number	EH922A-C01/BM0604

Table 5 - Generator Details

Generator Details	
Manufacturer	Vestas (VND)
Model number	DASG 560/6M
Serial number	DI90537

For this test, turbine T01 was configured to operating in the Mode 0 operating mode.

2.2 Wind Turbine Location / Physical Environment

UTM coordinates of Turbine T01 are 380450 m E and 4670257 m N, Zone 17T. The area surrounding the test turbine was flat with grass, crops, and trees nearby.

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

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	SN:22143211	June 5, 2020
Microphone	B&K 4189	SN2622170 / SN2625197	August 26, 2019
Pre-amplifier	B&K 2671	SN2622170 / SN2614901	August 26, 2019
Acoustic calibrator	B&K 4231	SN 3012380	March 10, 2020

* Calibration certificates are provided in Appendix F

3.1.2 Meteorological Equipment

Meteorological parameters were measured using an anemometer installed on top of a 10-m AGL[1] 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 WXT536	R2510790	February 4, 2020
Serial to Analog Converter	Nokeval 7470	A198729	March 29, 2019

* Calibration certificates are provided in Appendix F

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 = 175 m. An elevation difference of 0 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 = 221.1 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 a crop field and a dirt road covered in dried leaves. 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
October 28, 2020	Turbine ON	11:21 AM	11:34 AM
	Background	11:37 AM	12:11 PM
	Turbine ON	12:29 PM	12:35 PM
	Turbine ON	12:37 PM	12:53 PM
	Background	12:56 PM	1:28 PM
	Turbine ON	1:42 PM	2:34 PM
	Background	2:36 PM	3:16 PM
	Turbine ON	3:23 PM	3:45 PM
	Background	3:47 PM	4:09 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
1.08	1.34

3.4 Deviations from IEC-61400-11 Edition 3.0

No deviations.

3.5 Special Notes & Considerations

No 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	
7.5	52.1	10	44.5	61	51.3
8	52.0	10	44.8	72	51.1
8.5	52.6	11	45.0	99	51.8
9	52.8	28	44.5	100	52.1
9.5	53.1	35	44.5	109	52.5
10	53.3	22	44.2	82	52.7
10.5	53.3	45	44.3	57	52.8
11	53.4	41	43.9	25	52.9
11.5	53.2	26	43.7	18	52.7
12	53.2	11	44.1	12	52.7

* denotes a 3 to 6 dB difference between Turbine ON and Background
** denotes a less than 3 dB difference between Turbine ON and Background; level not reported

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)
7.5	103.2	1.1
8	102.9	0.9
8.5	103.7	0.9
9	104.0	0.9
9.5	104.4	0.9
10	104.6	0.7
10.5	104.7	0.9
11	104.8	0.9
11.5	104.6	0.8

Wind Speed (m/s)	Apparent L_{WA}, (dBA)	Uncertainty (dB)
12	104.6	1.0

* denotes a 3 to 6 dB difference between Turbine ON and Background
** denotes a less than 3 dB difference between Turbine ON and Background; level not reported

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

Wind Speed (m/s)	Apparent L_{WA}, (dBA)	Uncertainty (dB)
5.0	102.7	1.2
6.0	103.9	0.8
7.0	104.6	0.8
8.0	104.6	1.1

* 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 uncertainy 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, ΔLtn (dB)	Tonal audibility, ΔLa (dB)	FFT's with tones	Total # of FFT's	Presence (%)
7.5	82	-2.6	-0.6	8	10	80%
8	84	-4.8	-2.8	7	10	70%
8	505	-1.4	0.9	7	10	70%
8.5	551	-2.7	-0.4	10	11	91%
9	558	-4.0	-1.6	24	28	86%
9.5	562	-2.8	-0.5	35	35	100%
10	564	-1.3	1.1	22	22	100%
10.5	105	-3.2	-1.2	14	45	31%
10.5	544	3.4	5.7	19	45	42%
11	550	2.5	4.9	16	41	39%
11.5	548	3.4	5.8	9	26	35%
12	110	-4.7	-2.7	7	11	64%
12	548	1.4	3.7	7	11	64%

5 Closure

Measurements and analyses per IEC 61400-11 (edition 3.0) were performed on turbine T01 of the Romney Wind Energy Centre, located in the Chatham-Kent municipality and the Town of Lakeshore. The test turbine was found to have a maximum apparent sound power level of 104.8 dBA and a maximum tonal audibility of 5.8 dB.

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

6 References

[1] IEC 61400-11. 2012. Wind Turbines – Part 11: Acoustic noise measurement techniques. IEC 61400-11. International Electrotechnical Commission.

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Appendix A
Site Details

aercoustics	20019.00.T1.RP1	**Project Name**
	Scale: As Shown Drawn by: HF Reviewed by: DH Date: Dec 16 Revision: 1	Romney Wind Energy Centre - IEC 61400- 11 Edition 3.0 - Turbine T1
		Figure Title Site Plan
		Figure A.01

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20019.00.T1.RP1	
Scale: As Shown	
Drawn by: HF	
Reviewed by: DH	
Date: Dec 16	
Revision: 1	

Project Name

Romney Wind Energy Centre - IEC 61400- 11 Edition 3.0 - Turbine T1

Figure Title

Site Photos

Figure A.02

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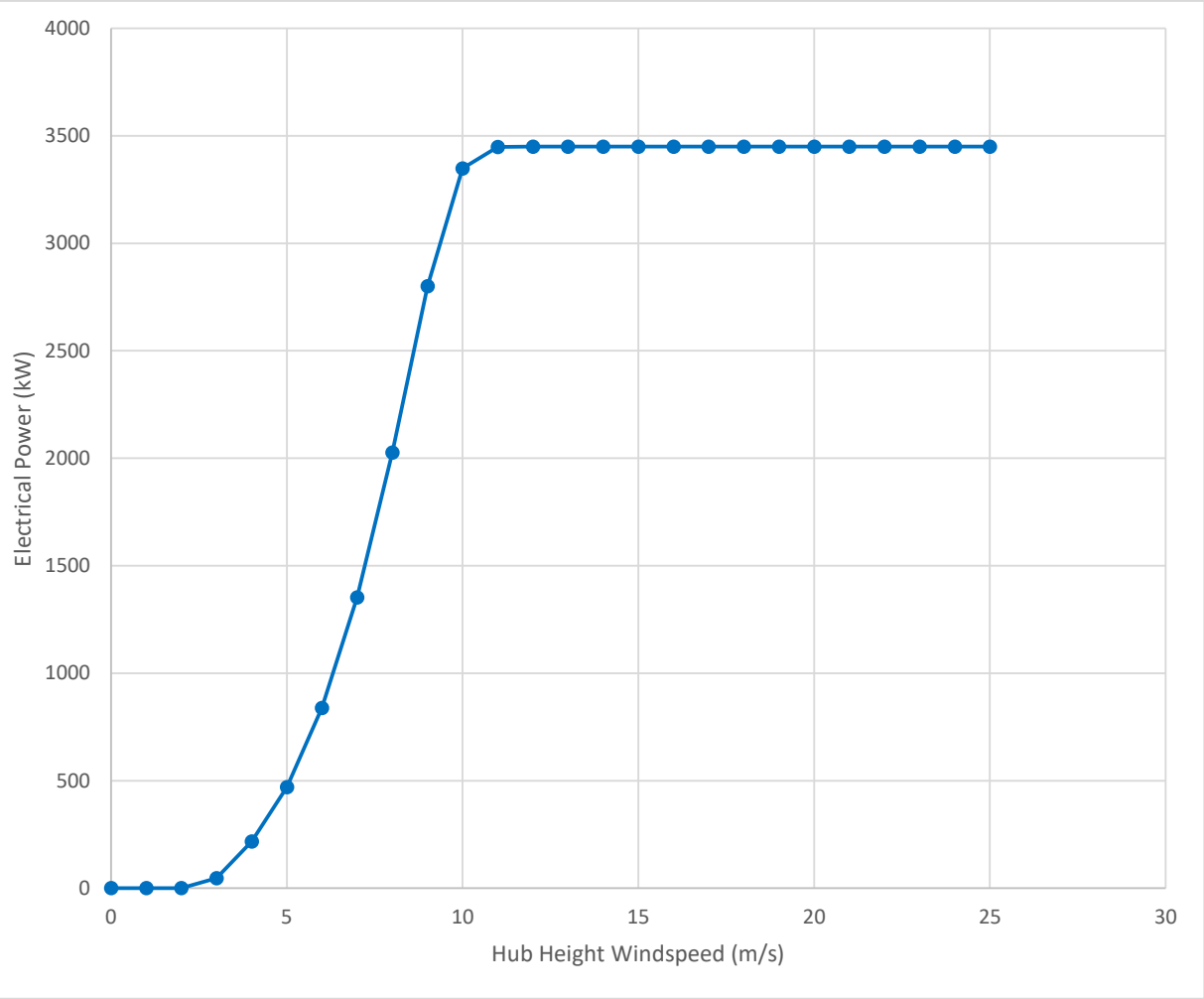
Appendix B
Turbine Information



Power Curve	
Hub Wind Speed (m/s)	Power [kW]
0	0
1	0
2	0
3	47
4	218
5	470
6	838
7	1353
8	2026
9	2801
10	3348
11	3448
12	3450
13	3450
14	3450
15	3450
16	3450
17	3450
18	3450
19	3450
20	3450
21	3450
22	3450
23	3450
24	3450
25	3450

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20019.00.T1.RP1

Scale: NTS
Drawn by: HF
Reviewed by: DH
Date: Dec 16
Revision: 1

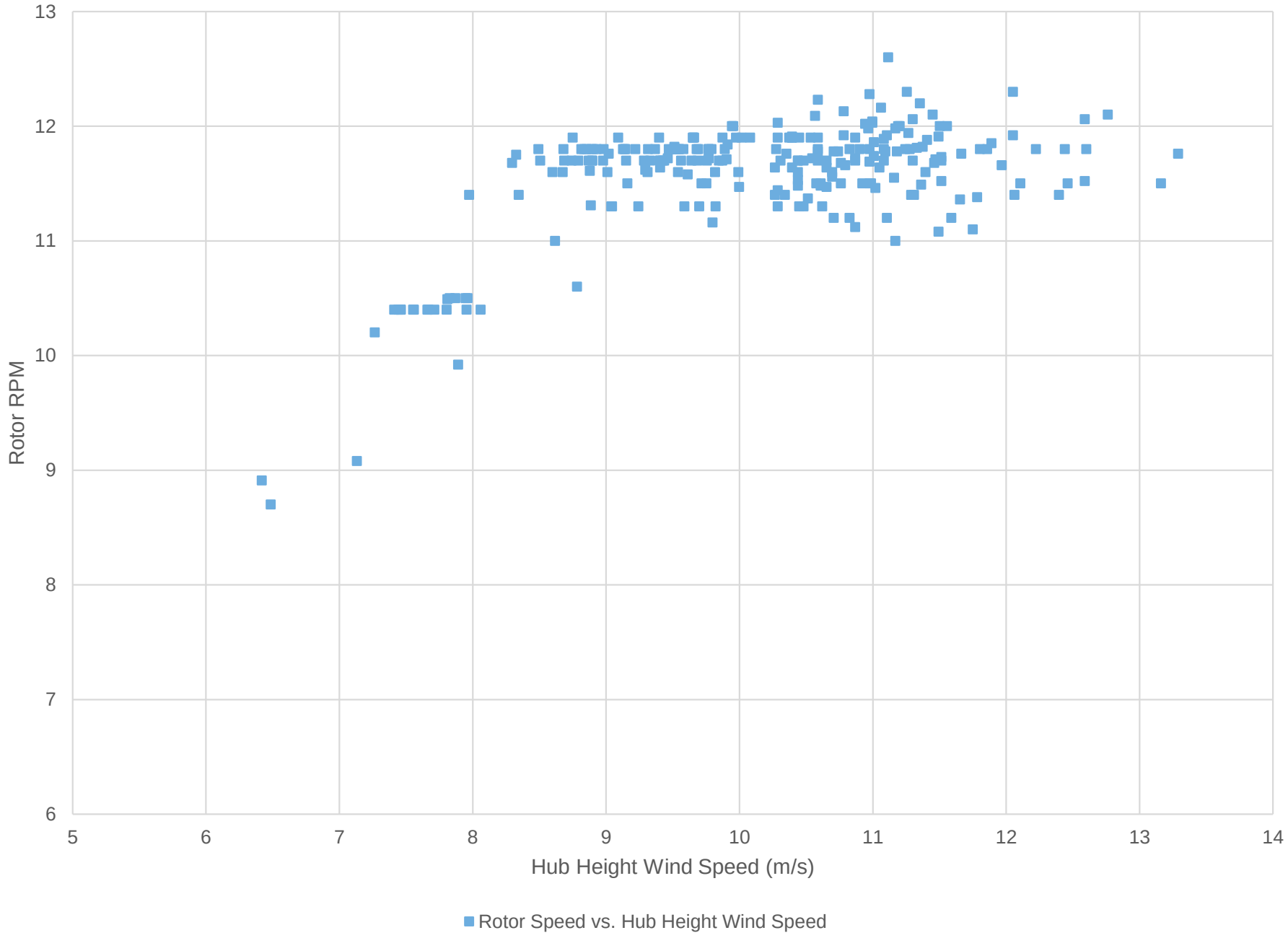
Project Name

Romney Wind Energy Centre - IEC 61400- 11 Edition 3.0 - Turbine T1

Figure Title

Power Curve

Figure B.01



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	Scale: NTS Drawn by: HF Reviewed by: DH Date: Dec 16 Revision: 1	Romney Wind Energy Centre - IEC 61400- 11 Edition 3.0 - Turbine T1
		Figure Title Rotor RPM vs. Wind Speed
		Figure B.02

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

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	3450	kW
85% Power	2932.5	kW
Corresponding wind speed	9.24	m/s
Minimum bin	7.5	m/s
Maximum bin	12.0	m/s

Power Curve		
Hub Wind Speed (m/s)	Power [kW]	slope
0	0	-69
1	0	-69
2	0	-22
3	47	102
4	218	183
5	470	299
6	838	446
7	1353	604
8	2026	706
9	2801	478
10	3348	31
11	3448	-67
12	3450	-69
13	3450	-69
14	3450	-69
15	3450	-69
16	3450	-69
17	3450	-69
18	3450	-69
19	3450	-69
20	3450	-69
21	3450	-69
22	3450	-69
23	3450	-69
24	3450	-69
25	3450	

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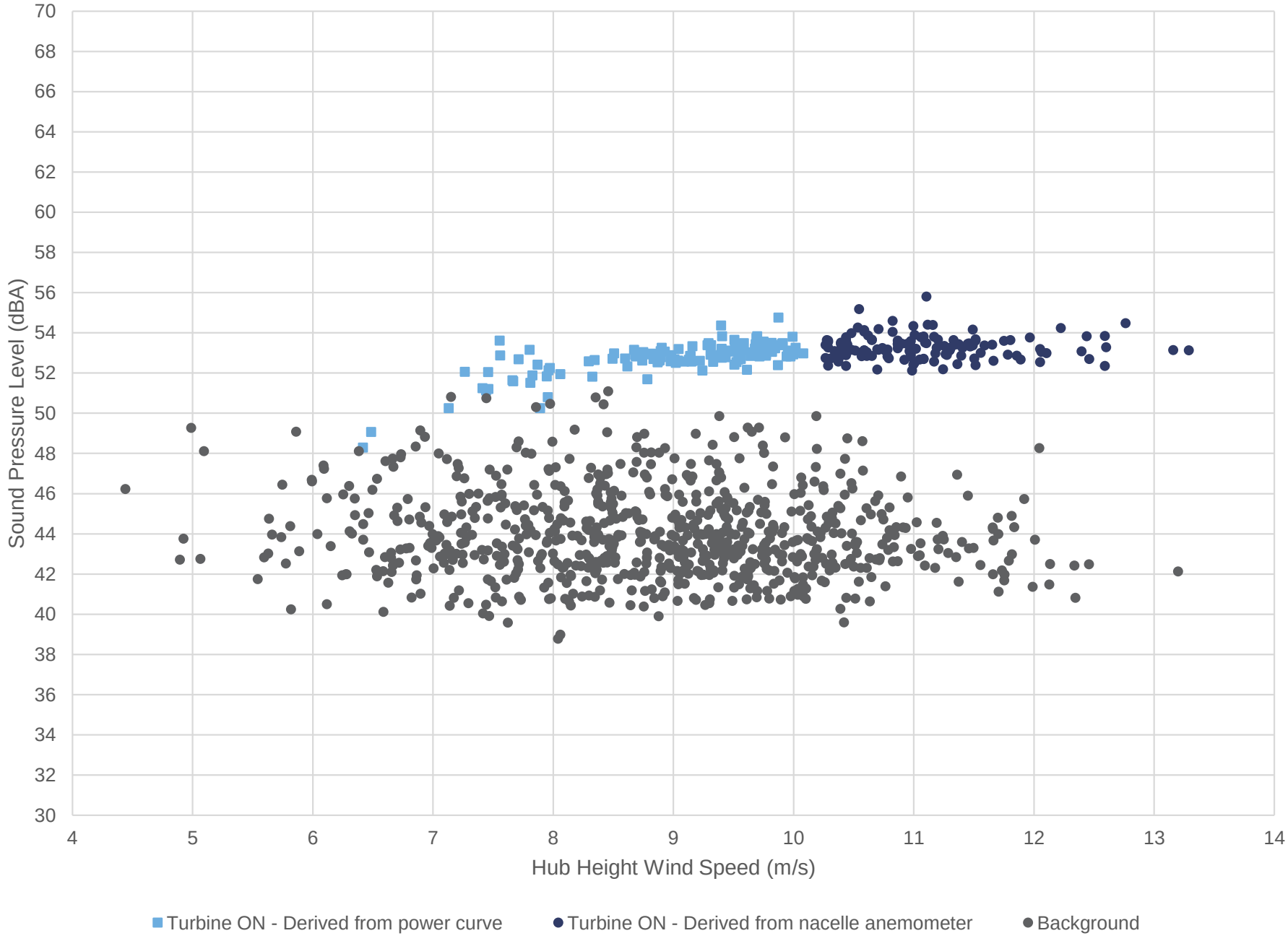
Appendix C
Apparent Sound Power Level



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Scale: NTS Drawn by: HF Reviewed by: DH Date: Dec 16 Revision: 1	Romney Wind Energy Centre - IEC 61400- 11 Edition 3.0 - Turbine T1
	Figure Title Plot of overall measurement data pairs at Position 1 (Turbine ON & Background)

Figure C.01

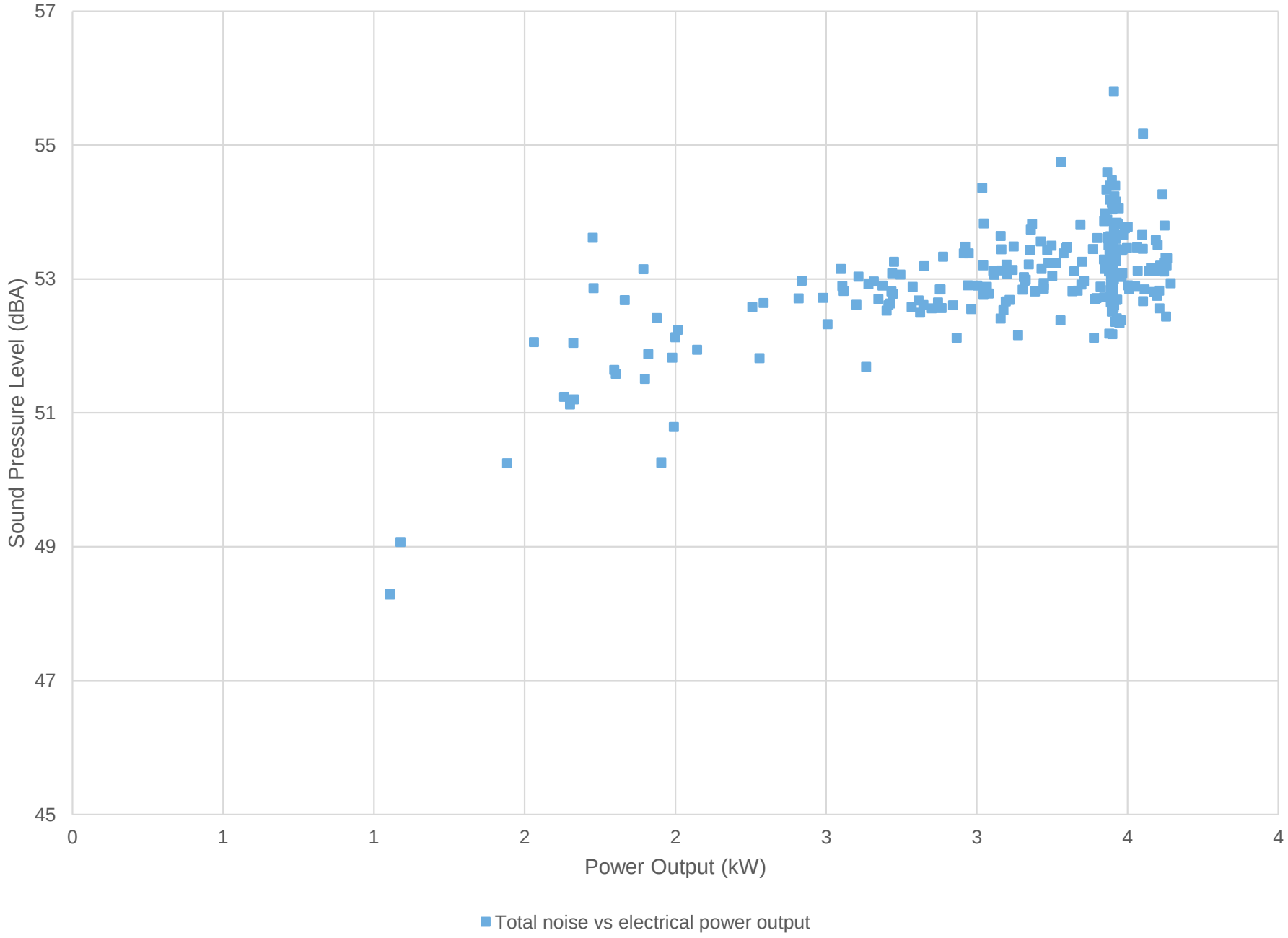

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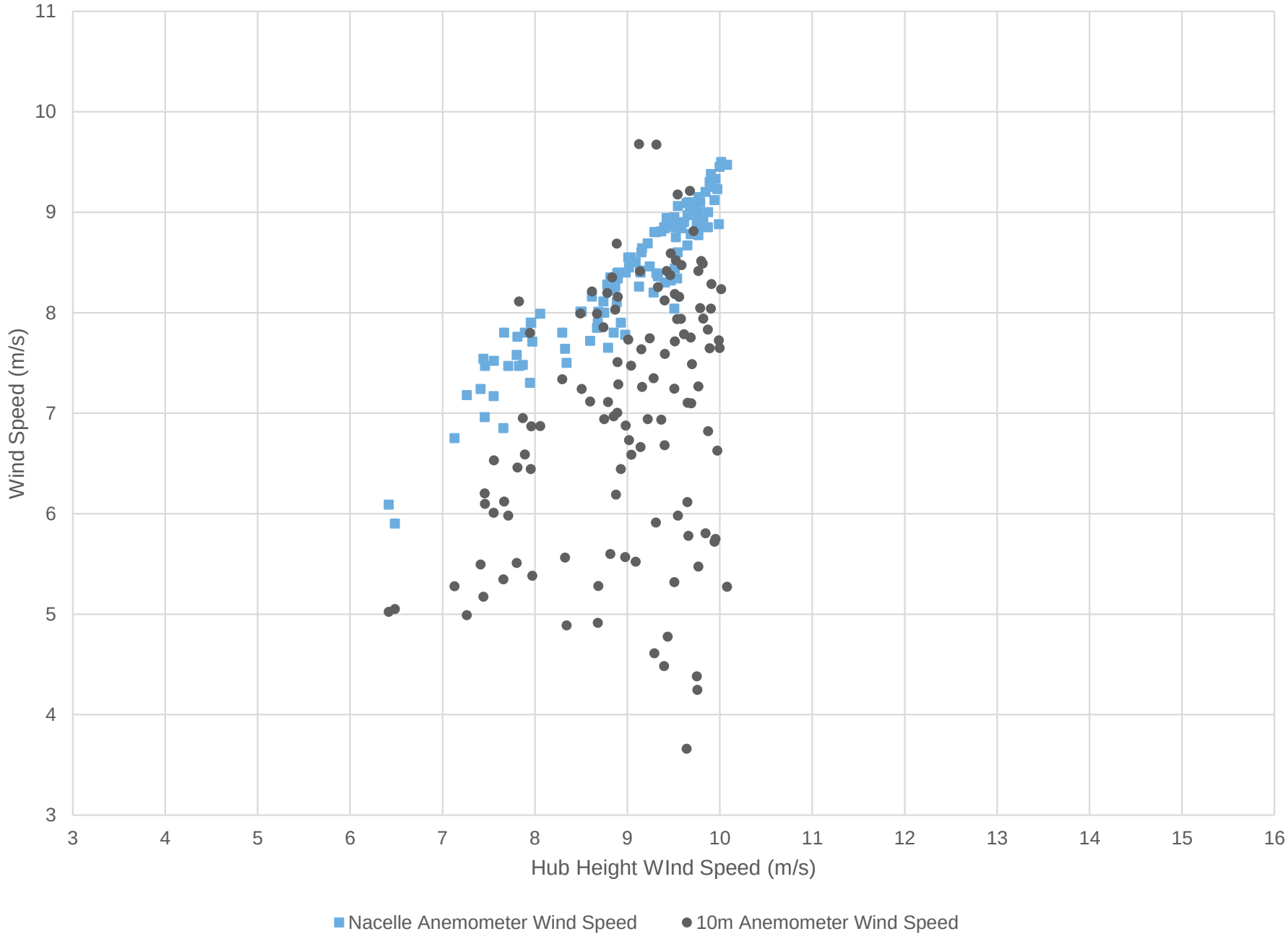
	Figure Title Plot of measured total noise vs. electrical power output

Figure C.02



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	Scale: NTS Drawn by: HF Reviewed by: DH Date: Dec 16 Revision: 1	Romney Wind Energy Centre - IEC 61400- 11 Edition 3.0 - Turbine T1
		Figure Title Plot of power curve relative to nacelle anemometer and 10m anemometer
		Figure C.03

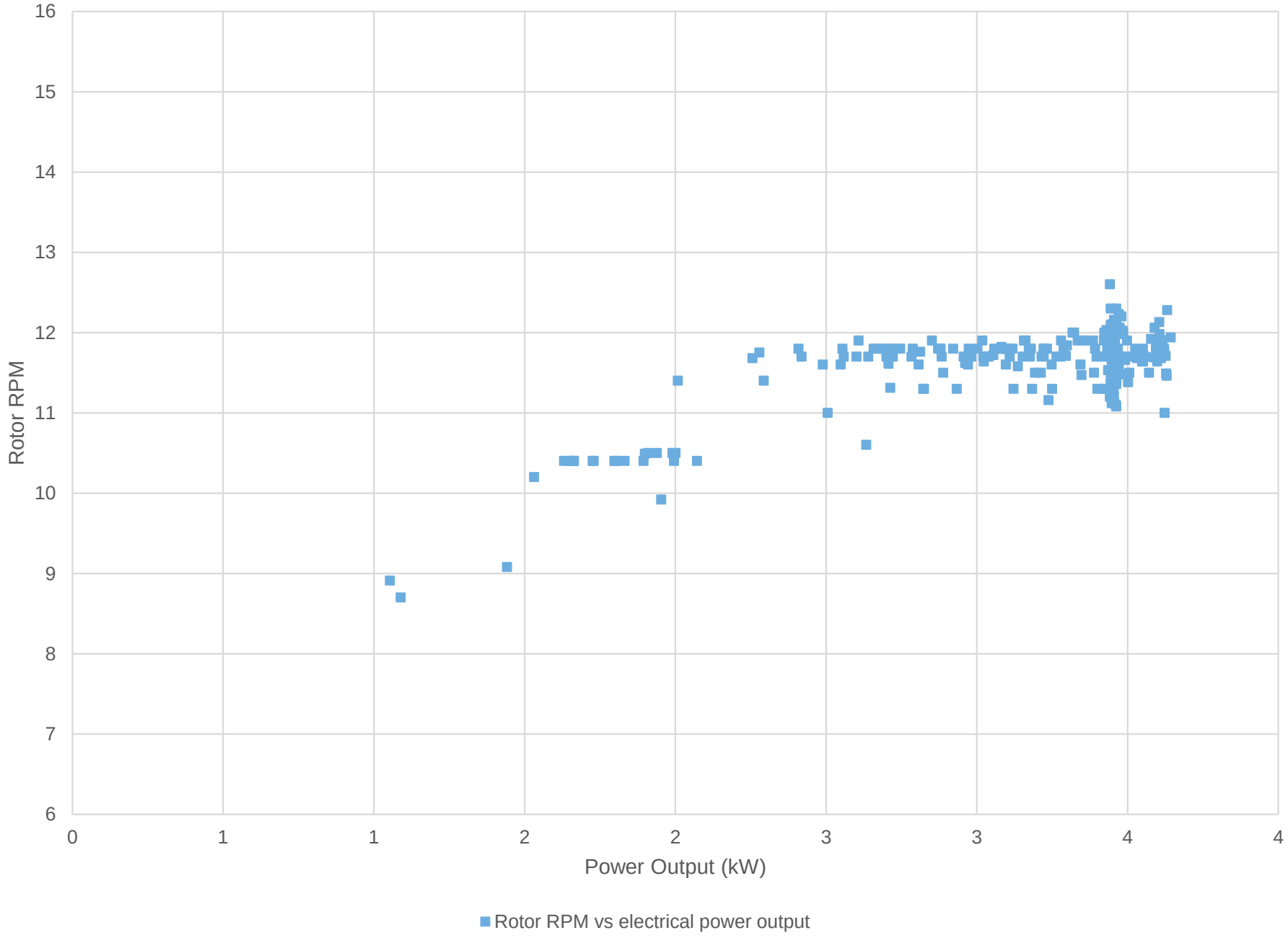

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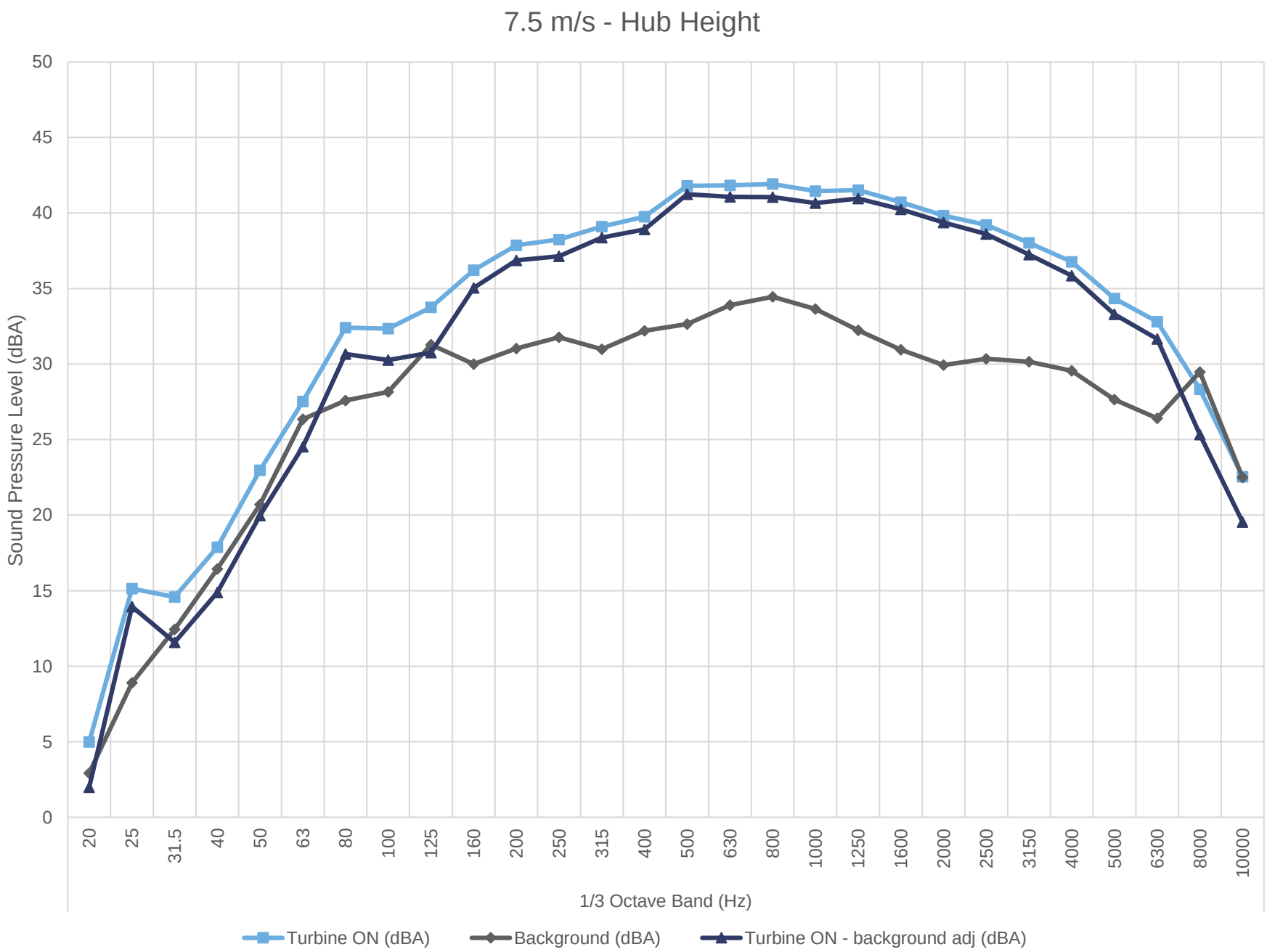
		Figure Title Plot of Rotor RPM vs. electrical power output
		Figure C.04



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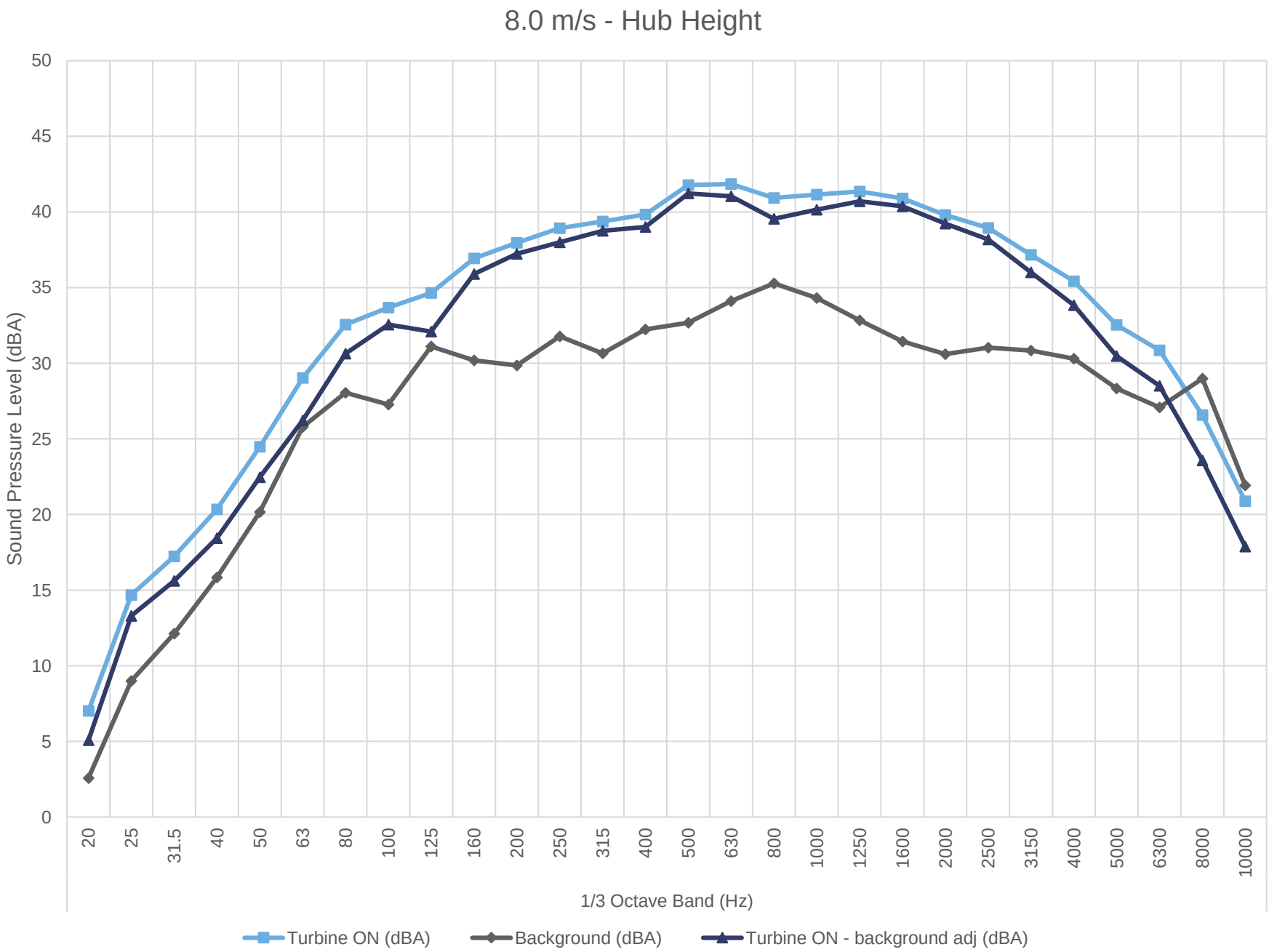
Scale: NTS Drawn by: HF Reviewed by: DH Date: Dec 16 Revision: 1	Romney Wind Energy Centre - IEC 61400- 11 Edition 3.0 - Turbine T1
	Figure Title Plot of sound pressure spectrum at 1/3 Octave at 7.5 m/s

Figure C.05



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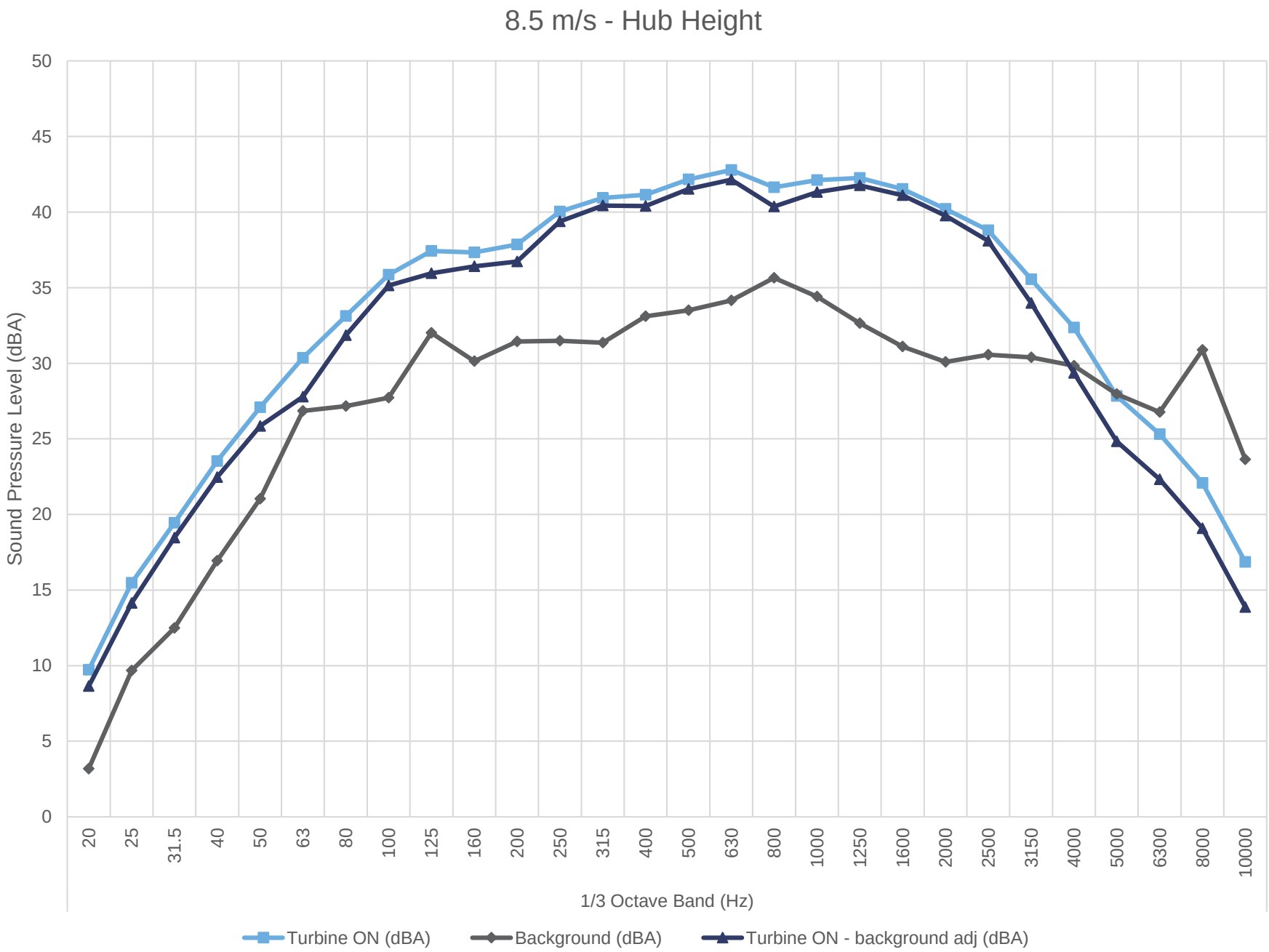
	Scale: NTS Drawn by: HF Reviewed by: DH Date: Dec 16 Revision: 1	Romney Wind Energy Centre - IEC 61400- 11 Edition 3.0 - Turbine T1
		Figure Title Plot of sound pressure spectrum at 1/3 Octave at 8.0 m/s

Figure C.06



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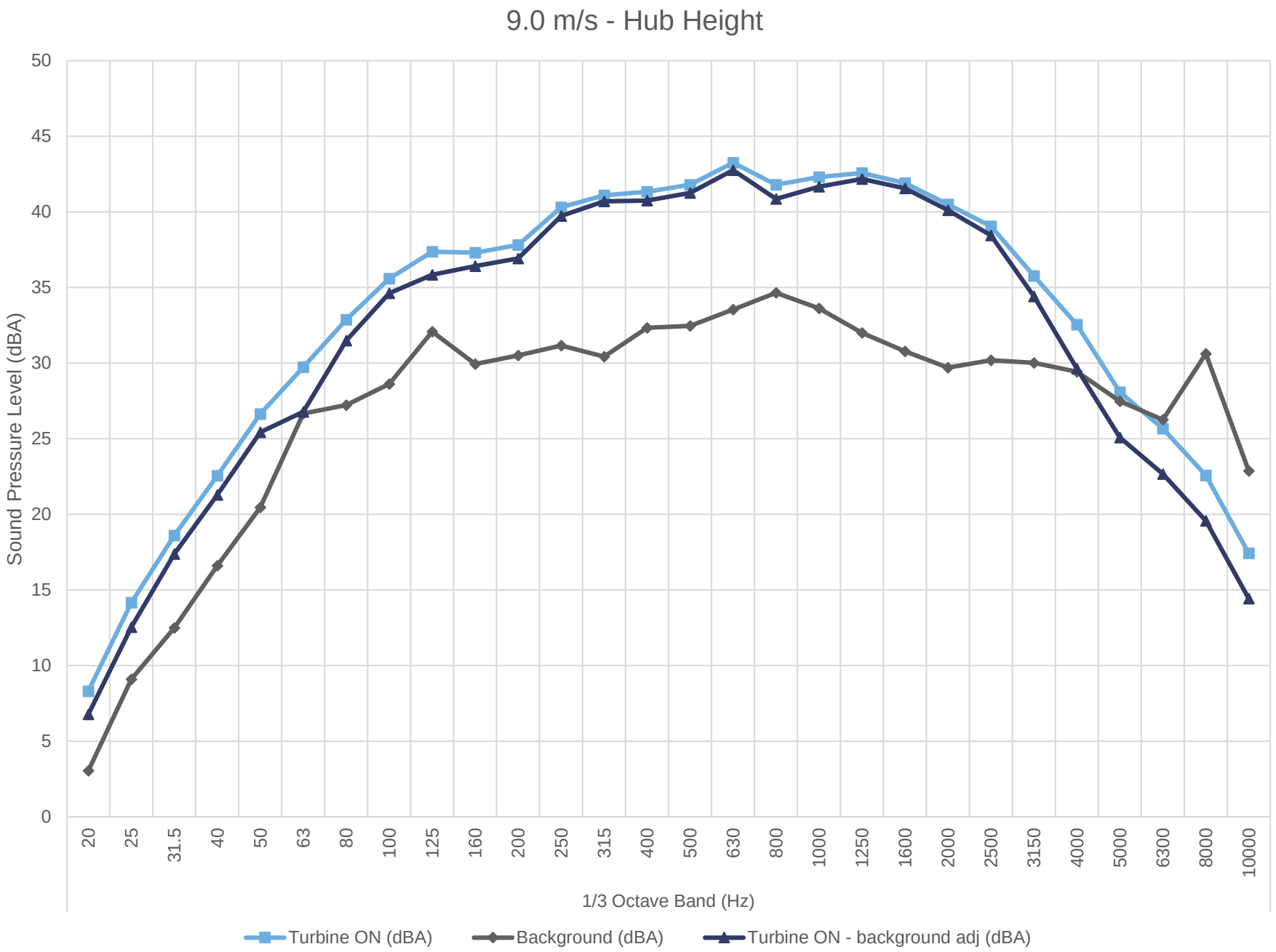
	Scale: NTS Drawn by: HF Reviewed by: DH Date: Dec 16 Revision: 1	Romney Wind Energy Centre - IEC 61400- 11 Edition 3.0 - Turbine T1
		Figure Title Plot of sound pressure spectrum at 1/3 Octave at 8.5 m/s
		Figure C.07



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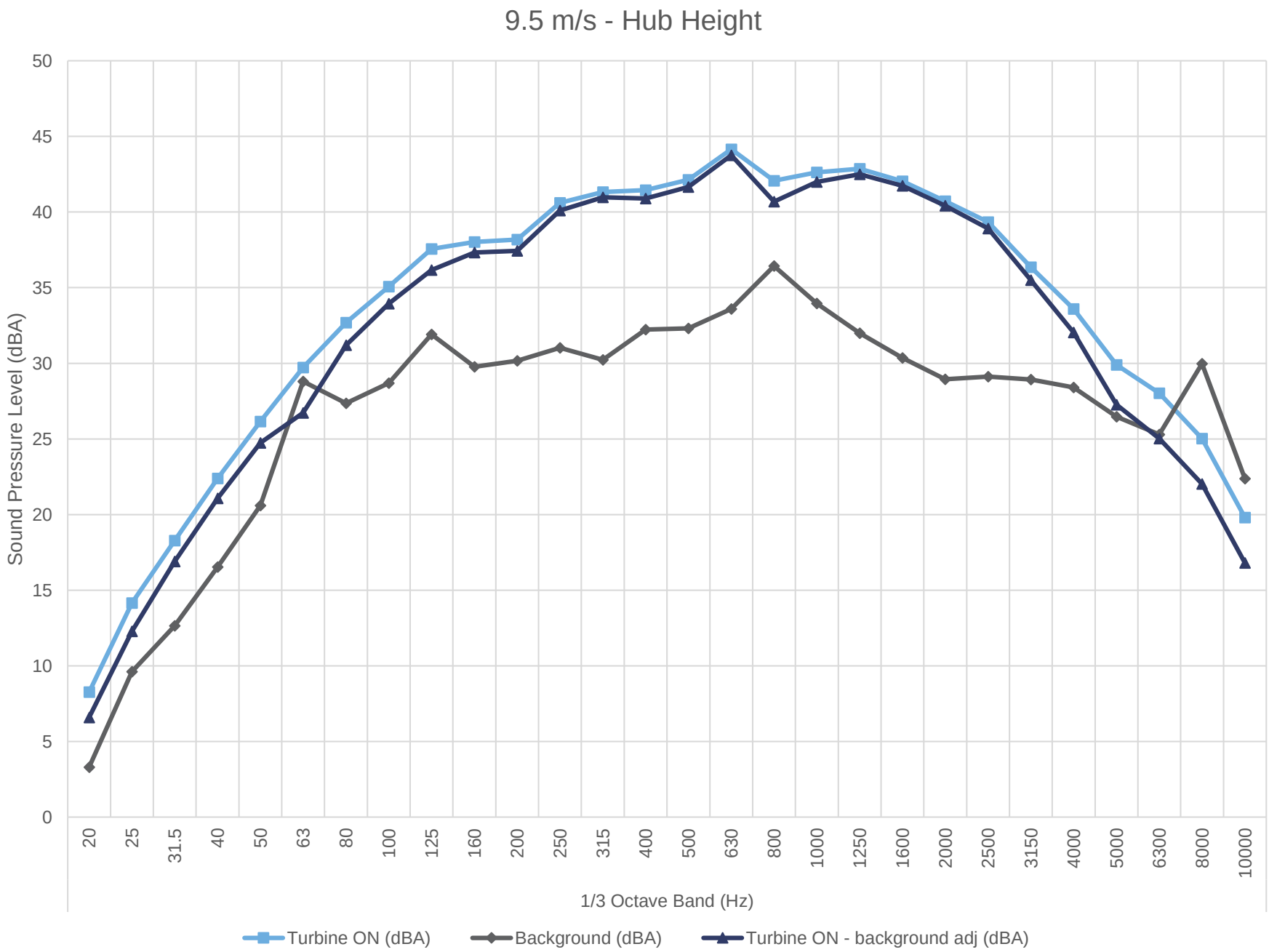
Scale: NTS Drawn by: HF Reviewed by: DH Date: Dec 16 Revision: 1	Romney Wind Energy Centre - IEC 61400- 11 Edition 3.0 - Turbine T1
	Figure Title Plot of sound pressure spectrum at 1/3 Octave at 9.0 m/s

Figure C.08



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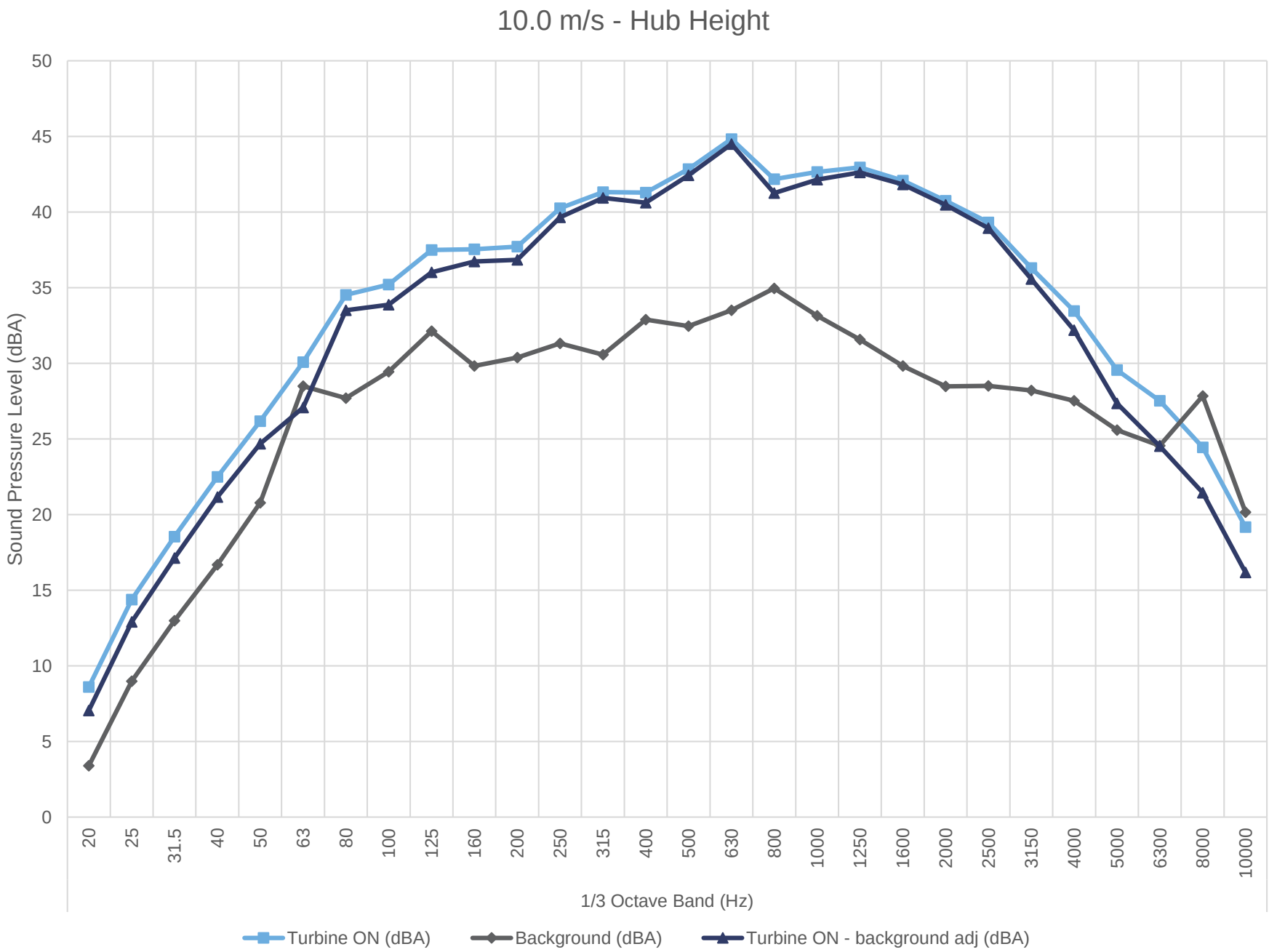
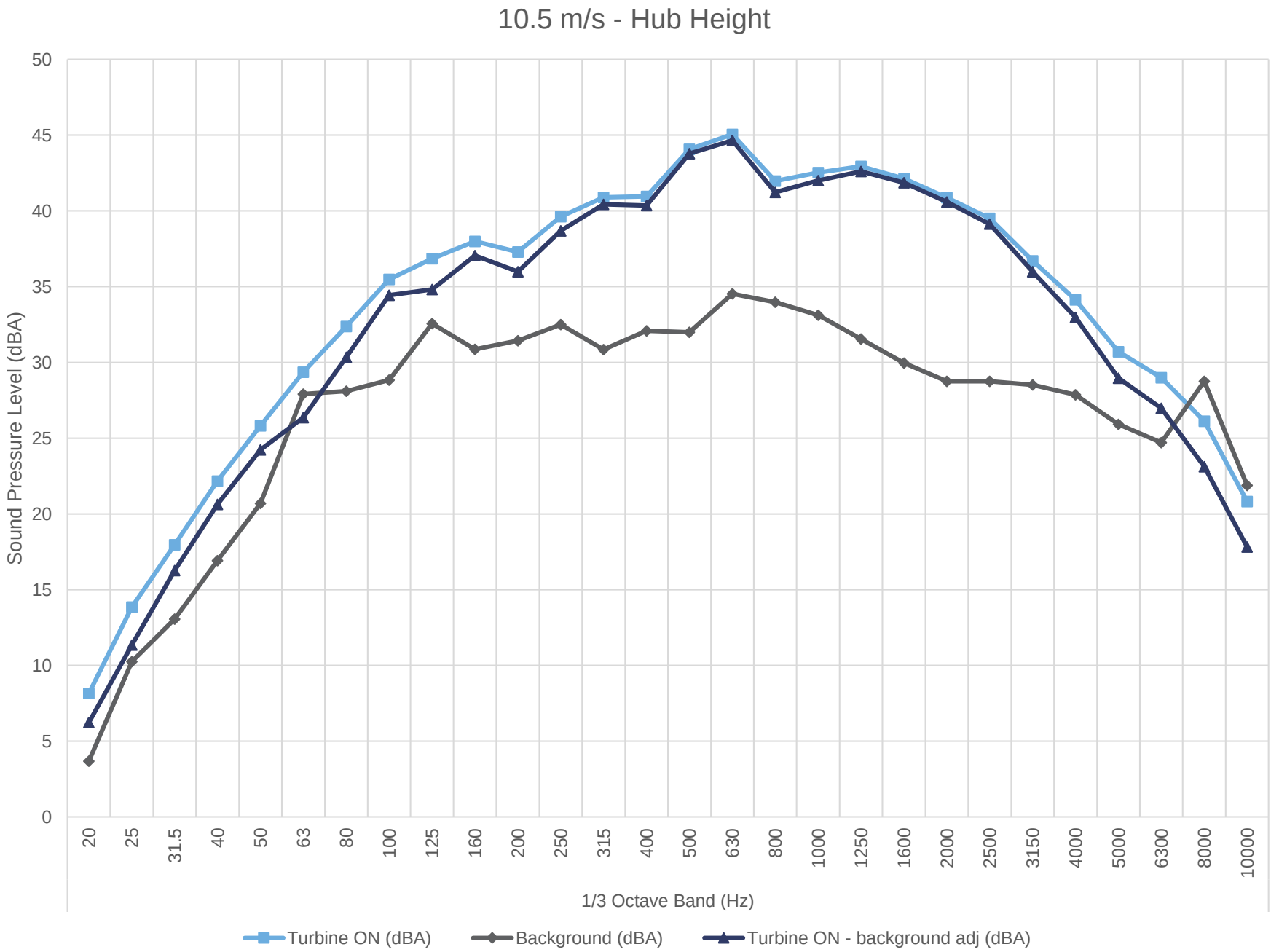
20019.00.T1.RP1	**Project Name**
Scale: NTS Drawn by: HF Reviewed by: DH Date: Dec 16 Revision: 1	Romney Wind Energy Centre - IEC 61400- 11 Edition 3.0 - Turbine T1
	Figure Title Plot of sound pressure spectrum at 1/3 Octave at 9.5 m/s

Figure C.09

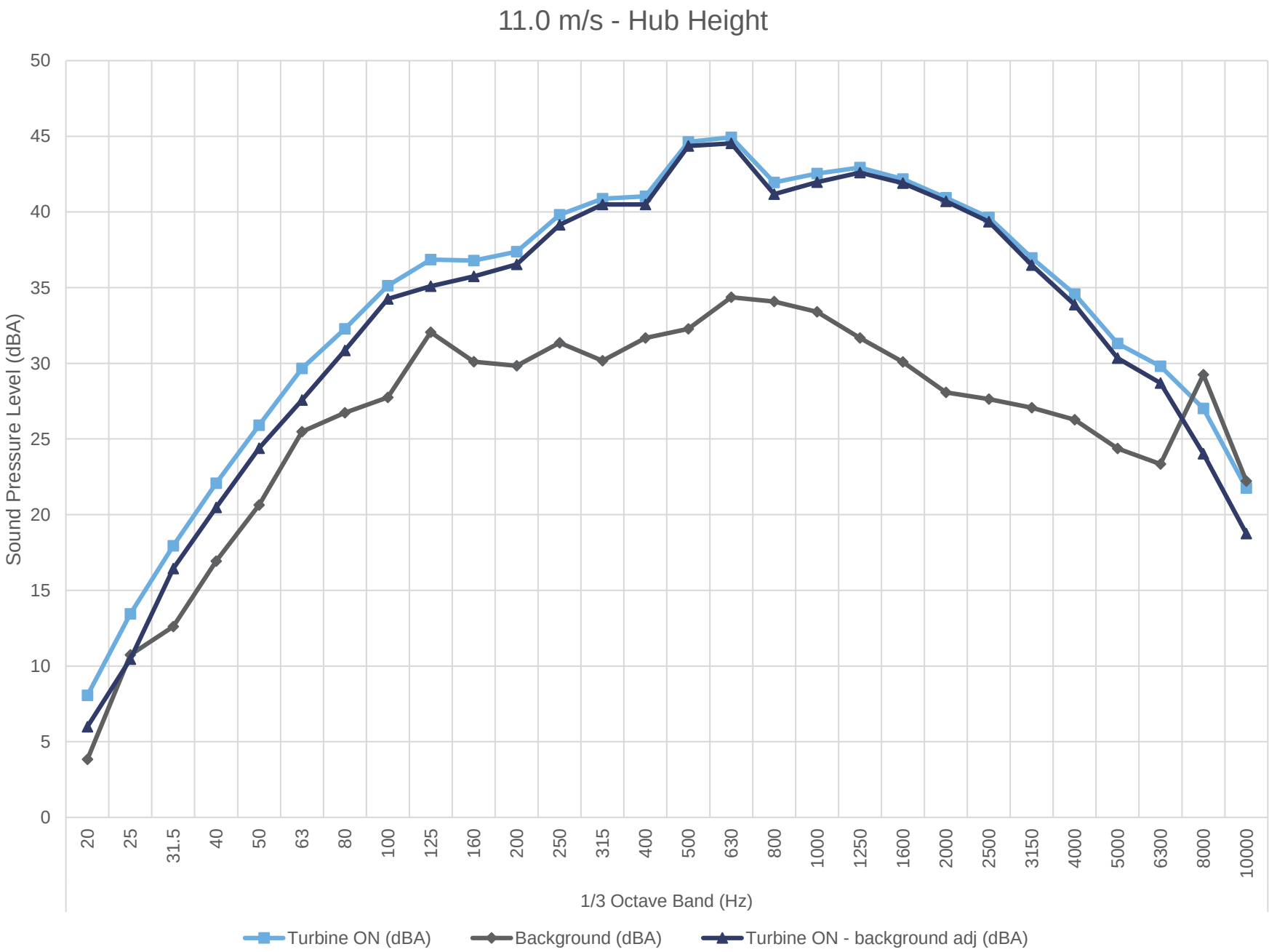


aercoustics	20019.00.T1.RP1	**Project Name**
	Scale: NTS Drawn by: HF Reviewed by: DH Date: Dec 16 Revision: 1	Romney Wind Energy Centre - IEC 61400- 11 Edition 3.0 - Turbine T1
		Figure Title Plot of sound pressure spectrum at 1/3 Octave at 10.0 m/s
		Figure C.10



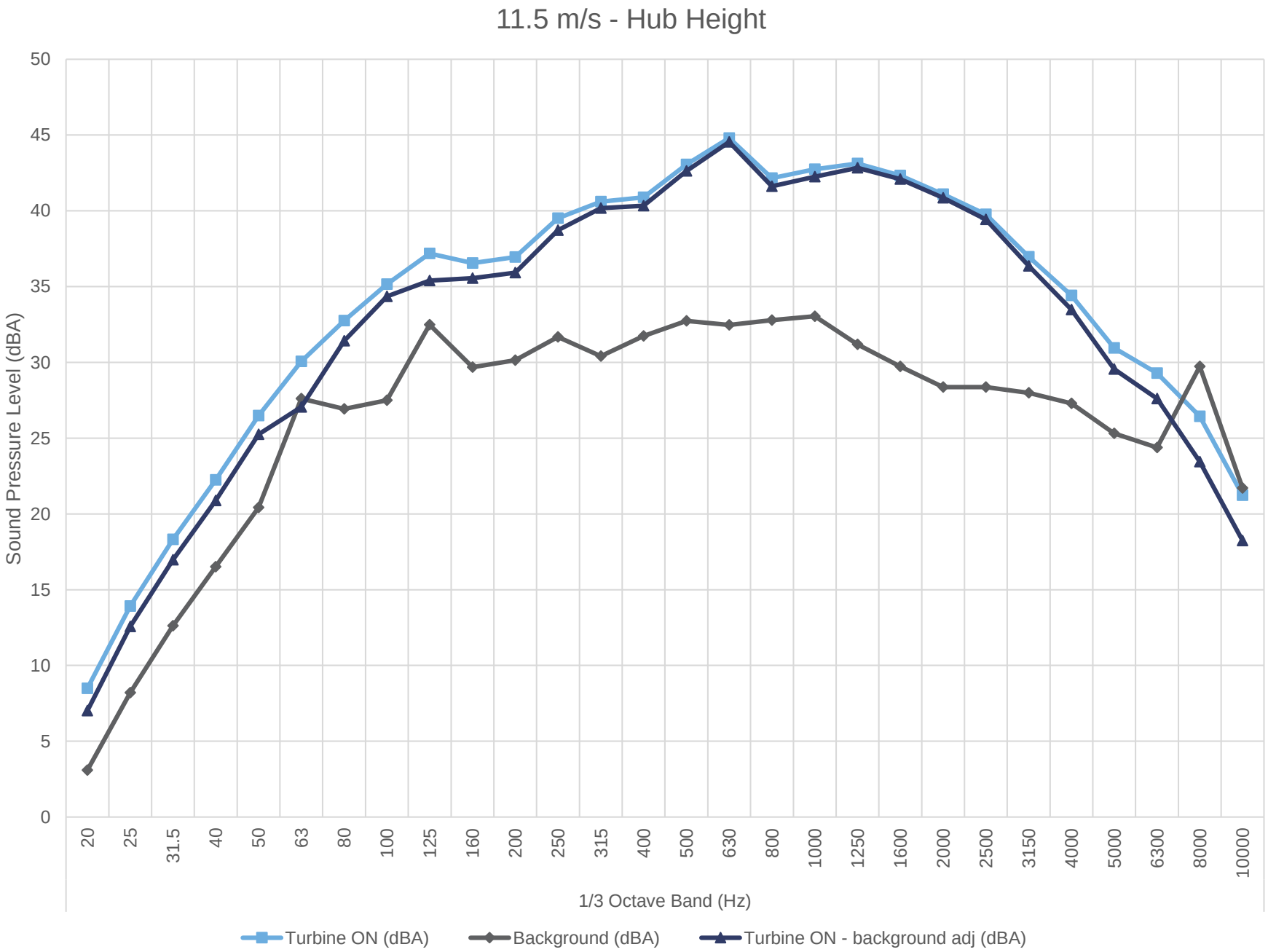
aercoustics	20019.00.T1.RP1	**Project Name**
	Scale: NTS Drawn by: HF Reviewed by: DH Date: Dec 16 Revision: 1	Romney Wind Energy Centre - IEC 61400- 11 Edition 3.0 - Turbine T1
		Figure Title Plot of sound pressure spectrum at 1/3 Octave at 10.5 m/s

Figure C.11



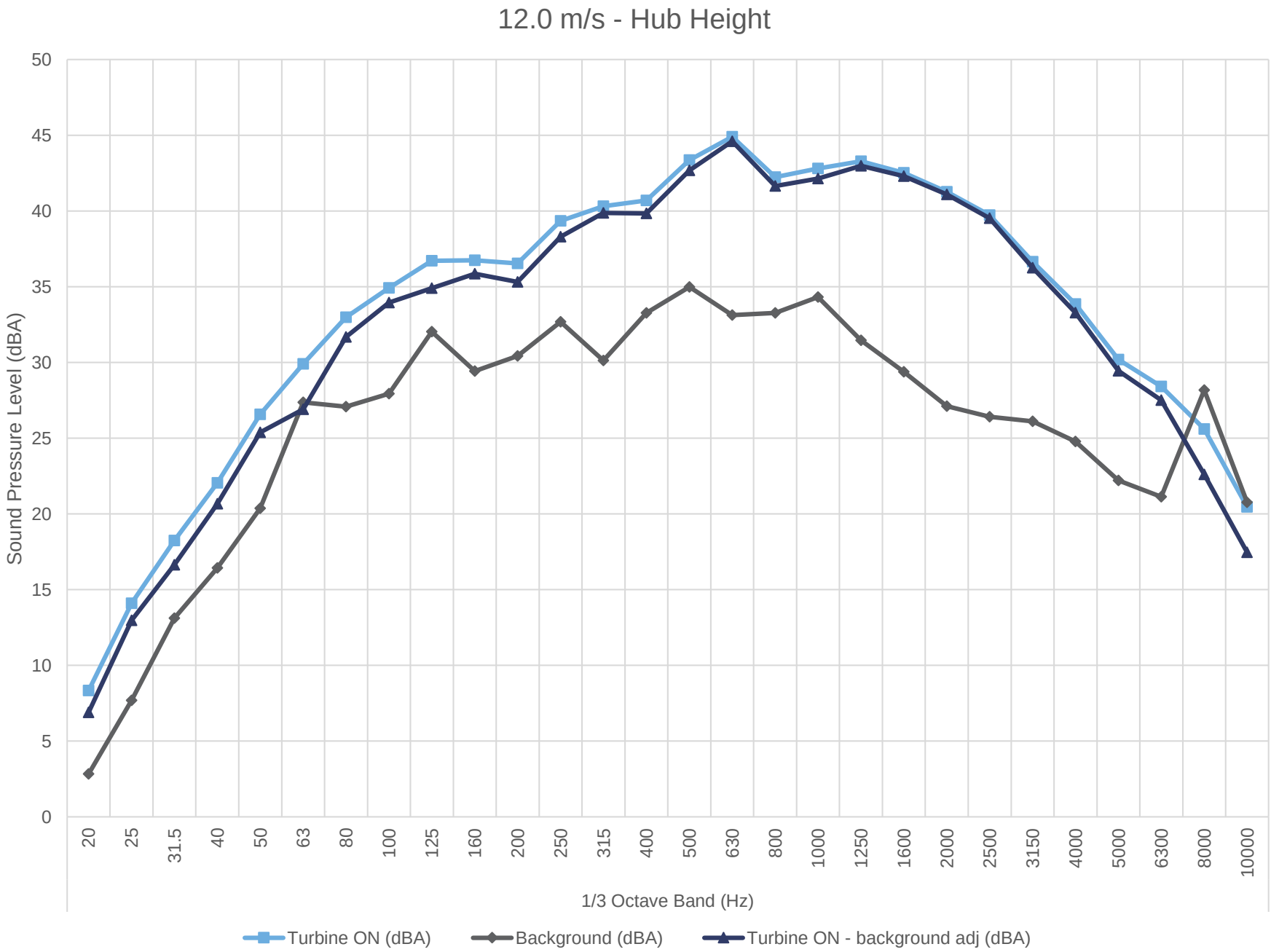
aercoustics	20019.00.T1.RP1	**Project Name**
	Scale: NTS Drawn by: HF Reviewed by: DH Date: Dec 16 Revision: 1	Romney Wind Energy Centre - IEC 61400- 11 Edition 3.0 - Turbine T1
		Figure Title Plot of sound pressure spectrum at 1/3 Octave at 11.0 m/s

Figure C.12



aercoustics	20019.00.T1.RP1	**Project Name**
	Scale: NTS Drawn by: HF Reviewed by: DH Date: Dec 16 Revision: 1	Romney Wind Energy Centre - IEC 61400- 11 Edition 3.0 - Turbine T1
		Figure Title Plot of sound pressure spectrum at 1/3 Octave at 11.5 m/s

Figure C.13



aercoustics

20019.00.T1.RP1	**Project Name**
Scale: NTS Drawn by: HF Reviewed by: DH Date: Dec 16 Revision: 1	Romney Wind Energy Centre - IEC 61400- 11 Edition 3.0 - Turbine T1
	Figure Title Plot of sound pressure spectrum at 1/3 Octave at 12.0 m/s

Figure C.14

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

Project: Romney Wind Energy Centre - IEC 61400- 11 Edition 3.0 - Turbine T1

Report ID: 20019.00.T1.RP1

Created on: 2020-12-16

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

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

Wind Bin (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	
7.5	Turbine ON (dBA)	5.0	15.1	14.6	17.9	23.0	27.5	32.4	32.4	33.8	36.2	37.9	38.2	39.1	39.8	41.8	41.8	41.9	41.4	41.5	40.7	39.8	39.2	38.0	36.8	34.3	32.8	28.3	22.5		52.1
	Background (dBA)	2.9	8.9	12.4	16.4	20.7	26.3	27.6	28.2	31.3	30.0	31.0	31.8	31.0	32.2	32.6	33.9	34.5	33.7	32.2	30.9	29.9	30.3	30.2	29.6	27.7	26.4	29.5	22.5		44.5
	Turbine ON - background adj (dBA)	[2]	13.9	[11.6]	[14.9]	[20]	[24.5]	30.7	30.3	[30.8]	35.0	36.9	37.1	38.4	38.9	41.2	41.1	41.1	40.7	41.0	40.2	39.4	38.6	37.3	35.8	33.3	31.7	[25.3]	[19.5]		51.3
	Signal to noise (dB)	2.1	6.2	2.1	1.5	2.3	1.2	4.8	4.2	2.5	6.2	6.8	6.5	8.1	7.5	9.2	7.9	7.5	7.8	9.3	9.8	9.9	8.9	7.9	7.2	6.7	6.4	-1.1	0.0		7.6
	Uncertainty (dB)	4.6	2.4	2.5	3.5	2.5	2.4	1.6	1.8	2.2	1.4	1.0	1.0	0.9	1.0	1.0	1.0	1.1	1.0	1.0	1.0	0.9	1.1	1.5	1.6	1.6	1.7	3.6	4.2		1.1
	PWL (dBA)	[53.9]	65.8	[63.5]	[66.8]	[71.9]	[76.4]	82.5	82.2	[82.6]	86.9	88.7	89.0	90.3	90.8	93.1	93.0	92.9	92.5	92.9	92.1	91.3	90.5	89.1	87.7	85.2	83.6	[77.2]	[71.4]		103.2
8.0	Turbine ON (dBA)	7.0	14.7	17.2	20.3	24.5	29.0	32.5	33.7	34.6	36.9	38.0	38.9	39.4	39.8	41.8	41.8	40.9	41.2	41.4	40.9	39.8	39.0	37.2	35.4	32.5	30.9	26.6	20.9		52.0
	Background (dBA)	2.6	9.0	12.1	15.8	20.2	25.8	28.1	27.3	31.1	30.2	29.9	31.8	30.6	32.2	32.7	34.1	35.3	34.3	32.8	31.4	30.6	31.0	30.8	30.3	28.3	27.1	29.0	21.9		44.8
	Turbine ON - background adj (dBA)	5.1	13.3	15.6	18.4	22.5	26.2	30.6	32.6	32.1	35.9	37.2	38.0	38.8	39.0	41.2	41.0	39.6	40.1	40.7	40.4	39.2	38.2	36.0	33.8	30.5	28.5	[23.6]	[17.9]		51.1
	Signal to noise (dB)	4.4	5.7	5.1	4.5	4.3	3.2	4.5	6.4	3.5	6.7	8.1	7.2	8.7	7.6	9.1	7.7	5.7	6.8	8.5	9.5	9.2	7.9	6.3	5.1	4.2	3.8	-2.4	-1.0		7.2
	Uncertainty (dB)	3.0	2.1	1.7	2.4	1.8	2.0	1.3	1.1	1.6	1.1	0.8	0.9	0.8	0.8	0.8	0.8	0.9	0.9	0.9	0.8	0.8	0.9	1.4	1.7	2.2	2.9	4.2	4.5		0.9
	PWL (dBA)	57.0	65.2	67.5	70.3	74.4	78.1	82.5	84.4	84.0	87.8	89.1	89.9	90.6	90.9	93.1	92.9	91.4	92.0	92.6	92.3	91.1	90.1	87.9	85.7	82.4	80.4	[75.5]	[69.8]		102.9
8.5	Turbine ON (dBA)	9.7	15.5	19.4	23.5	27.1	30.4	33.1	35.9	37.4	37.3	37.9	40.0	40.9	41.1	42.2	42.8	41.6	42.1	42.3	41.5	40.2	38.8	35.5	32.4	27.8	25.3	22.1	16.9		52.6
	Background (dBA)	3.2	9.7	12.5	16.9	21.0	26.9	27.2	27.7	32.0	30.1	31.4	31.5	31.4	33.1	33.5	34.2	35.6	34.4	32.7	31.1	30.1	30.6	30.4	29.8	28.0	26.8	30.9	23.6		45.0
	Turbine ON - background adj (dBA)	8.6	14.1	18.5	22.5	25.9	27.8	31.9	35.1	35.9	36.4	36.7	39.4	40.4	40.4	41.5	42.1	40.4	41.3	41.8	41.1	39.8	38.1	34.0	[29.4]	[24.8]	[22.3]	[19.1]	[13.9]		51.8
	Signal to noise (dB)	6.5	5.8	7.0	6.6	6.1	3.5	6.0	8.1	5.4	7.2	6.4	8.6	9.6	8.0	8.7	8.6	6.0	7.7	9.6	10.4	10.1	8.2	5.2	2.5	-0.1	-1.5	-8.8	-6.8		7.6
	Uncertainty (dB)	2.5	2.2	1.3	1.9	1.5	1.9	1.1	1.0	1.2	1.0	0.9	0.8	0.8	0.8	0.8	0.8	0.9	0.9	0.9	0.8	0.8	0.9	1.6	2.5	2.7	3.4	4.3	4.7		0.9
	PWL (dBA)	60.5	66.0	70.4	74.3	77.7	79.7	83.7	87.0	87.8	88.3	88.6	91.3	92.3	92.3	93.4	94.0	92.2	93.2	93.6	93.0	91.6	90.0	85.9	[81.2]	[76.7]	[74.2]	[71]	[65.7]		103.7
9.0	Turbine ON (dBA)	8.3	14.2	18.6	22.6	26.6	29.7	32.9	35.6	37.4	37.3	37.8	40.3	41.1	41.3	41.8	43.3	41.8	42.3	42.6	41.9	40.5	39.1	35.8	32.5	28.1	25.7	22.6	17.4		52.8
	Background (dBA)	3.1	9.1	12.5	16.6	20.5	26.7	27.2	28.6	32.1	29.9	30.5	31.2	30.4	32.3	32.5	33.5	34.7	33.6	32.0	30.8	29.7	30.2	30.0	29.4	27.5	26.3	30.6	22.9		44.5
	Turbine ON - background adj (dBA)	6.8	12.5	17.4	21.3	25.4	26.8	31.5	34.6	35.8	36.4	36.9	39.7	40.7	40.8	41.3	42.8	40.9	41.7	42.2	41.6	40.1	38.5	34.4	29.6	[25.1]	[22.7]	[19.6]	[14.4]		52.1
	Signal to noise (dB)	5.3	5.1	6.1	6.0	6.2	3.1	5.6	7.0	5.3	7.4	7.3	9.1	10.7	9.0	9.3	9.7	7.1	8.7	10.6	11.1	10.8	8.9	5.7	3.1	0.6	-0.6	-8.1	-5.4		8.3
	Uncertainty (dB)	2.8	2.4	1.4	2.0	1.4	2.1	1.2	1.1	1.2	1.0	0.8	0.8	0.7	0.8	0.8	0.8	0.9	0.9	0.8	0.8	0.8	0.9	1.5	2.4	2.4	2.7	3.4	4.0		0.9
	PWL (dBA)	58.7	64.4	69.3	73.2	77.3	78.7	83.4	86.5	87.7	88.3	88.8	91.6	92.6	92.6	93.1	94.6	92.8	93.6	94.1	93.4	92.0	90.3	86.3	81.5	[77]	[74.6]	[71.5]	[66.3]		104.0
9.5	Turbine ON (dBA)	8.3	14.2	18.3	22.4	26.2	29.7	32.7	35.1	37.6	38.0	38.2	40.6	41.3	41.4	42.1	44.2	42.1	42.6	42.9	42.0	40.7	39.3	36.4	33.6	29.9	28.0	25.0	19.8		53.1
	Background (dBA)	3.3	9.6	12.6	16.5	20.6	28.8	27.4	28.7	31.9	29.8	30.2	31.0	30.2	32.2	32.3	33.6	36.4	34.0	32.0	30.4	28.9	29.1	28.9	28.4	26.5	25.3	30.0	22.4		44.5
	Turbine ON - background adj (dBA)	6.6	12.3	16.9	21.1	24.7	[26.7]	31.2	33.9	36.2	37.3	37.4	40.1	41.0	40.9	41.7	43.8	40.7	42.0	42.5	41.7	40.4	38.9	35.5	32.0	27.3	[25]	[22]	[16.8]		52.5
	Signal to noise (dB)	5.0	4.5	5.6	5.9	5.6	0.9	5.3	6.4	5.6	8.3	8.0	9.6	11.1	9.2	9.8	10.6	5.6	8.7	10.9	11.7	11.8	10.2	7.4	5.2	3.4	2.7	-5.0	-2.6		8.6
	Uncertainty (dB)	3.0	2.7	1.5	2.1	1.5	2.1	1.2	1.1	1.2	1.0	0.8	0.8	0.7	0.8	0.8	0.8	1.0	0.9	0.9	0.8	0.8	0.9	1.3	1.6	2.3	2.9	3.6	4.2		0.9
	PWL (dBA)	58.5	64.2	68.8	73.0	76.6	[78.6]	83.1	85.8	88.1	89.2	89.3	92.0	92.9	92.8	93.5	95.6	92.6	93.9	94.4	93.6	92.3	90.8	87.4	83.9	79.1	[76.9]	[73.9]	[68.7]		104.4
10.0	Turbine ON (dBA)	8.6	14.4	18.5	22.5	26.2	30.1	34.5	35.2	37.5	37.5	37.7	40.2	41.3	41.3	42.8	44.8	42.2	42.7	42.9	42.1	40.7	39.3	36.3	33.5	29.6	27.5	24.4	19.2		53.3
	Background (dBA)	3.4	9.0	13.0	16.7	20.8	28.5	27.7	29.4	32.1	29.8	30.4	31.3	30.6	32.9	32.5	33.5	35.0	33.1	31.6	29.8	28.5	28.5	28.2	27.5	25.6	24.6	27.8	20.2		44.2
	Turbine ON - background adj (dBA)	7.0	12.9	17.1	21.2	24.7	[27.1]	33.5	33.9	36.0	36.7	36.8	39.7	40.9	40.6	42.4	44.5	41.3	42.1	42.6	41.8	40.5	38.9	35.6	32.2	27.3	[24.5]	[21.4]	[16.2]		52.7
	Signal to noise (dB)	5.2	5.4	5.6	5.8	5.4	1.6	6.8	5.8	5.4	7.7	7.3	8.9	10.7	8.4	10.4	11.3	7.2	9.5	11.4	12.3	12.3	10.8	8.1	5.9	4.0	3.0	-3.4	-1.0		9.1
	Uncertainty (dB)	2.5	2.1	1.3	1.8	1.3	2.0	1.2	1.0	1.0	0.9	0.7	0.7	0.6	0.7	0.7	0.7	0.8	0.7	0.7	0.7	0.6	0.8	1.1	1.3	1.8	2.6	3.3	3.8		0.7
	PWL (dBA)	58.9	64.8	69.0	73.0	76.6	[79]	85.4	85.8	87.9	88.6	88.7	91.5	92.8	92.5	94.3	96.4	93.1	94.0	94.5	93.7	92.4	90.8	87.5	84.1	79.2	[76.4]	[73.3]	[68.1]		104.6
10.5	Turbine ON (dBA)	8.2	13.8	18.0	22.2	25.8	29.4	32.4	35.5	36.8	38.0	37.3	39.6	40.9	41.0	44.1	45.1	42.0	42.5	42.9	42.1	40.9	39.5	36.7	34.1	30.7	29.0	26.1	20.8		53.3
	Background (dBA)	3.7	10.3	13.1	16.9	20.7	27.9	28.1	28.8	32.6	30.9	31.4	32.5	30.8	32.1	32.0	34.5	34.0	33.1	31.5	30.0	28.8	28.8	28.5	27.9	25.9	24.7	28.8	21.9		44.3
	Turbine ON - background adj (dBA)	6.2	11.3	16.3	20.6	24.2	[26.4]	30.3	34.4	34.8	37.1	36.0	38.7	40.4	40.4	43.8	44.7	41.2	42.0	42.6	41.9	40.6	39.1	36.0	33.0	29.0	27.0	[23.1]	[17.8]		52.8
	Signal to noise (dB)	4.5	3.6	4.9	5.3	5.1	1.4	4.3	6.7	4.3	7.1	5.9	7.1	10.0	8.9	12.1	10.5	8.0	9.4	11.4	12.2	12.1	10.8	8.2	6.3	4.8	4.3	-2.6	-1.0		9.0
	Uncertainty (dB)	3.2	3.2	1.6	2.2	1.6	2.2	1.4	1.1	1.4	1.1	1.0	0.9	0.8	0.8	0.8	0.8	0.8	0.8	0.9	0.8	0.8	0.9	1.3	1.5	1.8	2.1	3.7	4.2		0.9
	PWL (dBA)	58.1	63.2	68.1	72.5	76.1	[78.2]	82.2	86.3	86.7	88.9	87.9	90.6	92.3	92.2	95.7	96.5	93.1	93.9	94.5	93.7	92.5	91.0	87.9	84.9	80.9	78.9	[75]	[69.7]		104.7
11.0	Turbine ON (dBA)	8.1	13.4	17.9	22.1	25.9	29.7	32.3	35.1	36.9	36.8	37.4	39.8	40.9	41.0	44.6	44.9	41.9	42.5	42.9	42.2	40.9	39.6	37.0	34.6	31.3	29.8	27.0	21.8		53.4
	Background (dBA)	3.8	10.7	12.6	16.9	20.6	25.5	26.7	27.7	32.1	30.1	29.8	31.4	30.2	31.7	32.3	34.4	34.1	33.4	31.7	30.1	28.1	27.6	27.1	26.3	24.4	23.3	29.2	22.2		43.9
	Turbine ON - background adj (dBA)	6.0	[10.4]	16.4	20.5	24.4	27.6	30.9	34.3	35.1	35.7	36.5	39.1	40.5	40.5	44.4	44.5	41.2	42.0	42.6	41.9	40.7	39.4	36.5	33.9	30.3	28.7	[24]	[18.8]		52.9
	Signal to noise (dB)	4.2	2.7	5.3	5.1	5.3	4.2	5.5	7.4	4.8	6.7	7.5	8.5	10.7	9.4	12.3	10.6	7.9	9.1	11.3	12.1	12.9	12.0	9.9	8.3	6.9	6.5	-2.2	-0.5		9.5
	Uncertainty (dB)	3.4	3.7	1.6	2.3	1.6	1.7	1.2	1.1	1.3	1.1	0.9	0.9	0.8	0.8	0.9	0.8	0.8	0.9	0.9	0.8	0.8	0.9	1.2	1.4	1.6	1.9	4.3	4.7		0.9
	PWL (dBA)	57.9	[62.3]	68.3	72.4	76.3	79.5	82.7	86.1	87.0	87.6	88.4	91.0	92.4	92.4	96.2	96.4	93.1	93.8	94.5	93.8	92.6	91.2	88.4	85.8	82.2	80.6	[75.9]	[70.6]		104.8

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

Project: Romney Wind Energy Centre - IEC 61400- 11 Edition 3.0 - Turbine T1

Report ID: 20019.00.T1.RP1

Created on: 2020-12-16

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

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

Wind Bin (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	
11.5	Turbine ON (dBA)	8.5	13.9	18.3	22.2	26.5	30.1	32.8	35.2	37.2	36.6	36.9	39.5	40.6	40.9	43.1	44.8	42.2	42.7	43.1	42.3	41.1	39.8	37.0	34.4	30.9	29.3	26.4	21.2	53.2
	Background (dBA)	3.1	8.2	12.6	16.5	20.4	27.6	26.9	27.5	32.5	29.7	30.1	31.7	30.4	31.7	32.7	32.5	32.8	33.0	31.2	29.7	28.4	28.4	28.0	27.3	25.3	24.4	29.7	21.7	43.7
	Turbine ON - background adj (dBA)	7.0	12.6	17.0	20.9	25.3	[27.1]	31.4	34.4	35.4	35.6	35.9	38.7	40.2	40.3	42.6	44.5	41.6	42.3	42.8	42.1	40.9	39.4	36.4	33.5	29.6	27.6	[23.4]	[18.2]	52.7
	Signal to noise (dB)	5.4	5.7	5.7	5.7	6.1	2.5	5.8	7.7	4.7	6.9	6.8	7.8	10.2	9.2	10.3	12.3	9.4	9.7	11.9	12.6	12.7	11.4	9.0	7.1	5.6	4.9	-3.3	-0.5	9.5
	Uncertainty (dB)	2.6	2.1	1.4	1.9	1.3	2.1	1.1	0.9	1.2	1.0	0.8	0.8	0.7	0.7	0.8	0.7	0.7	0.8	0.8	0.7	0.7	0.8	1.1	1.3	1.6	2.0	4.2	4.4	0.8
	PWL (dBA)	58.9	64.5	68.8	72.8	77.1	[78.9]	83.3	86.2	87.3	87.4	87.8	90.6	92.1	92.2	94.5	96.4	93.5	94.1	94.7	94.0	92.7	91.3	88.3	85.4	81.4	79.5	[75.3]	[70.1]	104.6
12.0	Turbine ON (dBA)	8.3	14.1	18.2	22.1	26.6	29.9	33.0	34.9	36.7	36.7	36.5	39.4	40.3	40.7	43.4	44.9	42.2	42.8	43.3	42.5	41.3	39.7	36.7	33.9	30.2	28.4	25.6	20.5	53.2
	Background (dBA)	2.8	7.7	13.1	16.4	20.4	27.4	27.1	27.9	32.0	29.4	30.4	32.7	30.1	33.3	35.0	33.1	33.3	34.3	31.5	29.4	27.1	26.4	26.1	24.8	22.2	21.1	28.2	20.8	44.1
	Turbine ON - background adj (dBA)	6.9	13.0	16.6	20.7	25.4	[26.9]	31.7	33.9	34.9	35.9	35.3	38.3	39.9	39.8	42.7	44.6	41.7	42.1	43.0	42.3	41.1	39.5	36.3	33.3	29.4	27.5	[22.6]	[17.5]	52.7
	Signal to noise (dB)	5.5	6.4	5.1	5.6	6.2	2.5	5.9	7.0	4.7	7.3	6.1	6.7	10.2	7.4	8.4	11.8	9.0	8.5	11.8	13.1	14.2	13.3	10.5	9.1	8.0	7.3	-2.6	-0.3	9.2
	Uncertainty (dB)	3.1	2.4	1.8	2.4	1.7	2.7	1.4	1.2	1.5	1.3	1.1	1.2	0.9	1.0	1.1	0.9	0.9	1.0	0.9	0.9	0.8	1.0	1.4	1.6	2.3	3.2	8.0	7.8	1.0
	PWL (dBA)	58.8	64.9	68.5	72.5	77.3	[78.8]	83.6	85.8	86.8	87.7	87.2	90.2	91.8	91.7	94.6	96.5	93.5	94.0	94.9	94.2	93.0	91.4	88.1	85.2	81.3	79.4	[74.5]	[69.3]	104.6

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

Project: Romney Wind Energy Centre - IEC 61400- 11 Edition 3.0 - Turbine T1

Report ID: 20019.00.T1.RP1

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

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

Wind Bin (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)	5.3	15.0	15.4	18.3	23.1	27.9	32.3	32.3	33.2	36.5	37.8	38.2	38.7	39.3	41.6	41.5	41.4	40.9	41.0	40.4	39.5	38.9	37.9	36.8	34.6	33.2	28.4	22.6	51.8
	Background (dBA)	2.8	9.1	12.3	16.0	20.4	26.1	27.6	27.5	31.0	30.0	30.7	31.7	30.8	32.1	32.9	34.1	34.9	34.1	32.6	31.4	30.5	31.1	30.9	30.4	28.5	27.2	29.6	22.5	44.8
	Turbine ON - background adj (dBA)	[2.3]	13.7	12.4	[15.3]	[20.1]	[24.9]	30.4	30.5	[30.2]	35.4	36.9	37.0	37.9	38.4	41.0	40.6	40.2	39.9	40.3	39.8	38.9	38.2	36.9	35.7	33.4	31.9	[25.4]	[19.6]	50.9
	Signal to noise (dB)	2.5	5.9	3.1	2.2	2.7	1.7	4.7	4.8	2.2	6.5	7.1	6.4	7.9	7.2	8.7	7.3	6.4	6.7	8.4	9.0	9.0	7.9	7.0	6.4	6.1	5.9	-1.1	0.0	7.0
	Uncertainty (dB)	5.1	2.7	2.8	4.0	2.8	2.5	1.7	1.7	2.3	1.4	1.1	1.1	1.0	1.1	1.1	1.1	1.2	1.2	1.2	1.1	1.0	1.3	1.7	1.8	1.9	2.2	4.1	4.8	1.2
	PWL (dBA)	[54.2]	65.6	64.3	[67.1]	[72]	[76.8]	82.3	82.4	[82.1]	87.3	88.8	88.9	89.8	90.3	92.9	92.5	92.1	91.7	92.2	91.7	90.8	90.0	88.8	87.6	85.3	83.8	[77.3]	[71.4]	102.7
6.0	Turbine ON (dBA)	8.2	14.5	18.2	22.2	26.1	29.6	32.8	35.1	37.0	37.5	38.0	40.1	40.9	41.1	41.8	43.3	41.8	42.2	42.5	41.7	40.4	39.1	36.2	33.4	29.5	27.4	24.2	18.9	52.7
	Background (dBA)	3.2	9.5	12.5	16.7	20.7	27.1	27.3	28.4	32.0	30.0	30.7	31.2	30.7	32.6	32.8	33.7	35.5	34.0	32.2	30.8	29.6	30.1	29.9	29.3	27.4	26.2	30.6	23.1	44.7
	Turbine ON - background adj (dBA)	6.5	12.8	16.9	20.7	24.7	[26.6]	31.4	34.0	35.3	36.7	37.0	39.5	40.4	40.5	41.2	42.8	40.7	41.5	42.0	41.4	40.1	38.5	35.0	31.2	[26.5]	[24.4]	[21.2]	[15.9]	52.0
	Signal to noise (dB)	5.0	5.0	5.7	5.5	5.5	2.5	5.5	6.7	5.0	7.5	7.2	8.9	10.2	8.5	9.0	9.6	6.3	8.2	10.2	10.9	10.8	9.1	6.3	4.1	2.1	1.2	-6.4	-4.2	8.1
	Uncertainty (dB)	2.7	2.2	1.3	2.0	1.4	1.9	1.1	0.9	1.1	0.9	0.8	0.7	0.7	0.7	0.7	0.7	0.8	0.8	0.8	0.7	0.7	0.8	1.3	1.7	2.1	2.3	3.0	3.6	0.8
	PWL (dBA)	58.4	64.7	68.8	72.6	76.6	[78.5]	83.2	85.9	87.2	88.6	88.9	91.4	92.3	92.3	93.1	94.7	92.5	93.4	93.9	93.2	91.9	90.4	86.9	83.1	[78.4]	[76.3]	[73.1]	[67.8]	103.9
7.0	Turbine ON (dBA)	8.3	13.9	18.2	22.3	26.0	29.7	33.1	35.2	37.1	37.5	37.5	40.0	41.1	41.1	43.8	44.9	42.1	42.6	42.9	42.1	40.8	39.5	36.6	34.0	30.5	28.8	25.9	20.7	53.3
	Background (dBA)	3.6	9.7	13.0	16.8	20.8	28.7	27.7	29.0	32.3	30.2	30.7	31.8	30.6	32.4	32.3	34.1	35.0	33.2	31.6	29.9	28.5	28.5	28.2	27.6	25.6	24.5	28.5	21.2	44.3
	Turbine ON - background adj (dBA)	6.5	11.9	16.6	20.9	24.4	[26.7]	31.6	34.1	35.4	36.6	36.5	39.3	40.6	40.5	43.5	44.5	41.1	42.0	42.6	41.9	40.6	39.1	36.0	32.9	28.9	26.8	[22.9]	[17.7]	52.8
	Signal to noise (dB)	4.7	4.2	5.2	5.5	5.2	1.0	5.4	6.3	4.8	7.3	6.8	8.2	10.4	8.7	11.5	10.9	7.1	9.3	11.3	12.2	12.3	11.0	8.4	6.5	4.9	4.3	-2.6	-0.5	9.1
	Uncertainty (dB)	3.0	2.6	1.5	2.1	1.5	2.0	1.2	1.1	1.2	1.0	0.9	0.8	0.7	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.7	0.9	1.2	1.4	1.5	1.8	3.2	3.8	0.8
	PWL (dBA)	58.4	63.7	68.5	72.8	76.3	[78.6]	83.5	85.9	87.3	88.5	88.4	91.1	92.5	92.4	95.4	96.4	93.0	93.9	94.5	93.7	92.5	91.0	87.9	84.8	80.7	78.7	[74.8]	[69.6]	104.6
8.0	Turbine ON (dBA)	8.4	13.8	18.2	22.1	26.4	30.2	32.6	35.2	37.0	36.5	36.8	39.2	40.3	40.7	43.8	44.7	42.1	42.7	43.1	42.4	41.1	39.7	36.8	34.2	30.7	29.0	26.2	20.9	53.2
	Background (dBA)	3.0	8.3	12.7	16.4	20.4	27.3	26.8	27.5	32.1	29.4	30.0	31.7	30.2	32.1	33.1	32.6	33.1	33.4	31.5	29.9	28.1	27.8	27.3	26.3	24.2	23.0	28.3	20.5	43.7
	Turbine ON - background adj (dBA)	6.9	12.3	16.7	20.7	25.2	[27.2]	31.2	34.4	35.3	35.6	35.7	38.4	39.9	40.1	43.4	44.4	41.5	42.2	42.8	42.1	40.9	39.4	36.3	33.4	29.6	27.7	[23.2]	[17.9]	52.7
	Signal to noise (dB)	5.4	5.5	5.5	5.7	6.1	2.9	5.7	7.7	4.8	7.1	6.7	7.5	10.1	8.6	10.7	12.2	9.0	9.3	11.6	12.5	13.0	12.0	9.5	7.9	6.4	6.0	-2.2	0.4	9.5
	Uncertainty (dB)	3.5	2.9	1.9	2.7	1.8	2.7	1.5	1.3	1.6	1.3	1.1	1.1	1.0	1.0	1.0	1.0	1.0	1.1	1.1	1.0	0.9	1.1	1.5	1.7	1.9	2.2	4.9	5.5	1.1
	PWL (dBA)	58.8	64.2	68.6	72.6	77.1	[79.1]	83.1	86.3	87.2	87.5	87.6	90.3	91.8	91.9	95.3	96.3	93.4	94.0	94.7	94.0	92.8	91.3	88.2	85.3	81.4	79.6	[75]	[69.8]	104.6

Table C.03 Type B measurement uncertainty summary

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

Project: Romney Wind Energy Centre - IEC 61400- 11 Edition 3.0 - Turbine T1

Report ID: 20019.00.T1.RP1

Created on: 2020-12-16

Wind Bin (m/s)	Parameter	Average Wind Speed (m/s)	# of data points	Parameter	1/3 Octave Band (Hz) 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	Overall
7.5	Turbine ON	7.52	10	Average (dBA)	5.1	15.1	14.7	18.0	23.0	27.6	32.4	32.4	33.8	36.2	37.9	38.3	39.1	39.7	41.8	41.8	41.9	41.4	41.5	40.7	39.8	39.2	38.0	36.7	34.3	32.8	28.3	22.5	52.1
				Uncertainty A (dB)	0.2	0.3	0.3	0.2	0.2	0.4	0.6	0.6	0.5	0.6	0.2	0.2	0.1	0.2	0.4	0.3	0.4	0.3	0.3	0.3	0.3	0.4	0.5	0.6	0.6	0.6	0.6	0.6		
				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	0.7	0.8	0.8	0.8	0.7	0.8	1.1	1.1	1.0	1.1	1.4	1.7		
				Combined Uncertainty (dB)	2.0	1.7	1.1	1.5	1.1	1.0	1.0	1.0	1.0	1.0	0.7	0.7	0.7	0.7	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.9	1.2	1.2	1.2	1.2	1.5	1.8		
	Background	7.53	61	Average (dBA)	2.9	8.9	12.4	16.5	20.7	26.3	27.6	28.2	31.3	30.0	31.1	31.8	31.0	32.2	32.6	33.9	34.4	33.6	32.2	30.9	29.9	30.3	30.1	29.5	27.6	26.3	29.4	22.4	44.5
				Uncertainty A (dB)	0.2	0.3	0.2	0.2	0.2	0.3	0.3	0.4	0.3	0.3	0.4	0.3	0.3	0.3	0.4	0.5	0.4	0.4	0.4	0.5	0.6	0.7	0.8	0.8	0.9	0.9	1.3	1.1		
				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	0.7	0.8	0.8	0.8	0.7	0.8	1.1	1.1	1.0	1.1	1.4	1.7		
				Combined Uncertainty (dB)	2.0	1.7	1.1	1.5	1.1	1.0	0.9	0.9	0.9	0.9	0.8	0.8	0.8	0.8	0.8	0.9	0.8	0.9	0.9	0.9	0.9	1.1	1.3	1.3	1.3	1.4	1.9	2.0		
8.0	Turbine ON	7.91	10	Average (dBA)	6.5	14.5	16.8	19.8	24.0	28.8	32.4	33.3	34.1	36.9	38.0	38.7	39.1	39.6	41.7	41.7	40.8	41.0	41.2	40.8	39.7	39.0	37.5	36.0	33.4	31.9	27.4	21.6	51.9
				Uncertainty A (dB)	0.6	0.4	0.7	0.7	0.5	0.5	0.4	0.5	0.5	0.6	0.4	0.3	0.3	0.2	0.4	0.3	0.2	0.3	0.2	0.2	0.2	0.3	0.5	0.7	1.1	1.5	1.7	1.6		
				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	0.7	0.8	0.8	0.8	0.7	0.8	1.1	1.1	1.0	1.1	1.4	1.7		
				Combined Uncertainty (dB)	2.1	1.7	1.3	1.7	1.2	1.1	0.9	1.0	1.0	1.0	0.8	0.8	0.8	0.7	0.8	0.8	0.7	0.8	0.8	0.8	0.8	0.9	1.2	1.3	1.5	1.9	2.2	2.3		
	Background	8.01	72	Average (dBA)	2.6	9.0	12.1	15.8	20.2	25.8	28.1	27.3	31.1	30.2	29.8	31.8	30.6	32.2	32.7	34.1	35.3	34.3	32.8	31.5	30.6	31.1	30.9	30.3	28.3	27.1	29.0	21.9	44.8
				Uncertainty A (dB)	0.2	0.3	0.1	0.1	0.2	0.3	0.3	0.3	0.3	0.3	0.2	0.3	0.3	0.3	0.3	0.4	0.5	0.5	0.4	0.5	0.5	0.4	0.5	0.5	0.7	0.8	0.8	0.8	1.2	0.9	
				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	0.7	0.8	0.8	0.8	0.7	0.8	1.1	1.1	1.0	1.1	1.4	1.7		
				Combined Uncertainty (dB)	2.0	1.7	1.1	1.5	1.1	1.0	0.9	0.9	0.9	0.9	0.7	0.8	0.8	0.8	0.8	0.8	0.9	0.9	0.9	0.9	0.9	1.1	1.3	1.3	1.3	1.4	1.8	1.9		
8.5	Turbine ON	8.54	11	Average (dBA)	10.0	15.5	19.6	23.8	27.3	30.5	33.2	36.0	37.7	37.4	37.8	40.1	41.1	41.3	42.2	42.9	41.7	42.2	42.3	41.6	40.2	38.8	35.4	32.1	27.4	24.8	21.7	16.5	52.7
				Uncertainty A (dB)	0.4	0.4	0.4	0.5	0.4	0.3	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.3	0.1	0.2	0.2	0.2	0.1	0.2	0.2	0.3	0.4	0.8	1.3	1.6	1.6		
				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	0.7	0.8	0.8	0.8	0.7	0.8	1.1	1.1	1.0	1.1	1.4	1.7		
				Combined Uncertainty (dB)	2.0	1.7	1.1	1.6	1.1	1.0	0.9	0.9	0.9	0.9	0.7	0.7	0.7	0.7	0.8	0.7	0.7	0.8	0.8	0.8	0.8	0.8	1.1	1.2	1.3	1.7	2.1	2.3		
	Background	8.48	99	Average (dBA)	3.2	9.7	12.5	16.9	21.1	26.9	27.2	27.7	32.0	30.1	31.5	31.5	31.4	33.1	33.5	34.2	35.7	34.4	32.7	31.1	30.1	30.6	30.4	29.9	28.0	26.8	30.9	23.7	45.0
				Uncertainty A (dB)	0.2	0.3	0.1	0.2	0.2	0.3	0.2	0.2	0.2	0.2	0.3	0.2	0.3	0.3	0.3	0.3	0.4	0.3	0.3	0.3	0.4	0.5	0.6	0.7	0.7	0.7	1.0	0.9		
				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	0.7	0.8	0.8	0.8	0.7	0.8	1.1	1.1	1.0	1.1	1.4	1.7		
				Combined Uncertainty (dB)	2.0	1.7	1.1	1.5	1.1	1.0	0.8	0.9	0.9	0.9	0.7	0.8	0.7	0.8	0.8	0.8	0.8	0.8	0.9	0.8	0.8	1.0	1.2	1.2	1.2	1.3	1.7	1.9		
9.0	Turbine ON	8.98	28	Average (dBA)	8.3	14.2	18.6	22.6	26.7	29.7	32.9	35.6	37.4	37.3	37.8	40.3	41.1	41.3	41.8	43.2	41.8	42.3	42.6	41.9	40.5	39.0	35.7	32.5	28.0	25.6	22.5	17.3	52.8
				Uncertainty A (dB)	0.2	0.2	0.3	0.2	0.3	0.2	0.3	0.3	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.4	0.6	0.7	0.7		
				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	0.7	0.8	0.8	0.8	0.7	0.8	1.1	1.1	1.0	1.1	1.4	1.7		
				Combined Uncertainty (dB)	2.0	1.7	1.1	1.5	1.1	1.0	0.9	0.9	0.8	0.8	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.8	0.8	0.8	0.7	0.8	1.1	1.1	1.1	1.2	1.5	1.8		
	Background	9.01	100	Average (dBA)	3.0	9.1	12.5	16.6	20.5	26.7	27.2	28.6	32.1	29.9	30.5	31.2	30.4	32.3	32.4	33.5	34.6	33.6	32.0	30.8	29.7	30.2	30.0	29.4	27.5	26.3	30.6	22.9	44.5
				Uncertainty A (dB)	0.2	0.3	0.1	0.2	0.1	0.3	0.2	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.4	0.6	0.7	0.7	0.7	0.7	1.1	0.9		
				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	0.7	0.8	0.8	0.8	0.7	0.8	1.1	1.1	1.0	1.1	1.4	1.7		
				Combined Uncertainty (dB)	2.0	1.7	1.1	1.5	1.1	1.0	0.8	0.9	0.9	0.9	0.7	0.7	0.7	0.8	0.7	0.8	0.8	0.8	0.8	0.8	0.8	1.0	1.2	1.3	1.2	1.3	1.8	1.9		
9.5	Turbine ON	9.51	35	Average (dBA)	8.3	14.2	18.3	22.4	26.1	29.7	32.7	35.1	37.6	38.0	38.2	40.6	41.3	41.4	42.1	44.2	42.1	42.6	42.9	42.0	40.7	39.4	36.4	33.6	29.9	28.1	25.1	19.9	53.1
				Uncertainty A (dB)	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.3	0.2	0.2	0.0	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.3	0.6	0.8	0.9	0.8		
				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	0.7	0.8	0.8	0.8	0.7	0.8	1.1	1.1	1.0	1.1	1.4	1.7		
				Combined Uncertainty (dB)	2.0	1.7	1.1	1.5	1.1	1.0	0.8	0.8	0.8	0.9	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.8	0.8	0.8	0.7	0.8	1.1	1.1	1.1	1.3	1.6	1.9		
	Background	9.48	109	Average (dBA)	3.3	9.6	12.6	16.5	20.6	28.8	27.3	28.7	31.9	29.8	30.2	31.0	30.2	32.2	32.3	33.6	36.5	34.0	32.0	30.4	29.0	29.1	29.0	28.4	26.5	25.3	30.1	22.4	44.5
				Uncertainty A (dB)	0.2	0.3	0.1	0.1	0.1	0.4	0.2	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.4	0.3	0.2	0.3	0.3	0.5	0.6	0.6	0.7	0.7	1.2	0.9		
				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	0.7	0.8	0.8	0.8	0.7	0.8	1.1	1.1	1.0	1.1	1.4	1.7		
				Combined Uncertainty (dB)	2.0	1.7	1.1	1.5	1.1	1.0	0.9	0.9	0.9	0.9	0.7	0.7	0.7	0.8	0.7	0.8	0.8	0.8	0.8	0.8	0.8	0.9	1.2	1.2	1.2	1.3	1.8	1.9		
10.0	Turbine ON	9.88	22	Average (dBA)	8.7	14.5	18.7	22.6	26.3	30.3	35.1	35.1	37.7	37.4	37.8	40.4	41.4	41.4	42.5	44.8	42.2	42.7	42.9	42.1	40.7	39.3	36.2	33.3	29.3	27.2	24.0	18.8	53.3
				Uncertainty A (dB)	0.3	0.4	0.3	0.3	0.3	0.4	0.7	0.2	0.2	0.2	0.1	0.2	0.1	0.1	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.2	0.3	0.6	0.8	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	0.7	0.8	0.8	0.8	0.7	0.8	1.1	1.1	1.0	1.1	1.4	1.7		
				Combined Uncertainty (dB)	2.0	1.7	1.1	1.6	1.1	1.0	1.1	0.8	0.8	0.9	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.8	0.8	0.8	0.7	0.8	1.1	1.1	1.2	1.4	1.7	2.0		
	Background	10.00	82	Average (dBA)	3.4	9.0	13.0	16.7	20.8	28.5	27.7	29.4	32.1	29.8	30.4	31.3	30.6	32.9	32.5	33.5	35.0	33.1	31.6	29.8	28.5	28.5	28.2	27.5	25.6	24.6	27.8	20.1	44.2
				Uncertainty A (dB)	0.2	0.3	0.1	0.2	0.2	0.5	0.3	0.4	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.4	0.4	0.3	0.3	0.3	0.4	0.5	0.6	0.7	0.7	0.8	1.2	0.9		
				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	0.7	0.8	0.8	0.8	0.7	0.8	1.1	1.1	1.0	1.1	1.4	1.7		
				Combined Uncertainty (dB)	2.0	1.7	1.1	1.5	1.1	1.0	0.9	0.9	0.8	0.9	0.7	0.8	0.7	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	1.0	1.2	1.3	1.2	1.3	1.8	1.9		
10.5	Turbine ON	10.49	45	Average (dBA)	8.2	13.9	18.0	22.2	25.8	29.4	32.4	35.5	36.8	38.0	37.3	39.6	40.9	41.0	44.1	45.1	42.0	42.5	42.9	42.1	40.9	39.5	36.7	34.1	30.7	29.0	26.1	20.8	53.3
				Uncertainty A (dB)	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.1	0.4	0.1	0.1	0.1	0.1	0.4	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.3	0.5	0.7	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	0.8	0.7	0.7	0.7	0.7	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		
				Combined Uncertainty (dB)	2.0	1.7	1.1	1.5	1.1	1.0	0.8	0.9	0.8	0.9	0.7	0.7	0.7	0.7	0.8	0.7	0.7	0.8	0.8	0.8	0.7	0.8	1.1	1.1	1.1	1.3	1.6	1.9		
	Background	10.48	57	Average (dBA)	3.7	10.2	13.1	16.9	20.7	28.0	28.2	28.9	32.6	30.9	31.5	32.5	30.9	32.1	32.0	34.5	34.0	33.1	31.5	30.0	28.8	28.8	28.6	27.9	26.0	24.8	28.7	21.9	44.3
				Uncertainty A (dB)	0.2	0.4	0.2	0.2	0.2	0.5	0.4	0.4	0.3	0.4	0.4	0.4	0.3	0.3	0.3	0.5	0.4	0.4	0.3	0.4	0.5	0.6	0.8	0.9	0.9	1.0	1.5	1.3		
				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	0.7	0.8	0.8	0.8	0.7	0.8	1.1	1.1	1.0	1.1	1.4	1.7		
				Combined Uncertainty (dB)	2.0	1.7	1.1	1.5	1.1	1.1	0.9	0.9	0.9	0.9	0.8	0.8	0.8	0.8	0.8	0.9	0.8	0.8	0.9	0.8	0.9	1.0	1.3	1.4	1.4	1.4	2.1	2.1		

Table C.04 Detailed measurement uncertainty at hub height

Project: Romney Wind Energy Centre - IEC 61400- 11 Edition 3.0 - Turbine T1

Report ID: 20019.00.T1.RP1

Created on: 2020-12-16

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	
11.0	Turbine ON	10.99	41	Average (dBA)	8.0	13.4	17.9	22.1	25.9	29.7	32.3	35.1	36.8	36.8	37.4	39.8	40.9	41.0	44.6	44.9	41.9	42.5	42.9	42.2	40.9	39.6	37.0	34.6	31.3	29.8	27.0	21.8	53.4
				Uncertainty A (dB)	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.2	0.1	0.2	0.1	0.1	0.1	0.1	0.5	0.2	0.1	0.1	0.1	0.1	0.1	0.2	0.3	0.4	0.7	0.9	1.1	1.1		
				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	0.7	0.8	0.8	0.8	0.7	0.8	1.1	1.1	1.0	1.1	1.4	1.7		
				Combined Uncertainty (dB)	2.0	1.7	1.1	1.5	1.1	1.0	0.8	0.9	0.8	0.8	0.7	0.7	0.7	0.7	0.8	0.7	0.7	0.8	0.8	0.8	0.7	0.8	1.1	1.2	1.2	1.4	1.7	2.0		
	Background	10.96	25	Average (dBA)	3.9	10.9	12.6	17.0	20.6	25.3	26.7	27.8	32.0	30.1	29.8	31.3	30.1	31.7	32.3	34.5	34.2	33.4	31.7	30.1	28.1	27.6	27.0	26.2	24.3	23.3	29.2	22.3	43.9
				Uncertainty A (dB)	0.3	0.7	0.2	0.3	0.3	0.4	0.3	0.4	0.4	0.5	0.3	0.3	0.3	0.3	0.5	0.7	0.5	0.5	0.4	0.5	0.5	0.6	0.8	0.9	1.0	1.1	2.4	2.0		
				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	0.7	0.8	0.8	0.8	0.7	0.8	1.1	1.1	1.0	1.1	1.4	1.7		
				Combined Uncertainty (dB)	2.0	1.8	1.1	1.6	1.1	1.0	0.9	0.9	0.9	1.0	0.7	0.8	0.8	0.8	0.8	1.0	0.9	0.9	0.9	0.9	0.9	1.0	1.3	1.4	1.4	1.5	2.8	2.6		
11.5	Turbine ON	11.43	26	Average (dBA)	8.5	13.9	18.3	22.3	26.5	30.1	32.7	35.2	37.3	36.5	37.0	39.5	40.7	40.9	43.0	44.8	42.1	42.7	43.1	42.3	41.1	39.8	37.0	34.5	31.1	29.4	26.6	21.3	53.2
				Uncertainty A (dB)	0.2	0.3	0.3	0.2	0.3	0.2	0.2	0.3	0.2	0.2	0.1	0.1	0.1	0.1	0.3	0.2	0.1	0.1	0.1	0.1	0.1	0.2	0.3	0.4	0.7	0.9	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	0.7	0.8	0.8	0.8	0.7	0.8	1.1	1.1	1.0	1.1	1.4	1.7		
				Combined Uncertainty (dB)	2.0	1.7	1.1	1.5	1.1	1.0	0.9	0.9	0.9	0.8	0.7	0.7	0.7	0.7	0.8	0.7	0.7	0.8	0.8	0.8	0.7	0.8	1.1	1.1	1.2	1.4	1.7	2.0		
	Background	11.53	18	Average (dBA)	3.1	8.1	12.6	16.5	20.4	27.7	26.9	27.5	32.5	29.7	30.2	31.7	30.4	31.7	32.8	32.4	32.7	33.0	31.2	29.7	28.4	28.4	28.0	27.3	25.4	24.4	29.8	21.7	43.7
				Uncertainty A (dB)	0.3	0.3	0.3	0.3	0.2	0.8	0.4	0.4	0.4	0.4	0.3	0.5	0.5	0.5	0.6	0.6	0.5	0.6	0.5	0.6	0.8	1.0	1.2	1.3	1.4	1.5	2.8	2.2		
				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	0.7	0.8	0.8	0.8	0.7	0.8	1.1	1.1	1.0	1.1	1.4	1.7		
				Combined Uncertainty (dB)	2.0	1.7	1.1	1.6	1.1	1.2	0.9	0.9	0.9	0.9	0.8	0.9	0.8	0.9	1.0	0.9	0.9	1.0	1.0	1.0	1.1	1.3	1.6	1.7	1.7	1.8	3.1	2.8		
12.0	Turbine ON	11.96	11	Average (dBA)	8.3	14.1	18.2	22.1	26.6	29.9	33.0	34.9	36.7	36.7	36.6	39.4	40.3	40.7	43.3	44.9	42.2	42.8	43.3	42.5	41.3	39.7	36.7	33.9	30.3	28.5	25.7	20.5	53.2
				Uncertainty A (dB)	0.2	0.3	0.3	0.2	0.4	0.3	0.4	0.3	0.2	0.5	0.2	0.4	0.3	0.2	0.5	0.2	0.2	0.2	0.1	0.1	0.1	0.2	0.4	0.7	1.4	2.1	2.5	2.5		
				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	0.7	0.8	0.8	0.8	0.7	0.8	1.1	1.1	1.0	1.1	1.4	1.7		
				Combined Uncertainty (dB)	2.0	1.7	1.1	1.5	1.1	1.0	0.9	0.9	0.8	1.0	0.7	0.8	0.8	0.8	0.8	0.7	0.7	0.8	0.8	0.8	0.7	0.8	1.1	1.3	1.7	2.4	2.9	3.0		
	Background	11.92	12	Average (dBA)	2.9	7.8	13.0	16.4	20.4	27.4	27.1	27.9	32.1	29.5	30.4	32.5	30.2	33.0	34.6	33.0	33.2	34.1	31.4	29.4	27.3	26.8	26.5	25.2	22.8	21.7	28.5	20.9	44.0
				Uncertainty A (dB)	0.2	0.3	0.3	0.3	0.3	1.0	0.6	0.6	0.6	0.7	0.8	1.0	0.6	1.0	1.3	0.8	0.6	1.0	0.6	0.6	0.5	0.6	1.0	1.1	1.4	1.7	3.9	3.1		
				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	0.7	0.8	0.8	0.8	0.7	0.8	1.1	1.1	1.0	1.1	1.4	1.7		
				Combined Uncertainty (dB)	2.0	1.7	1.1	1.6	1.1	1.4	1.0	1.0	1.0	1.1	1.0	1.3	0.9	1.2	1.5	1.1	0.9	1.3	1.0	1.0	0.9	1.0	1.4	1.6	1.7	2.0	4.2	3.5		

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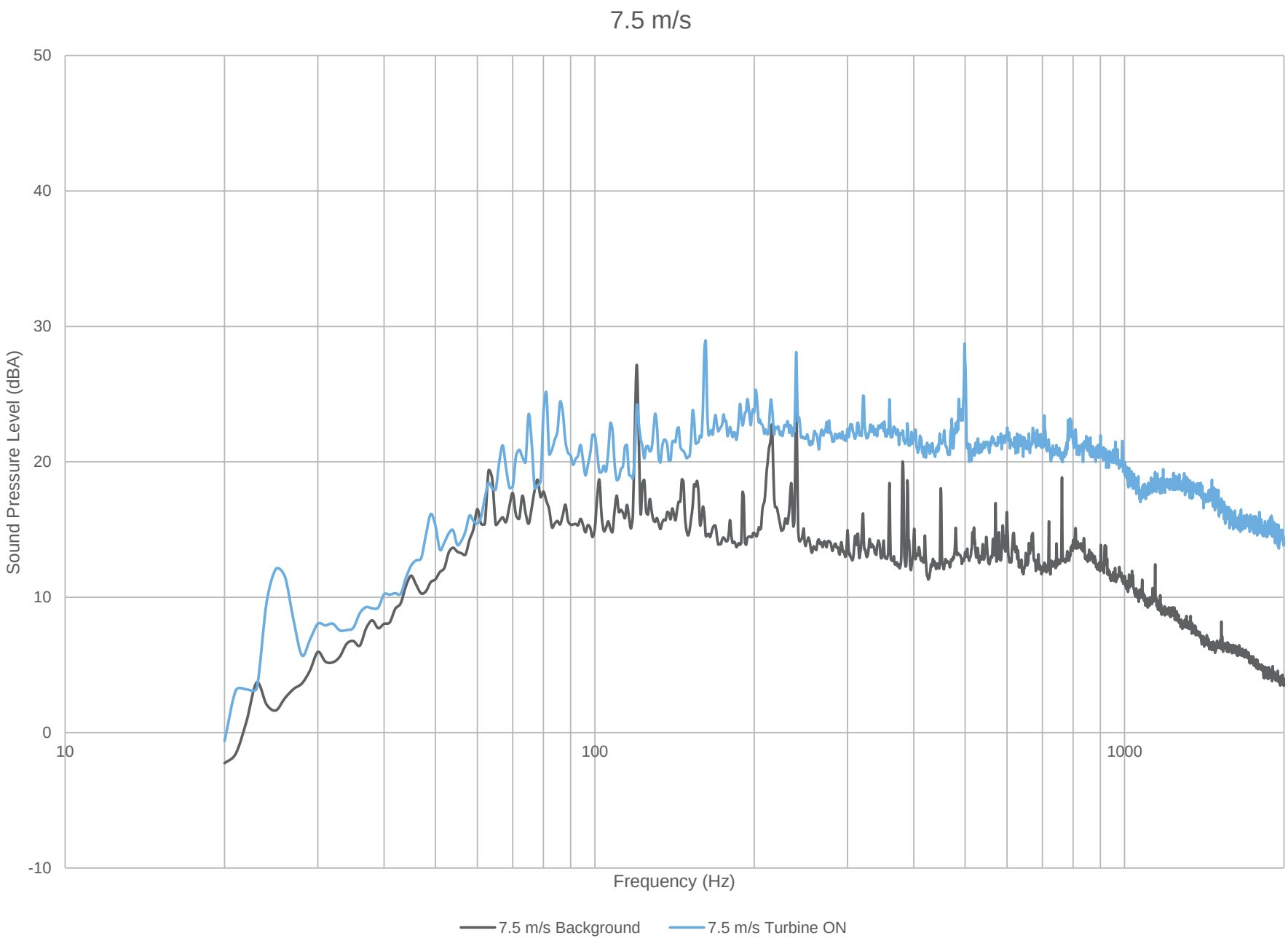
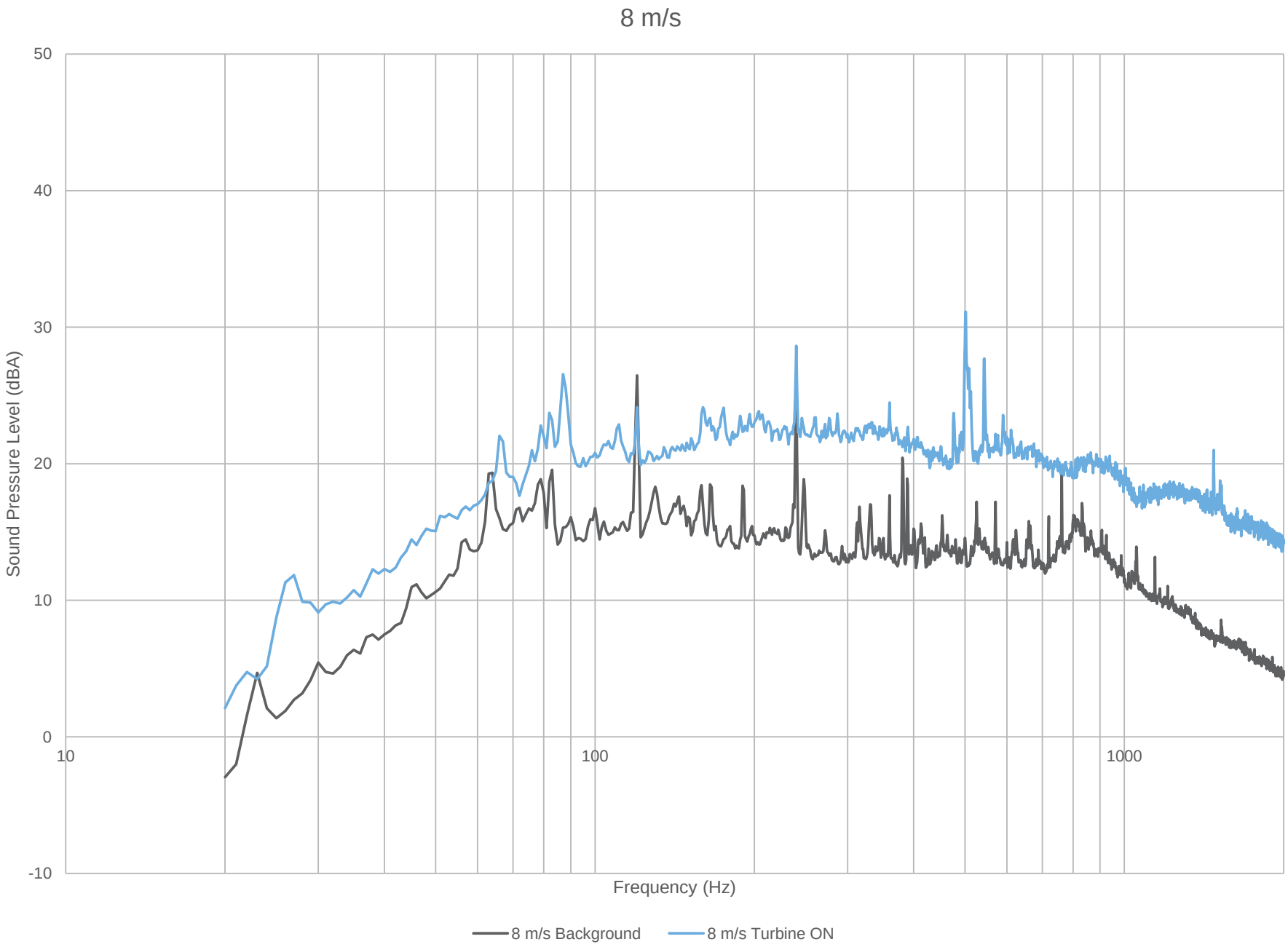
Appendix D
Tonality Assessment



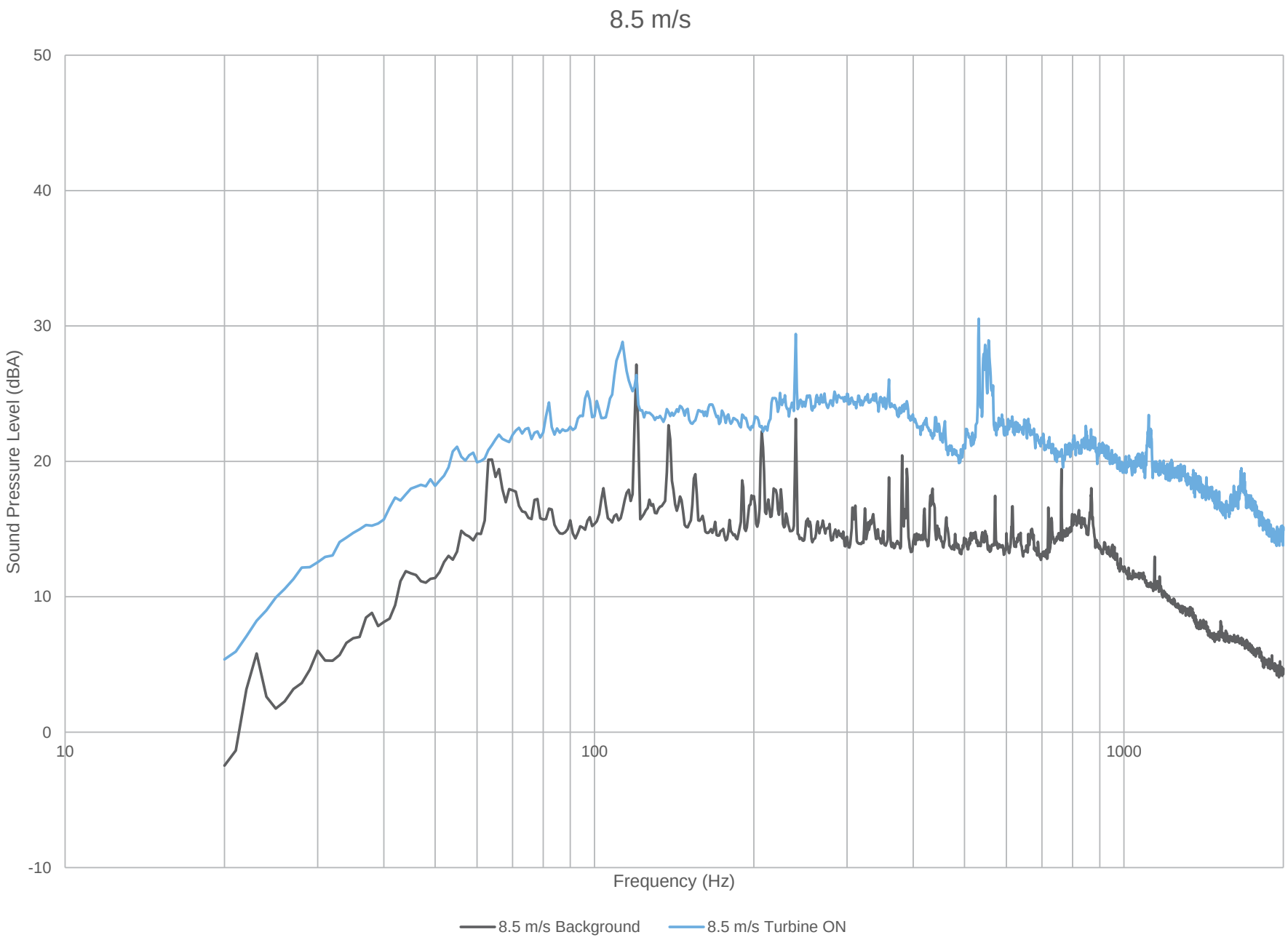
aercoustics	20019.00.T1.RP1	**Project Name**
	Scale: NTS Drawn by: HF Reviewed by: DH Date: Dec 16 Revision: 1	Romney Wind Energy Centre - IEC 61400- 11 Edition 3.0 - Turbine T1
		Figure Title Plot of narrow band spectra - Turbine ON vs. Background at 7.5 m/s

Figure D.01



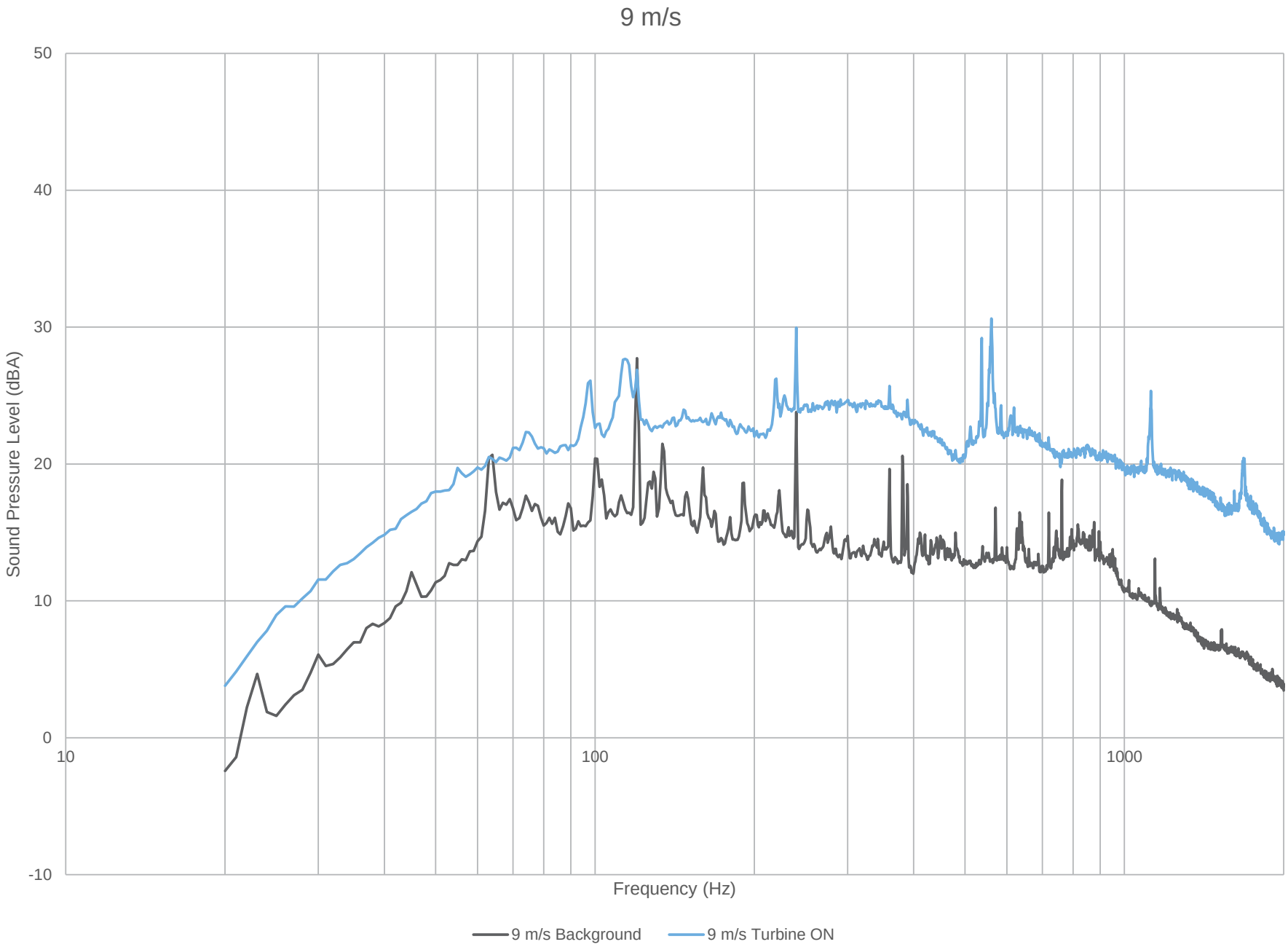
aercoustics	20019.00.T1.RP1	**Project Name**
	Scale: NTS Drawn by: HF Reviewed by: DH Date: Dec 16 Revision: 1	Romney Wind Energy Centre - IEC 61400- 11 Edition 3.0 - Turbine T1
		Figure Title Plot of narrow band spectra - Turbine ON vs. Background at 8.0 m/s

Figure D.02



aercoustics	20019.00.T1.RP1	**Project Name**
	Scale: NTS Drawn by: HF Reviewed by: DH Date: Dec 16 Revision: 1	Romney Wind Energy Centre - IEC 61400- 11 Edition 3.0 - Turbine T1
		Figure Title Plot of narrow band spectra - Turbine ON vs. Background at 8.5 m/s

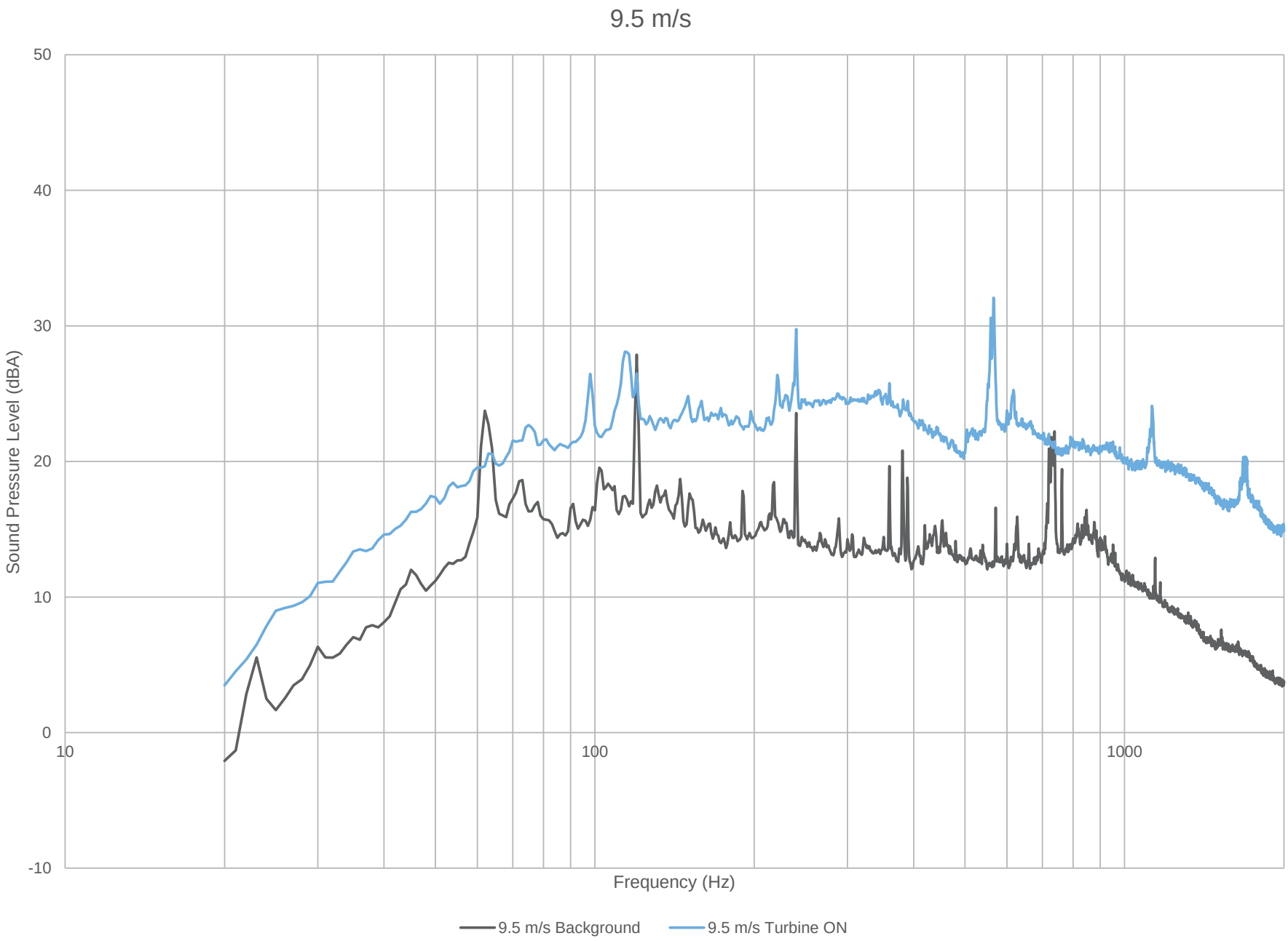
Figure D.03



aercoustics

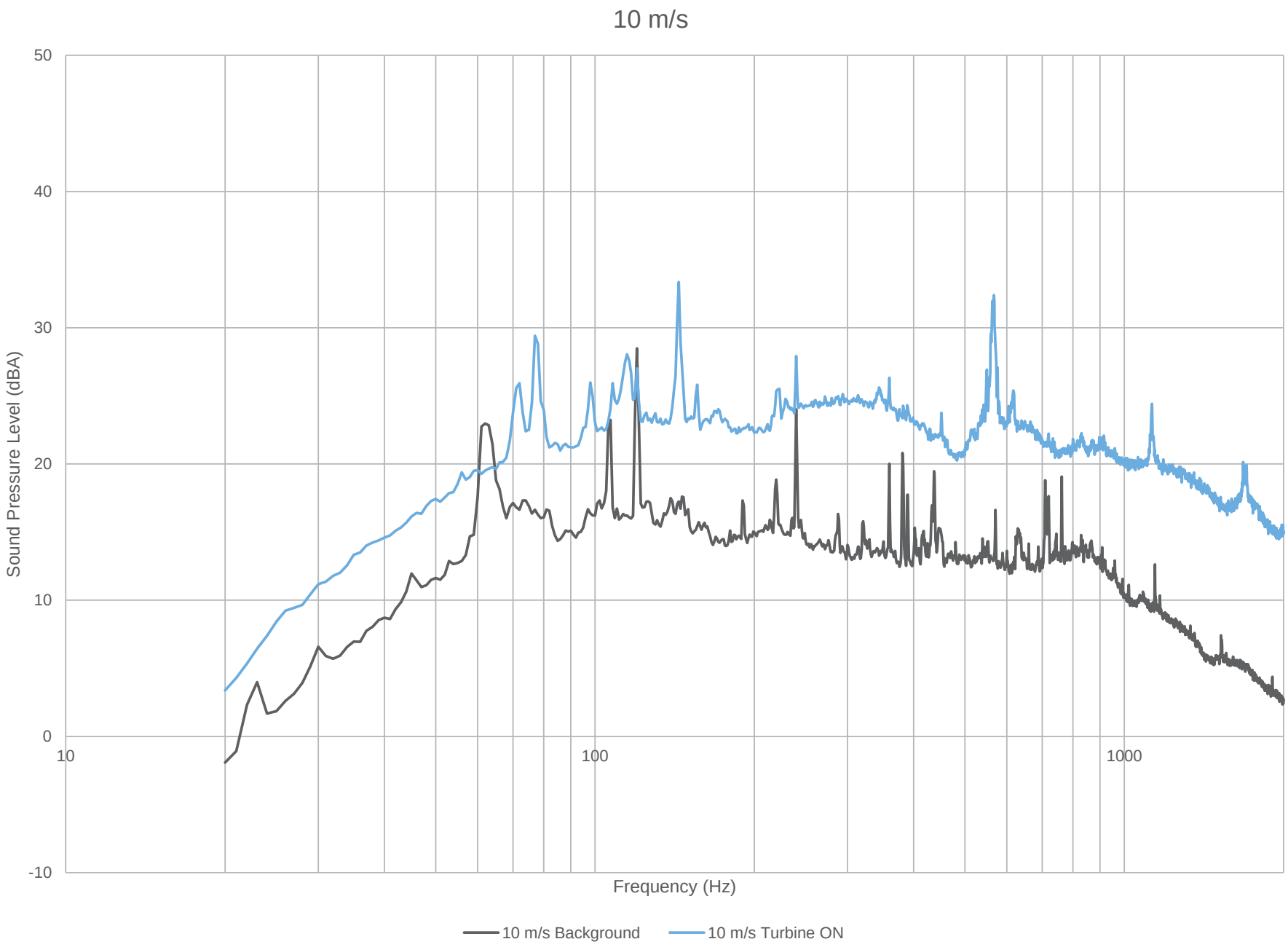
20019.00.T1.RP1	**Project Name**
Scale: NTS Drawn by: HF Reviewed by: DH Date: Dec 16 Revision: 1	Romney Wind Energy Centre - IEC 61400- 11 Edition 3.0 - Turbine T1
	Figure Title Plot of narrow band spectra - Turbine ON vs. Background at 9.0 m/s

Figure D.04



aercoustics	20019.00.T1.RP1	**Project Name**
	Scale: NTS Drawn by: HF Reviewed by: DH Date: Dec 16 Revision: 1	Romney Wind Energy Centre - IEC 61400- 11 Edition 3.0 - Turbine T1
		Figure Title Plot of narrow band spectra - Turbine ON vs. Background at 9.5 m/s

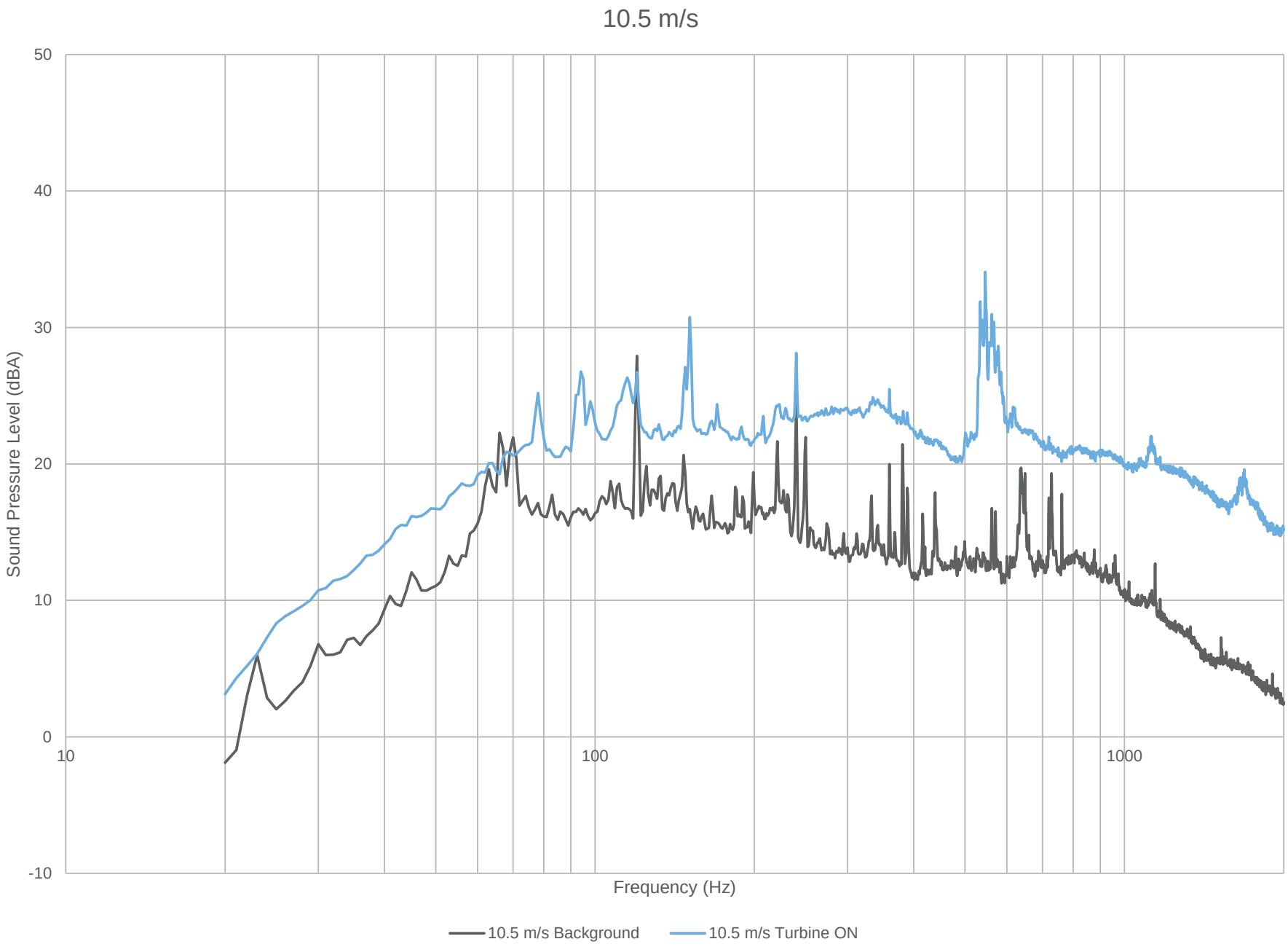
Figure D.05



aercoustics

20019.00.T1.RP1	**Project Name**
Scale: NTS Drawn by: HF Reviewed by: DH Date: Dec 16 Revision: 1	Romney Wind Energy Centre - IEC 61400- 11 Edition 3.0 - Turbine T1
	Figure Title Plot of narrow band spectra - Turbine ON vs. Background at 10.0 m/s

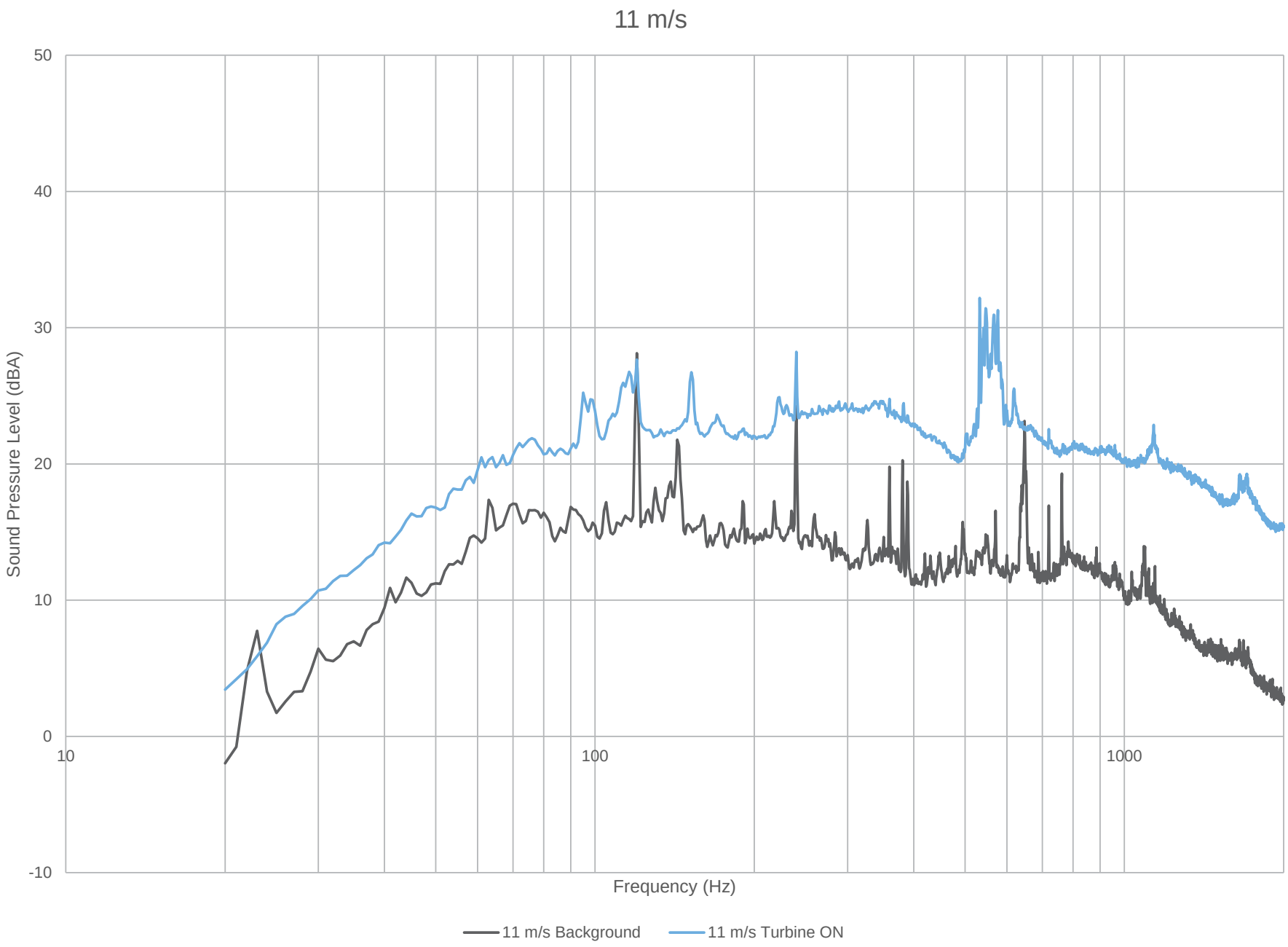
Figure D.06



aercoustics

20019.00.T1.RP1	**Project Name**
Scale: NTS Drawn by: HF Reviewed by: DH Date: Dec 16 Revision: 1	Romney Wind Energy Centre - IEC 61400- 11 Edition 3.0 - Turbine T1
	Figure Title Plot of narrow band spectra - Turbine ON vs. Background at 10.5 m/s

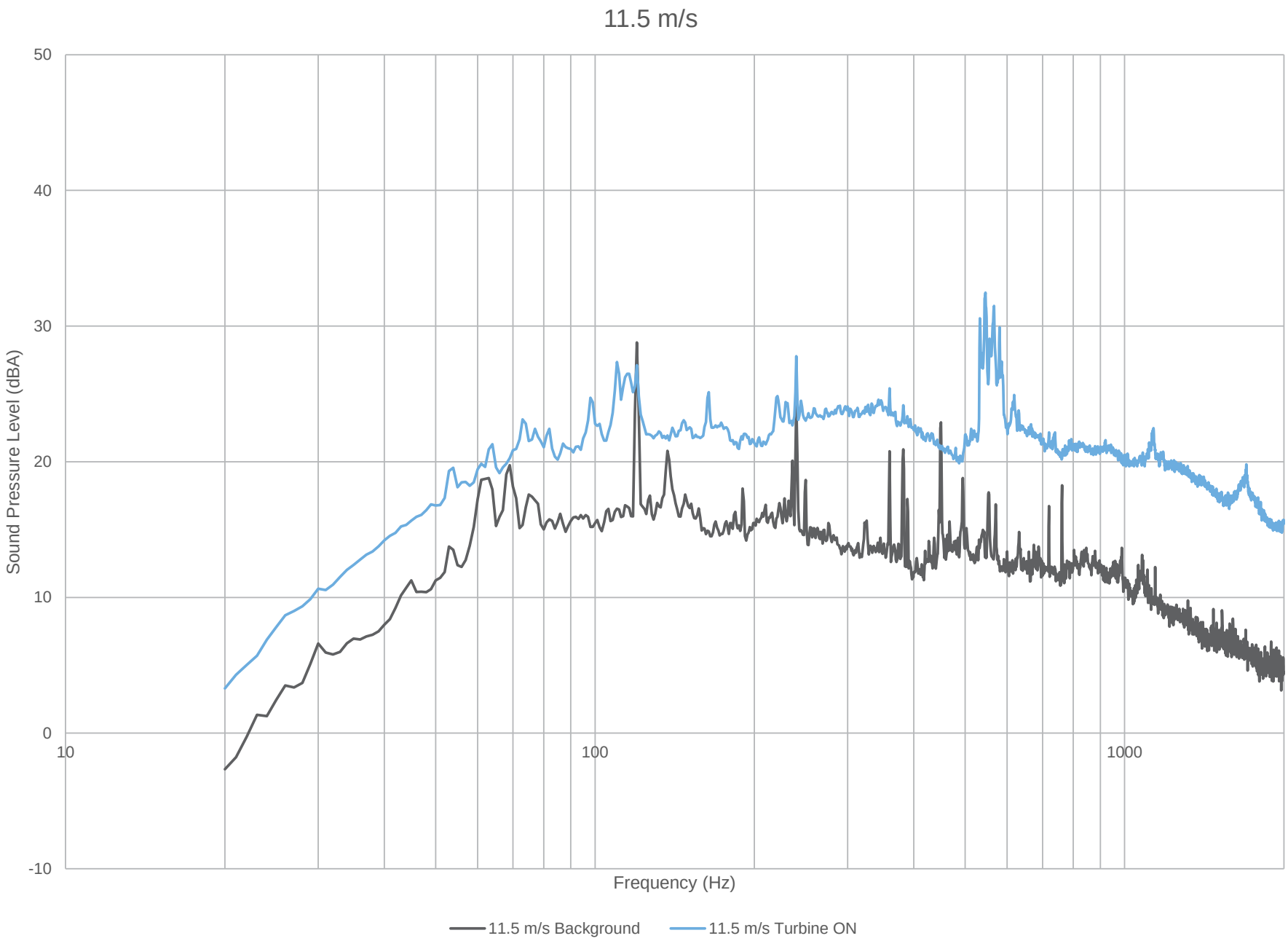
Figure D.07



aercoustics

20019.00.T1.RP1	**Project Name**
Scale: NTS Drawn by: HF Reviewed by: DH Date: Dec 16 Revision: 1	Romney Wind Energy Centre - IEC 61400- 11 Edition 3.0 - Turbine T1
	Figure Title Plot of narrow band spectra - Turbine ON vs. Background at 11.0 m/s

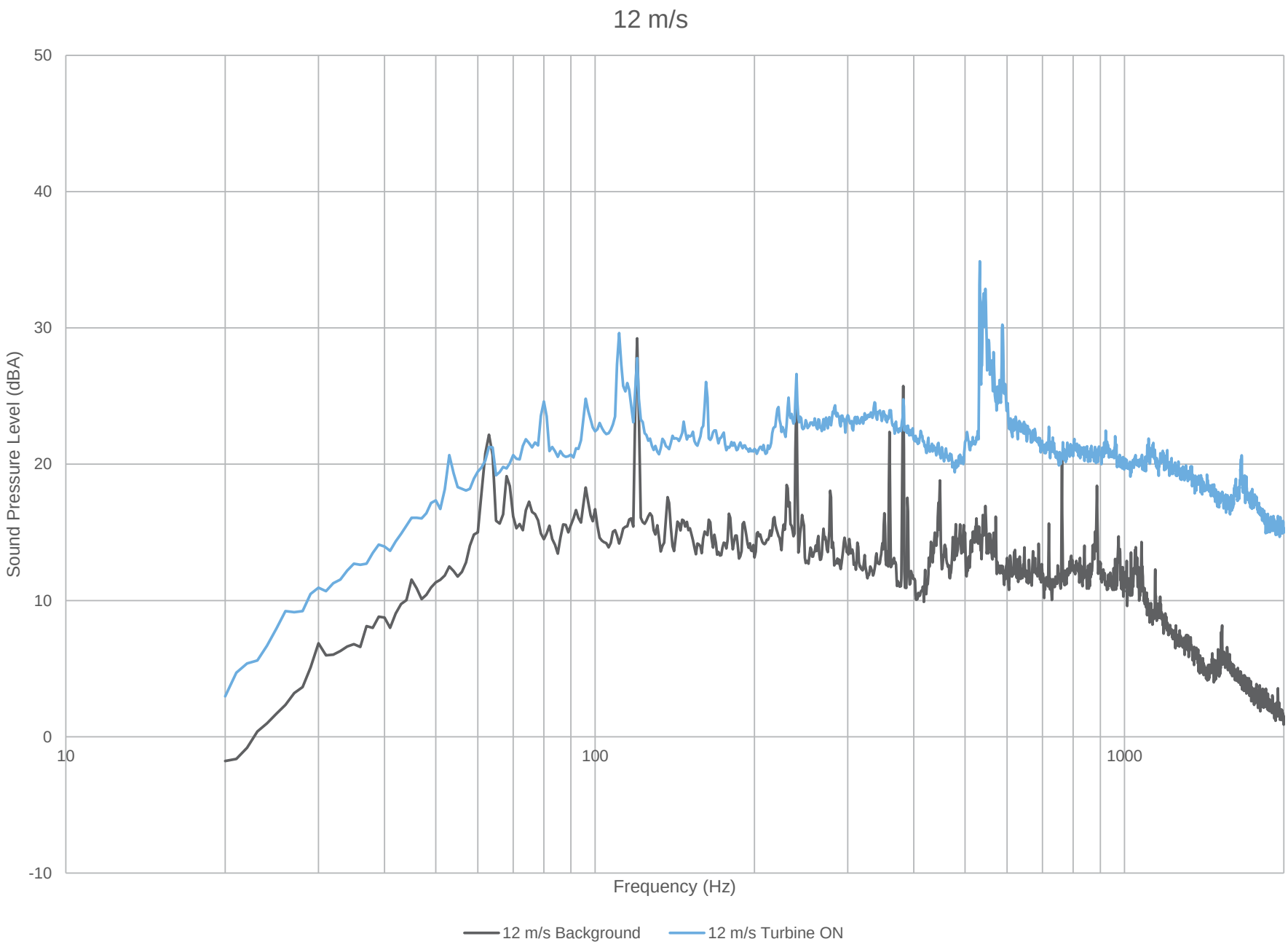
Figure D.08



aercoustics

20019.00.T1.RP1	**Project Name**
Scale: NTS Drawn by: HF Reviewed by: DH Date: Dec 16 Revision: 1	Romney Wind Energy Centre - IEC 61400- 11 Edition 3.0 - Turbine T1
	Figure Title Plot of narrow band spectra - Turbine ON vs. Background at 11.5 m/s

Figure D.09



aercoustics	20019.00.T1.RP1	**Project Name**
	Scale: NTS Drawn by: HF Reviewed by: DH Date: Dec 16 Revision: 1	Romney Wind Energy Centre - IEC 61400- 11 Edition 3.0 - Turbine T1
		Figure Title Plot of narrow band spectra - Turbine ON vs. Background at 12.0 m/s

Figure D.10

Table D.01 Tonality Assessment Table - 7.5 m/s

Created on: 2020-12-18

Project: Romney Wind Energy Centre - IEC 61400- 11 Edition 3.0 - Turbine T1
Report ID: 20019.00.T1.RP1

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)
15	73	17.0	35.3	32.2	-3.2	-2.0	-1.1
32	75	18.0	36.3	34.5	-1.8	-2.0	0.2
18	80	18.5	36.8	33.9	-2.9	-2.0	-0.9
19	81	18.8	37.1	39.3	2.2	-2.0	4.2
28	86	17.1	35.4	28.1	-7.3	-2.0	-5.3
17	86	17.9	36.1	32.1	-4.1	-2.0	-2.1
16	86	18.3	36.5	30.2	-6.3	-2.0	-4.3
27	87	18.0	36.2	30.5	-5.7	-2.0	-3.7
Average	82				-2.6	-2.0	-0.6

Table D.02 Tonality Assessment Table - 8 m/s

Project: Romney Wind Energy Centre - IEC 61400- 11 Edition 3.0 - Turbine T1

Report ID: 20019.00.T1.RP1

Created on: 2020-12-18

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)
22	498	20.1	39.1	34.9	-4.1	-2.3	-1.8
23	500	21.5	40.4	40.2	-0.2	-2.3	2.1
4	502	20.7	39.7	42.1	2.5	-2.3	4.8
12	505	20.4	39.3	38.4	-0.9	-2.3	1.4
11	507	20.6	39.6	34.3	-5.3	-2.3	-2.9
9	509	21.3	40.2	36.8	-3.4	-2.3	-1.1
8	513	20.9	39.9	35.8	-4.1	-2.3	-1.8
Average	505				-1.4	-2.3	0.9

Table D.03 Tonality Assessment Table - 8 m/s (2)

Created on: 2020-12-18

Project: Romney Wind Energy Centre - IEC 61400- 11 Edition 3.0 - Turbine T1
Report ID: 20019.00.T1.RP1

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)
12	79	17.2	35.5	33.2	-2.3	-2.0	-0.3
11	82	18.5	36.7	34.0	-2.7	-2.0	-0.7
1	83	18.2	36.4	27.8	-8.7	-2.0	-6.7
22	86	17.8	36.1	28.8	-7.3	-2.0	-5.3
20	86	19.3	37.5	28.7	-8.8	-2.0	-6.8
9	87	19.6	37.9	35.7	-2.2	-2.0	-0.2
23	87	18.4	36.6	28.3	-8.3	-2.0	-6.3
Average	84				-4.8	-2.0	-2.8

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

Project: Romney Wind Energy Centre - IEC 61400- 11 Edition 3.0 - Turbine T1

Created on: 2020-12-18

Report ID: 20019.00.T1.RP1

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)
494	532	21.7	40.7	42.5	1.9	-2.3	4.2
475	543	22.0	41.0	40.7	-0.3	-2.3	2.0
444	547	22.0	41.1	42.5	1.5	-2.4	3.8
482	550	23.6	42.6	32.5	-10.1	-2.4	-7.8
481	553	22.6	41.7	33.8	-8.0	-2.4	-5.6
331	555	22.5	41.5	34.8	-6.7	-2.4	-4.4
209	556	22.8	41.9	39.0	-2.8	-2.4	-0.5
280	557	22.0	41.1	33.0	-8.1	-2.4	-5.8
333	559	23.7	42.7	36.2	-6.5	-2.4	-4.2
268	560	22.9	42.0	30.5	-11.5	-2.4	-9.2
Average	551				-2.7	-2.4	-0.4

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

Created on: 2020-12-18

Project: Romney Wind Energy Centre - IEC 61400- 11 Edition 3.0 - Turbine T1
Report ID: 20019.00.T1.RP1

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)
216	538	22.0	41.0	44.8	3.8	-2.3	6.1
499	551	21.6	40.7	38.2	-2.5	-2.4	-0.1
477	554	22.6	41.6	37.9	-3.7	-2.4	-1.4
435	555	22.2	41.3	32.0	-9.3	-2.4	-6.9
316	555	22.9	42.0	37.9	-4.1	-2.4	-1.7
335	556	23.0	42.1	35.3	-6.8	-2.4	-4.4
288	557	22.5	41.6	31.4	-10.2	-2.4	-7.8
469	558	22.5	41.6	35.3	-6.3	-2.4	-4.0
470	558	22.4	41.4	37.6	-3.9	-2.4	-1.5
488	558	21.8	40.9	35.8	-5.0	-2.4	-2.7
279	559	22.4	41.5	33.1	-8.3	-2.4	-6.0
500	559	22.0	41.1	37.3	-3.7	-2.4	-1.4
267	560	22.7	41.8	36.6	-5.2	-2.4	-2.8
334	560	22.7	41.8	36.4	-5.4	-2.4	-3.1
377	560	21.9	41.0	32.6	-8.4	-2.4	-6.0
254	560	22.8	41.9	38.8	-3.1	-2.4	-0.7
329	561	21.8	40.9	41.0	0.1	-2.4	2.4
510	562	22.4	41.5	34.0	-7.5	-2.4	-5.1
426	562	22.6	41.7	30.4	-11.3	-2.4	-8.9
330	562	22.0	41.1	38.8	-2.3	-2.4	0.1
512	563	22.4	41.5	37.9	-3.5	-2.4	-1.2
438	563	22.9	42.0	30.0	-12.0	-2.4	-9.7
437	563	22.5	41.6	30.3	-11.4	-2.4	-9.0
501	565	22.3	41.4	35.6	-5.8	-2.4	-3.4
Average	558				-4.0	-2.4	-1.6

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

Project: Romney Wind Energy Centre - IEC 61400- 11 Edition 3.0 - Turbine T1

Report ID: 20019.00.T1.RP1

Created on: 2020-12-18

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)
635	550	23.2	42.2	38.2	-4.0	-2.4	-1.7
636	552	23.1	42.2	35.7	-6.5	-2.4	-4.2
606	553	22.8	41.9	40.5	-1.4	-2.4	1.0
278	555	22.0	41.1	34.5	-6.6	-2.4	-4.3
287	555	22.8	41.8	38.0	-3.8	-2.4	-1.5
434	556	22.6	41.7	34.9	-6.8	-2.4	-4.4
205	559	22.8	41.8	40.8	-1.0	-2.4	1.4
628	559	23.2	42.2	36.4	-5.9	-2.4	-3.5
589	559	22.2	41.3	40.1	-1.2	-2.4	1.2
615	559	22.2	41.3	37.4	-3.9	-2.4	-1.5
614	559	22.4	41.5	40.2	-1.3	-2.4	1.0
376	560	22.2	41.3	39.6	-1.7	-2.4	0.6
370	560	23.8	42.8	39.4	-3.4	-2.4	-1.0
391	560	22.9	42.0	34.0	-8.0	-2.4	-5.6
369	561	22.8	41.9	40.0	-2.0	-2.4	0.4
630	563	23.6	42.7	35.5	-7.2	-2.4	-4.8
344	563	22.0	41.1	37.5	-3.6	-2.4	-1.2
274	563	22.8	41.9	39.4	-2.4	-2.4	-0.1
516	564	22.3	41.4	38.4	-2.9	-2.4	-0.6
273	564	23.4	42.5	40.0	-2.4	-2.4	0.0
320	565	22.4	41.5	38.5	-3.0	-2.4	-0.6
433	565	22.5	41.5	37.9	-3.6	-2.4	-1.2
425	565	22.4	41.5	37.0	-4.5	-2.4	-2.1
275	565	22.8	41.9	40.7	-1.2	-2.4	1.1
392	565	22.5	41.6	36.8	-4.7	-2.4	-2.4
617	566	22.3	41.4	38.4	-3.0	-2.4	-0.7
272	566	22.6	41.7	41.7	0.0	-2.4	2.4
263	566	22.9	42.0	42.9	1.0	-2.4	3.3
629	566	23.7	42.8	39.0	-3.8	-2.4	-1.4
518	566	22.5	41.6	36.5	-5.0	-2.4	-2.7
345	567	22.5	41.6	41.9	0.3	-2.4	2.6
381	568	23.1	42.2	39.6	-2.6	-2.4	-0.3
514	569	23.0	42.2	40.2	-1.9	-2.4	0.5
371	569	24.2	43.3	37.1	-6.2	-2.4	-3.8
362	570	23.0	42.2	39.2	-3.0	-2.4	-0.6
Average	562				-2.8	-2.4	-0.5

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

Created on: 2020-12-18

Project: Romney Wind Energy Centre - IEC 61400- 11 Edition 3.0 - Turbine T1
Report ID: 20019.00.T1.RP1

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)
563	548	24.4	43.5	42.9	-0.6	-2.4	1.7
251	550	22.7	41.8	42.3	0.5	-2.4	2.9
588	558	22.0	41.1	39.8	-1.3	-2.4	1.1
277	559	22.0	41.1	38.0	-3.0	-2.4	-0.6
367	560	22.7	41.8	42.2	0.5	-2.4	2.8
613	560	22.1	41.2	37.9	-3.3	-2.4	-0.9
338	563	22.5	41.5	41.7	0.1	-2.4	2.5
386	564	22.4	41.5	40.6	-0.9	-2.4	1.5
383	564	22.9	42.0	38.8	-3.2	-2.4	-0.8
374	564	24.5	43.5	42.8	-0.7	-2.4	1.7
346	564	22.3	41.4	42.6	1.3	-2.4	3.6
618	566	22.9	42.0	36.8	-5.2	-2.4	-2.8
326	567	22.6	41.7	38.5	-3.2	-2.4	-0.8
631	567	24.0	43.1	38.3	-4.8	-2.4	-2.4
428	567	22.6	41.7	37.1	-4.6	-2.4	-2.2
412	567	23.2	42.3	36.5	-5.7	-2.4	-3.4
355	568	22.7	41.8	42.8	1.0	-2.4	3.4
231	568	22.7	41.8	44.1	2.3	-2.4	4.7
639	569	23.3	42.4	34.7	-7.7	-2.4	-5.3
221	571	22.9	42.0	43.0	1.1	-2.4	3.4
364	576	23.2	42.3	41.0	-1.3	-2.4	1.0
393	577	23.8	42.9	36.7	-6.2	-2.4	-3.8
Average	564				-1.3	-2.4	1.1

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

Created on: 2020-12-18

Project: Romney Wind Energy Centre - IEC 61400- 11 Edition 3.0 - Turbine T1
Report ID: 20019.00.T1.RP1

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)
641	68	19.9	38.1	34.3	-3.8	-2.0	-1.8
250	78	19.0	37.2	40.8	3.6	-2.0	5.6
597	92	22.7	41.0	33.7	-7.3	-2.0	-5.3
598	93	22.4	40.7	35.4	-5.2	-2.0	-3.2
594	94	22.8	41.0	44.6	3.5	-2.0	5.5
389	114	21.7	40.0	31.7	-8.3	-2.0	-6.3
560	114	21.7	39.9	33.0	-7.0	-2.0	-5.0
350	115	22.2	40.5	28.3	-12.2	-2.0	-10.2
387	115	22.1	40.4	31.2	-9.2	-2.0	-7.2
533	115	21.2	39.5	33.0	-6.5	-2.0	-4.5
388	115	22.5	40.8	33.5	-7.3	-2.0	-5.3
556	116	21.4	39.7	28.3	-11.3	-2.0	-9.3
305	117	21.6	39.8	27.9	-11.9	-2.0	-9.9
633	117	23.1	41.3	32.1	-9.3	-2.0	-7.2
Average	105				-3.2	-2.0	-1.2

Table D.09 Tonality Assessment Table - 10.5 m/s (2)

Created on: 2020-12-18

Project: Romney Wind Energy Centre - IEC 61400- 11 Edition 3.0 - Turbine T1
Report ID: 20019.00.T1.RP1

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)
247	531	22.4	41.4	47.6	6.2	-2.3	8.6
395	533	23.2	42.3	47.2	5.0	-2.3	7.3
244	534	22.3	41.4	48.8	7.5	-2.3	9.8
598	535	23.4	42.4	46.4	4.0	-2.3	6.3
578	536	24.7	43.7	44.9	1.3	-2.3	3.6
611	538	23.1	42.1	44.5	2.4	-2.3	4.7
556	538	24.1	43.1	47.0	3.8	-2.3	6.2
408	538	23.7	42.7	45.3	2.6	-2.3	4.9
612	540	23.3	42.3	44.8	2.5	-2.3	4.8
405	545	23.3	42.3	44.7	2.4	-2.3	4.7
534	546	23.3	42.3	48.5	6.1	-2.3	8.5
634	547	23.3	42.4	47.6	5.3	-2.4	7.6
241	548	22.4	41.4	43.0	1.5	-2.4	3.9
544	549	24.4	43.4	42.0	-1.4	-2.4	0.9
309	549	22.5	41.5	43.4	1.9	-2.4	4.2
646	550	22.8	41.8	37.1	-4.8	-2.4	-2.4
312	556	23.0	42.1	44.1	2.0	-2.4	4.4
533	559	22.7	41.7	42.6	0.9	-2.4	3.2
397	560	21.6	40.7	40.8	0.1	-2.4	2.4
Average	544				3.4	-2.3	5.7

Table D.10 Tonality Assessment Table - 11 m/s

Created on: 2020-12-18

Project: Romney Wind Energy Centre - IEC 61400- 11 Edition 3.0 - Turbine T1
Report ID: 20019.00.T1.RP1

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)
542	532	23.8	42.8	42.6	-0.2	-2.3	2.2
557	533	24.2	43.2	50.2	7.0	-2.3	9.3
526	542	23.2	42.3	50.2	8.0	-2.3	10.3
246	545	23.9	42.9	47.5	4.5	-2.3	6.9
396	548	22.2	41.3	47.5	6.3	-2.4	8.6
559	549	22.3	41.4	40.8	-0.5	-2.4	1.8
400	550	23.2	42.2	43.4	1.2	-2.4	3.5
593	550	23.2	42.3	39.6	-2.6	-2.4	-0.3
238	550	22.5	41.6	42.4	0.8	-2.4	3.2
236	550	22.4	41.5	44.5	3.0	-2.4	5.4
604	553	21.9	41.0	38.5	-2.5	-2.4	-0.2
569	557	23.0	42.1	39.8	-2.3	-2.4	0.0
402	559	23.7	42.7	38.7	-4.0	-2.4	-1.6
527	559	23.4	42.4	42.3	-0.2	-2.4	2.2
647	559	23.1	42.2	38.9	-3.2	-2.4	-0.9
596	561	23.6	42.7	37.4	-5.3	-2.4	-2.9
Average	550				2.5	-2.4	4.9

Table D.11 Tonality Assessment Table - 11.5 m/s

Created on: 2020-12-18

Project: Romney Wind Energy Centre - IEC 61400- 11 Edition 3.0 - Turbine T1
Report ID: 20019.00.T1.RP1

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)
407	533	22.3	41.3	47.9	6.6	-2.3	9.0
523	544	23.0	42.1	47.6	5.5	-2.3	7.9
531	545	23.7	42.8	45.6	2.8	-2.3	5.2
308	546	21.9	41.0	46.7	5.7	-2.3	8.1
644	547	22.5	41.6	40.2	-1.4	-2.4	1.0
555	548	23.5	42.6	44.0	1.4	-2.4	3.8
306	549	22.9	42.0	45.6	3.7	-2.4	6.0
601	556	22.1	41.1	40.5	-0.6	-2.4	1.8
403	562	23.3	42.4	41.4	-1.0	-2.4	1.3
Average	548				3.4	-2.4	5.8

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

Project: Romney Wind Energy Centre - IEC 61400- 11 Edition 3.0 - Turbine T1

Report ID: 20019.00.T1.RP1

Created on: 2020-12-18

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)
249	80	19.6	37.9	36.0	-1.9	-2.0	0.1
609	96	21.3	39.6	33.4	-6.2	-2.0	-4.2
553	111	21.9	40.2	40.6	0.5	-2.0	2.5
519	120	21.3	39.6	28.6	-10.9	-2.0	-8.9
522	120	21.9	40.2	28.5	-11.7	-2.0	-9.7
521	120	22.2	40.5	28.2	-12.3	-2.0	-10.3
545	120	22.5	40.8	32.3	-8.5	-2.0	-6.4
Average	110				-4.7	-2.0	-2.7

Table D.13 Tonality Assessment Table - 12 m/s (2)

Created on: 2020-12-18

Project: Romney Wind Energy Centre - IEC 61400- 11 Edition 3.0 - Turbine T1
Report ID: 20019.00.T1.RP1

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)
576	533	24.1	43.1	47.7	4.6	-2.3	6.9
525	540	23.5	42.5	41.6	-0.9	-2.3	1.5
519	542	22.1	41.1	44.8	3.7	-2.3	6.1
609	546	22.6	41.6	43.5	1.9	-2.3	4.3
249	552	22.9	42.0	39.5	-2.5	-2.4	-0.1
570	554	22.7	41.7	39.2	-2.5	-2.4	-0.2
553	566	23.3	42.4	41.8	-0.6	-2.4	1.7
Average	548				1.4	-2.4	3.7

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Appendix E
Measurement Data

Table E.01 Measurement data - Turbine ON

Project: Romney Wind Energy Centre - IEC 61400- 11 Edition 3.0 - Turbine T1

Report ID: 20019.00.T1.RP1

Created on: 2020-12-18

***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 (kPa)	Relative Humidity (%)
1	7.9	50.0	1953	265.0	258.0	3.8	9.9	7.8	6.6	6.7	93.0	79
2			2238	265.0	258.0	3.8	10.4	8.4	7.2	6.6	93.0	79
3			2158	265.0	258.0	3.8	10.5	8.3	5.9	6.6	93.0	79
4	8.0	51.8	2001	265.0	258.0	3.8	10.5	7.9	6.9	6.6	93.0	79
5			2106	265.0	258.0	3.8	10.5	8.1	6.5	6.6	93.0	79
6			2188	265.0	257.9	3.8	10.5	9.0	6.8	6.6	93.0	79
7			2122	265.0	257.9	3.8	10.5	9.0	7.7	6.7	93.0	79
8	7.8	51.6	1910	265.0	257.9	3.8	10.5	7.5	8.1	6.7	93.1	79
9	7.9	51.5	1990	265.0	257.9	3.8	10.5	7.3	7.8	6.7	93.1	79
10			2006	265.0	257.9	3.8	10.5	8.1	7.4	6.7	93.1	79
11	7.9	52.1	1939	265.0	257.9	3.8	10.5	7.5	6.9	6.7	93.1	79
12	7.8	51.2	1899	265.0	257.9	3.8	10.5	7.8	6.5	6.7	93.1	79
13			1807	265.0	257.9	3.8	10.4	7.6	7.1	6.7	92.8	79
14			1874	265.0	257.9	3.8	10.4	7.8	6.8	6.7	92.4	79
15	7.7	51.3	1803	265.0	257.9	3.8	10.4	7.8	6.1	6.7	92.4	79
16	7.7	52.4	1832	265.0	257.9	3.8	10.4	7.5	6.0	6.7	92.4	79
17	7.7	51.3	1798	265.0	257.9	3.8	10.4	6.8	5.3	6.7	92.4	79
18	7.5	51.7	1662	265.0	257.9	3.8	10.4	7.0	6.2	6.7	92.4	79
19	7.6	53.3	1726	265.0	257.9	3.8	10.4	7.2	6.0	6.7	92.6	79
20	7.8	52.9	1895	265.0	257.9	3.8	10.4	7.6	5.5	6.7	93.0	79
21			1915	265.0	257.9	3.8	10.4	7.9	5.7	6.7	93.0	79
22	8.0	50.5	1996	265.0	257.9	3.8	10.4	7.9	6.4	6.7	93.0	79
23	8.1	51.6	2072	265.0	257.9	3.8	10.4	8.0	6.9	6.7	93.0	79
24			1992	265.0	257.9	3.8	10.4	8.1	7.3	6.7	93.0	79
25			1868	265.0	257.9	3.8	10.4	8.2	7.2	6.7	92.7	79
26			1808	265.0	257.9	3.8	10.4	7.9	6.9	6.6	92.2	79
27	7.6	52.6	1729	265.0	257.9	3.8	10.4	7.5	6.5	6.6	92.2	79
28	7.5	50.9	1664	265.0	257.9	3.8	10.4	7.5	6.1	6.6	92.2	79
29			1650	265.0	257.9	3.8	10.4	7.7	5.2	6.6	92.2	79
30	7.4	50.8	1651	265.0	257.9	3.8	10.4	7.5	5.2	6.6	92.2	79
31	7.4	51.0	1631	265.0	257.9	3.8	10.4	7.2	5.5	6.6	92.6	79
32	7.3	51.8	1532	265.0	257.9	3.8	10.2	7.2	5.0	6.6	93.3	79
33			1483	265.0	257.9	3.8	9.9	7.1	4.8	6.6	93.3	79
34			1521	265.0	257.9	3.8	9.9	7.3	5.2	6.6	93.3	79
35			1504	265.0	257.9	3.8	9.9	7.5	5.1	6.6	93.3	79
36			1455	265.0	257.9	3.8	9.9	7.5	4.5	6.6	93.3	79
37			1468	265.0	257.9	3.8	9.9	7.3	4.2	6.6	93.9	79
38			1457	265.0	257.9	3.8	9.9	7.3	5.9	6.6	95.0	79
39			1448	265.0	257.9	3.8	9.9	7.2	5.1	6.6	95.0	79
40			1458	265.0	257.9	3.8	9.9	7.2	5.1	6.6	95.0	79
41			1423	265.0	257.9	3.8	9.9	7.4	5.0	6.6	95.0	79
42			1302	265.0	257.9	3.8	9.9	7.4	5.4	6.6	95.0	79
43			1272	265.0	257.9	3.8	9.9	6.9	5.7	6.7	94.5	79
44			1159	265.0	257.9	3.8	9.9	6.5	5.9	6.7	93.7	79
45			1044	265.0	257.9	3.8	9.2	6.2	6.0	6.7	93.7	79
46			998	265.0	257.9	3.8	9.0	6.0	5.3	6.7	93.7	79
47	6.4	48.0	1053	265.0	257.9	3.8	8.9	6.1	5.0	6.7	93.7	79
48	6.5	48.8	1089	265.0	257.9	3.8	8.7	5.9	5.1	6.7	93.7	79
49			1101	265.0	257.9	3.8	8.7	6.3	5.9	6.8	93.7	79
50			1127	265.0	257.9	3.8	8.7	6.6	5.5	6.8	93.7	79
51			1151	265.0	257.9	3.8	8.7	6.6	5.5	6.8	93.7	79
52			1301	265.0	257.9	3.8	8.9	6.8	5.4	6.8	93.7	79
53	7.1	50.0	1442	265.0	257.9	3.8	9.1	6.8	5.3	6.8	93.7	79
54			1691	265.0	257.9	3.8	9.4	7.6	6.0	6.8	93.7	79
55			1448	265.0	257.9	3.8	9.4	7.3	6.2	6.8	93.7	79
56			1423	265.0	257.8	3.8	9.4	7.5	5.4	6.8	93.7	79
57			1478	265.0	257.7	3.8	9.4	7.5	5.4	6.8	93.7	79
58			1473	265.0	257.7	3.8	9.4	7.3	6.2	6.8	93.7	79
59			1353	265.0	246.2	3.8	9.4	7.2	6.9	6.8	93.7	79
60			1327	265.0	240.4	3.8	9.4	6.6	7.3	6.8	93.7	79
61			1256	265.0	240.4	3.8	9.4	6.6	7.3	6.9	93.7	79
62			1124	265.0	240.3	3.8	9.2	6.7	7.5	6.9	93.8	79
63			1105	265.0	240.3	3.8	9.1	6.5	7.1	6.9	93.8	79
64			1104	265.0	240.3	3.8	9.1	6.7	6.7	6.9	93.8	79
65			1114	265.0	240.3	3.8	9.1	6.3	6.5	6.9	93.8	79
66			1122	265.0	240.3	3.8	9.1	6.8	6.8	6.9	93.8	79
67			1087	265.0	240.5	3.8	9.1	6.8	7.0	6.9	93.9	79
68			916	265.0	243.0	3.8	9.1	7.0	7.1	6.9	94.0	79
69			874	265.0	248.9	3.8	9.1	6.5	6.3	6.9	94.0	79
70			846	265.0	249.4	3.8	9.1	5.6	6.4	6.9	94.0	79
71			814	265.0	249.4	3.8	9.1	5.7	6.6	6.9	94.0	79
72			729	265.0	249.4	3.8	9.1	5.5	6.5	6.9	94.0	79
73			693	265.0	249.4	3.8	9.1	6.0	6.3	6.9	93.4	79
74			668	265.0	249.4	3.8	8.3	5.0	5.4	6.9	92.5	79
75			711	265.0	249.4	3.8	7.7	5.5	5.3	6.9	92.5	79
76			1194	252.0	238.4	4.0	9.3	7.4	5.9	8.0	89.6	79
77			1016	252.0	238.4	4.0	9.3	7.2	6.1	8.0	89.6	79
78			962	252.0	242.1	4.0	9.3	7.2	5.7	8.1	90.3	79
79			888	252.0	245.7	4.0	9.0	6.8	5.0	8.1	90.4	79
80			837	252.0	245.7	4.0	8.6	6.7	5.9	8.1	90.4	79
81			908	252.0	245.7	4.0	8.6	5.6	6.6	8.1	90.4	79
82			1137	252.0	245.4	4.0	8.4	6.9	4.7	8.1	90.4	79
83			1273	252.0	242.3	4.0	8.4	7.8	5.0	8.1	90.4	79
84			1248	252.0	236.9	4.0	8.4	7.4	6.0	8.1	91.2	79
85			1223	252.0	236.6	4.0	8.4	6.7	6.4	8.1	91.4	78
86			1346	252.0	226.7	4.0	8.4	7.5	6.6	8.1	91.4	78
87			1479	252.0	225.5	4.0	8.4	7.8	6.1	8.1	91.4	79
88			1721	252.0	225.5	4.0	8.8	8.0	7.1	8.1	91.4	79

***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 (kPa)	Relative Humidity (%)
89			1994	252.0	225.5	4.0	9.5	8.2	8.0	8.1	91.4	79
90			1942	252.0	225.5	4.0	9.7	7.5	6.9	8.2	90.3	79
91			1614	252.0	225.5	4.0	10.0	6.9	6.5	8.2	90.0	79
92			1571	252.0	225.5	4.0	10.0	7.0	5.8	8.2	90.0	79
93			1890	252.0	225.7	4.0	10.0	7.2	6.5	8.2	90.0	79
94			2115	252.0	229.5	4.0	10.2	8.7	6.7	8.2	90.0	76
95			2252	252.0	234.3	4.0	10.5	8.8	6.3	8.2	90.0	75
96			2057	252.0	235.0	4.0	10.5	8.0	5.7	8.4	90.6	75
97			1882	252.0	235.0	4.0	10.5	8.0	5.9	8.4	90.8	75
98			1701	252.0	235.0	4.0	10.5	8.0	5.6	8.4	90.8	75
99			1534	252.0	235.0	4.0	10.4	8.0	6.8	8.4	90.8	75
100			1473	252.0	235.0	4.0	10.0	6.8	7.8	8.4	90.8	77
101			1632	252.0	235.0	4.0	10.0	7.0	7.3	8.4	90.8	79
102			1974	252.0	235.0	4.0	10.0	7.7	7.7	8.4	90.9	79
103			2119	252.0	232.3	4.0	10.1	8.1	7.4	8.4	90.9	79
104			1783	252.0	228.2	4.0	10.2	7.8	6.8	8.4	90.9	79
105			1620	252.0	227.8	4.0	10.2	7.8	6.5	8.4	90.9	79
106			1622	252.0	227.8	4.0	10.2	7.4	6.0	8.4	90.9	75
107			1561	252.0	227.8	4.0	10.2	8.1	5.8	8.4	90.9	74
108			1560	252.0	227.8	4.0	10.2	8.6	5.7	8.2	90.5	75
109			1494	252.0	231.7	4.0	9.6	7.0	6.8	8.1	90.8	74
110			1537	252.0	231.7	4.0	9.6	7.0	7.5	8.1	90.8	75
111			1592	252.0	231.7	4.0	9.6	7.4	7.4	8.1	90.9	76
112			1749	252.0	231.7	4.0	9.8	7.6	7.1	8.1	90.9	77
113			1897	252.0	231.7	4.0	9.9	7.9	6.9	8.1	90.9	78
114			1993	252.0	231.7	4.0	9.9	8.1	6.1	8.1	90.9	77
115			1923	252.0	231.7	4.0	9.9	7.9	4.8	8.1	90.9	77
116			1866	252.0	231.7	4.0	9.9	7.6	5.2	8.2	90.9	77
117			1811	252.0	231.7	4.0	9.9	7.8	5.6	8.2	91.0	77
118			1954	252.0	231.0	4.0	9.9	8.0	5.7	8.2	91.0	77
119			2001	252.0	231.0	4.0	9.9	8.0	6.7	8.2	91.0	76
120			2033	252.0	219.7	4.0	9.9	7.8	3.6	8.2	91.0	76
121			2041	252.0	219.1	4.0	9.9	7.7	3.7	8.2	91.0	76
122			2006	252.0	219.1	4.0	10.2	7.3	5.3	8.3	90.9	78
123			2026	252.0	219.1	4.0	10.6	8.1	5.7	8.2	90.9	78
124			2052	252.0	219.1	4.0	10.6	8.5	4.9	8.2	90.9	78
125			1929	252.0	219.1	4.0	10.6	7.4	5.5	8.2	90.9	76
126			1735	252.0	219.1	4.0	10.6	7.4	4.6	8.2	90.9	77
127			1635	252.0	219.1	4.0	10.6	6.9	5.6	8.2	90.9	79
128			1545	252.0	219.1	4.0	10.6	6.7	4.5	8.2	90.9	79
129			1615	252.0	220.1	4.0	10.6	7.1	4.8	8.2	90.8	79
130			1521	252.0	224.0	4.0	10.6	7.6	6.0	8.2	90.8	78
131			1422	252.0	233.4	4.0	10.6	7.1	3.9	8.2	90.8	76
132			1480	252.0	234.7	4.0	9.8	7.8	4.5	8.2	90.8	75
133			1527	252.0	234.7	4.0	9.7	8.3	6.5	8.2	90.8	75
134			1603	252.0	234.7	4.0	9.7	7.8	6.9	8.3	90.6	75
135			1545	252.0	234.7	4.0	9.7	7.6	7.6	8.3	90.5	76
136			1472	252.0	234.7	4.0	9.7	7.2	7.0	8.3	90.5	77
137			1322	252.0	234.7	4.0	9.7	7.5	6.5	8.3	90.5	77
138			1268	252.0	234.7	4.0	9.7	6.4	6.6	8.3	90.5	77
139			1268	252.0	234.7	4.0	9.7	6.8	6.6	8.3	90.5	77
140			1364	252.0	234.7	4.0	9.7	6.8	6.9	8.3	90.3	75
141			1341	252.0	234.7	4.0	9.7	7.4	6.5	8.3	90.1	74
142			1370	252.0	234.7	4.0	9.5	7.0	5.2	8.3	90.1	73
143			1397	252.0	234.7	4.0	9.4	7.1	5.2	8.3	90.1	73
144			1447	252.0	234.7	4.0	9.4	7.0	5.6	8.3	90.1	73
145			1392	252.0	234.7	4.0	9.4	6.7	6.7	8.3	90.1	74
146			1482	252.0	234.7	4.0	9.5	7.2	7.9	8.3	90.7	75
147			1787	252.0	234.7	4.0	9.7	7.7	8.4	8.2	90.9	77
148			1967	252.0	234.7	4.0	9.7	7.3	8.9	8.2	90.9	76
149			2114	252.0	234.7	4.0	9.7	8.1	9.7	8.2	90.9	76
150			2121	252.0	234.7	4.0	9.9	8.1	8.8	8.2	90.9	77
151			2353	252.0	234.7	4.0	10.6	8.3	7.0	8.2	90.9	74
152			2179	252.0	234.7	4.0	10.6	8.1	7.9	8.3	90.0	73
153			1967	252.0	234.7	4.0	10.6	8.0	7.8	8.2	89.6	75
154			1799	252.0	234.7	4.0	10.6	7.1	6.6	8.2	89.6	76
155			1912	252.0	234.7	4.0	10.6	7.1	7.3	8.2	89.6	78
156			1751	252.0	234.7	4.0	10.6	7.6	6.5	8.2	89.6	75
157			1726	252.0	234.7	4.0	10.6	7.3	7.3	8.2	89.6	77
158			1911	252.0	234.7	4.0	10.6	7.4	7.6	8.2	89.8	79
159			1973	252.0	234.7	4.0	10.6	7.8	6.5	8.2	90.0	77
160			1954	252.0	233.5	4.0	10.6	7.8	5.5	8.2	90.0	77
161			1915	252.0	229.4	4.0	10.6	8.1	5.6	8.2	90.0	78
162			1905	252.0	226.1	4.0	10.6	7.6	6.6	8.2	90.0	75
163			1906	252.0	226.1	4.0	10.6	7.6	7.4	8.2	90.0	73
164			1759	252.0	226.1	4.0	10.4	7.3	7.5	8.3	90.0	74
165			1692	252.0	226.1	4.0	10.4	7.2	6.9	8.3	90.0	76
166			1755	252.0	226.1	4.0	10.4	7.6	6.6	8.3	90.0	79
167			1749	252.0	226.1	4.0	10.3	7.5	6.0	8.3	90.0	78
168			2018	252.0	226.0	4.0	10.2	8.4	5.7	8.3	90.0	79
169			1961	252.0	226.0	4.0	10.2	8.8	6.6	8.3	90.0	79
170			1846	252.0	226.0	4.0	10.2	8.0	6.1	8.3	90.2	79
171			1757	252.0	226.0	4.0	10.2	7.4	7.5	8.3	90.4	78
172			1744	252.0	226.0	4.0	10.2	7.5	7.9	8.3	90.4	79
173			1721	252.0	226.0	4.0	10.2	7.3	8.1	8.3	90.4	79
174			1779	252.0	226.0	4.0	10.2	7.7	7.7	8.3	90.4	79
175			1833	252.0	226.0	4.0	10.2	7.1	7.6	8.3	90.4	76
176			1779	252.0	226.0	4.0	10.2	7.6	7.3	8.3	91.0	75

Table E.01 Measurement data - Turbine ON

Project: Romney Wind Energy Centre - IEC 61400- 11 Edition 3.0 - Turbine T1

Report ID: 20019.00.T1.RP1

Created on: 2020-12-18

***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 (kPa)	Relative Humidity (%)
177			1794	252.0	226.0	4.0	10.2	7.9	6.6	8.3	91.3	76
178			1586	252.0	226.0	4.0	10.2	7.6	5.9	8.3	91.3	76
179			1877	252.0	226.0	4.0	10.1	7.5	6.1	8.3	91.3	77
180			2225	252.0	226.0	4.0	10.1	7.0	6.2	8.3	91.3	79
181			2326	252.0	226.0	4.0	10.1	8.2	6.4	8.3	91.3	78
182			2170	252.0	226.0	4.0	10.1	7.8	7.6	8.4	91.2	76
183			2183	252.0	226.0	4.0	10.4	7.9	7.1	8.4	91.2	77
184			2277	252.0	225.5	4.0	10.8	8.0	7.6	8.4	91.2	78
185			2506	252.0	224.7	4.0	10.8	7.8	7.7	8.4	91.2	79
186			2649	252.0	216.8	4.0	10.8	8.8	5.9	8.4	91.2	75
187			2855	252.0	214.7	4.0	10.8	8.7	5.0	8.4	91.2	74
188			2804	252.0	215.5	3.9	10.8	9.8	4.7	8.4	91.3	74
189			2503	252.0	216.6	3.8	11.1	8.6	4.6	8.4	91.3	73
190			2967	252.0	216.6	4.4	11.8	9.2	3.3	8.4	91.3	77
191			3432	252.0	231.2	5.5	12.0	10.1	3.2	8.4	91.3	76
192			3344	252.0	234.3	5.5	12.0	10.1	3.7	8.4	91.3	75
193			3388	252.0	234.3	5.0	12.0	9.8	7.3	8.4	91.3	75
194			3333	252.0	234.3	5.8	11.9	9.8	5.9	8.4	91.8	75
195			2974	252.0	234.3	5.1	11.5	9.7	7.9	8.4	92.0	76
196			3115	252.0	234.3	4.7	11.7	8.5	7.7	8.4	92.0	78
197			2909	252.0	233.9	4.4	11.7	8.8	8.3	8.4	92.0	79
198			3109	252.0	233.1	4.4	11.7	9.0	8.4	8.4	92.0	77
199			2811	252.0	226.5	4.3	11.7	8.5	8.4	8.4	92.0	78
200			2418	252.0	224.4	3.3	11.7	8.5	7.6	8.4	91.4	77
201			2075	252.0	224.4	3.4	11.7	7.6	7.2	8.4	91.1	77
202			2085	252.0	224.4	3.8	11.4	8.2	6.2	8.4	91.1	77
203			1910	252.0	224.4	3.8	11.3	7.4	6.8	8.4	91.1	78
204			2915	235.0	224.9	4.1	11.7	9.3	6.2	8.6	92.6	75
205	9.4	52.6	3002	235.0	224.9	4.6	11.8	8.8	6.9	8.6	93.6	75
206			2633	235.0	224.9	4.1	11.8	9.6	7.7	8.6	93.6	76
207			2925	235.0	224.9	3.8	11.8	9.8	8.7	8.6	93.6	78
208			2850	235.0	224.9	4.3	11.8	9.3	8.8	8.6	93.6	78
209	8.5	52.4	2409	235.0	224.9	4.0	11.8	8.0	8.0	8.6	93.6	77
210			2370	235.0	224.9	3.6	11.8	8.2	7.9	8.6	92.3	77
211			2031	235.0	224.9	3.8	11.4	8.3	7.2	8.6	91.3	77
212			1820	235.0	224.9	3.8	11.3	8.0	7.2	8.6	91.3	78
213			1867	235.0	224.9	3.8	11.3	7.7	7.4	8.6	91.3	78
214			1830	235.0	224.9	3.8	10.7	8.2	6.7	8.6	91.3	78
215			2170	235.0	224.9	3.8	10.6	8.2	7.3	8.6	91.3	78
216	8.8	51.4	2633	235.0	224.9	3.8	10.6	8.3	8.2	8.7	91.3	78
217			2845	235.0	224.9	3.8	10.6	9.8	7.2	8.7	91.2	77
218			2800	235.0	224.9	3.8	10.6	9.9	6.2	8.7	91.2	77
219			2991	235.0	224.9	4.2	10.8	9.6	6.1	8.7	91.2	77
220			3074	235.0	224.9	4.7	11.8	9.2	5.4	8.7	91.2	77
221	9.8	52.6	3222	235.0	224.9	4.6	11.8	9.0	5.5	8.7	91.2	76
222			3554	235.0	224.9	5.6	11.8	9.3	6.0	8.7	91.6	76
223			3604	235.0	224.9	6.2	11.7	9.3	6.3	8.7	91.9	76
224	10.6	52.6	3449	235.0	224.9	5.4	11.5	9.8	4.9	8.7	91.9	76
225	10.8	52.8	3572	235.0	224.9	5.7	11.5	10.0	6.3	8.7	91.9	76
226	10.3	52.4	3598	235.0	224.9	6.0	11.6	9.5	4.6	8.7	91.9	76
227			3427	235.0	224.9	5.8	11.7	9.3	5.9	8.7	91.9	76
228			3374	235.0	224.9	5.2	11.7	9.1	4.6	8.8	91.5	77
229			3505	235.0	224.9	5.3	11.7	9.3	4.0	8.8	91.1	77
230			3141	235.0	224.9	5.3	11.6	9.5	4.0	8.8	91.1	77
231	9.8	53.3	3212	235.0	224.9	5.2	11.5	8.9	4.4	8.8	91.1	78
232			3544	235.0	224.9	5.9	11.9	9.2	3.5	8.8	91.1	78
233			3472	235.0	224.9	6.0	12.0	9.0	4.5	8.8	91.1	78
234			3513	235.0	224.9	5.9	11.8	9.4	5.6	8.8	91.8	78
235			3591	235.0	224.9	5.5	11.8	9.4	8.6	8.8	92.4	78
236	11.1	53.2	3600	235.0	224.9	6.7	11.8	10.3	7.2	8.8	92.4	78
237	11.1	52.3	3552	235.0	224.9	6.0	11.6	10.3	8.2	8.8	92.4	78
238	11.0	52.7	3483	235.0	224.9	7.0	12.0	10.2	7.8	8.8	92.4	78
239			3457	235.0	224.9	6.4	11.6	9.4	8.0	8.8	92.4	78
240			3458	235.0	224.9	5.7	11.9	9.5	7.5	8.8	91.9	78
241	10.3	52.0	3461	235.0	224.9	7.7	12.0	9.6	8.5	8.8	91.5	78
242	10.3	52.7	3454	235.0	224.9	6.8	11.4	9.6	7.7	8.8	91.5	75
243	11.4	52.9	3447	235.0	224.9	8.4	11.9	10.6	7.1	8.8	91.5	74
244	10.6	52.5	3444	235.0	224.9	8.5	12.1	9.8	6.1	8.8	91.5	74
245	11.1	55.5	3455	235.0	224.9	5.7	11.2	10.3	6.2	8.8	91.5	74
246	11.1	53.4	3455	235.0	224.9	7.8	12.2	10.3	6.7	8.8	91.6	74
247	10.4	53.0	3452	235.0	224.9	7.0	11.5	9.7	6.3	8.8	91.7	74
248	11.5	53.8	3463	235.0	224.9	6.2	11.1	10.7	5.0	8.8	91.7	74
249	11.8	53.3	3440	235.0	224.9	6.7	11.8	11.0	5.4	8.8	91.7	74
250	10.7	52.8	3449	235.0	224.9	6.6	11.8	10.0	6.9	8.8	91.7	74
251	10.0	53.5	3344	235.0	224.9	6.1	11.6	8.9	7.7	8.8	91.7	74
252			3158	235.0	224.9	5.7	11.5	9.6	7.8	8.9	91.4	74
253			2822	235.0	224.9	4.9	11.5	8.8	7.5	8.8	91.2	74
254	9.2	53.0	2889	235.0	224.9	4.3	11.5	8.6	7.3	8.8	91.2	74
255			2899	235.0	224.9	4.1	11.5	8.9	7.8	8.8	91.2	74
256			2816	235.0	224.9	4.3	11.5	9.3	8.2	8.8	91.2	74
257			2883	235.0	224.9	4.1	11.8	9.4	6.2	8.8	91.2	74
258			2949	235.0	224.9	4.3	11.8	9.3	7.3	8.7	91.4	74
259			2745	235.0	224.9	4.0	11.8	9.2	7.8	8.6	91.5	75
260			2374	235.0	224.9	3.4	11.8	9.1	7.2	8.6	91.5	75
261			2231	235.0	224.9	3.4	11.8	8.1	7.2	8.6	91.5	75
262	8.3	52.3	2293	235.0	224.9	3.4	11.4	7.5	4.9	8.6	91.5	75
263	9.3	52.6	2971	235.0	224.9	3.4	11.6	8.8	5.9	8.6	91.5	76
264			3117	235.0	224.9	4.3	11.8	9.8	6.6	8.6	91.9	78

***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 (kPa)	Relative Humidity (%)
265			3049	235.0	224.9	4.5	11.8	9.1	6.8	8.6	92.2	79
266			2922	235.0	224.9	4.7	11.8	9.0	6.1	8.6	92.2	79
267	8.8	52.7	2658	235.0	224.9	4.1	11.8	8.4	5.6	8.6	92.2	79
268	8.7	52.6	2555	235.0	224.9	3.5	11.8	7.9	4.9	8.6	92.2	79
269			2600	235.0	224.9	3.5	11.8	8.8	4.8	8.6	92.2	79
270			2674	235.0	224.9	3.5	11.8	8.5	7.1	8.7	92.2	79
271	8.9	53.0	2726	235.0	224.9	3.5	11.8	8.4	7.3	8.7	92.1	79
272	9.5	52.8	3101	235.0	224.9	4.6	11.8	9.1	6.0	8.7	92.1	79
273	9.7	53.4	3180	235.0	224.9	5.0	11.8	9.0	7.1	8.7	92.1	79
274	9.5	53.3	3079	235.0	224.9	4.5	11.8	8.0	7.2	8.7	92.1	79
275	9.5	52.8	3058	235.0	224.9	4.5	11.8	8.3	8.6	8.7	92.1	79
276			3271	235.0	224.9	5.0	11.8	9.6	5.5	8.7	92.0	79
277	9.9	53.1	3296	235.0	224.9	5.3	11.7	9.4	8.0	8.7	92.0	79
278	9.3	52.2	2982	235.0	224.9	4.8	11.7	8.4	8.3	8.7	92.0	79
279	8.9	52.2	2701	235.0	224.9	4.0	11.7	8.3	8.0	8.7	92.0	79
280	8.7	52.3	2601	235.0	224.9	3.6	11.7	8.1	7.9	8.7	92.0	79
281			2460	235.0	224.9	3.4	11.8	8.4	7.9	8.7	92.0	79
282			2750	235.0	224.9	4.0	11.8	8.6	7.9	8.7	91.8	79
283			2457	235.0	224.9	3.8	11.8	8.8	8.9	8.7	91.6	79
284			2503	235.0	224.9	3.8	11.8	9.2	7.8	8.7	91.6	79
285			2722	235.0	224.9	3.9	11.8	9.7	8.2	8.7	91.6	79
286			3142	235.0	224.9	4.7	11.8	10.4	8.6	8.7	91.6	79
287	9.5	52.8	3055	235.0	224.9	5.3	11.7	8.9	8.4	8.7	91.6	79
288	8.8	52.6	2641	235.0	224.9	4.1	11.7	7.7	7.1	8.7	91.8	79
289			2646	235.0	224.9	4.4	11.7	8.6	6.1	8.7	91.9	79
290			2668	235.0	224.9	4.0	11.7	9.0	6.1	8.7	91.9	79
291			2913	235.0	224.9	4.6	11.7	9.9	7.2	8.7	91.9	79
292			3080	235.0	224.8	4.7	11.7	9.1	7.6	8.7	91.9	79
293			2852	235.0	224.7	5.1	11.8	8.9	7.8	8.7	91.9	79
294			2628	235.0	218.0	3.8	11.8	8.6	6.1	8.7	92.6	79
295			2602	235.0	214.5	3.5	11.8	8.7	6.6	8.7	93.1	79
296			2340	235.0	214.5	3.5	11.8	8.1	8.1	8.7	93.1	79
297			2362	235.0	214.4	3.5	11.8	8.2	7.8	8.7	93.1	79
298			2479	235.0	214.3	3.6	11.8	8.0	7.9	8.7	93.1	79
299			2752	235.0	214.3	4.3	11.7	9.2	6.7	8.7	93.1	79
300			2926	235.0	214.3	5.1	11.6	8.8	6.3	8.7	93.0	79
301			3200	235.0	214.6	5.6	11.9	9.3	4.4	8.6	93.0	79
302			3407	235.0	215.6	6.2	12.0	9.6	5.1	8.6	93.0	79
303			3368	235.0	215.6	5.9	11.9	10.2	8.3	8.6	93.0	79
304	11.3	52.6	3526	235.0	226.2	6.0	11.8	10.5	8.6	8.6	93.0	79
305	10.6	52.8	3621	235.0	231.6	6.4	11.8	9.8	7.0	8.6	93.0	79
306	11.5	53.0	3626	235.0	231.6	7.9	11.7	10.7	7.4	8.7	92.9	79
307	11.0	52.9	3630	235.0	231.6	6.4	11.5	10.2	8.8	8.7	92.8	79
308	11.3	52.6	3643	235.0	231.6	6.3	11.9	10.5	7.1	8.7	92.8	79
309	10.3	53.1	3453	235.0	231.6	5.6	11.4	9.5	7.0	8.7	92.8	79
310			3220	235.0	231.6	5.0	11.4	9.4	6.7	8.7	92.8	79
311			3385	235.0	231.6	5.0	11.4	9.2	5.2	8.7	92.8	79
312	10.7	53.3	3549	235.0	231.6	5.7	11.6	9.9	7.0	8.8	93.0	79
313			3317	235.0	231.6	5.7	11.8	9.9	5.8	8.7	93.1	79
314			3186	235.0	231.6	4.9	11.8	9.4	7.7	8.7	93.1	79
315			3105	235.0	231.6	4.8	11.8	9.2	7.5	8.7	93.1	79
316	9.2	52.3	2922	235.0	231.6	4.3	11.8	8.7	6.9	8.7	93.1	79
317			3138	235.0	231.6	4.2	11.8	9.3	7.3	8.7	93.1	79
318			3279	235.0	231.6	4.8	11.8	10.1	7.4	8.8	92.5	79
319			3118	235.0	231.6	5.1	11.8	10.6	6.4	8.8	92.0	79
320	9.5	52.1	3079	235.0	231.6	4.4	11.8	8.9	5.3	8.8	92.0	79
321			3137	235.0	231.6	4.8	11.8	10.0	6.8	8.8	92.0	79
322			2930	235.0	231.6	4.4	11.8	8.9	9.0	8.8	92.0	79
323			3003	235.0	231.6	4.2	11.8	9.2	9.4	8.8	92.0	79
324			3153	235.0	231.6	4.6	11.8	9.5	7.8	8.8	92.0	79
325			3088	235.0	231.6	4.7	11.8	9.1	8.7	8.8	91.9	79
326	9.8	52.6	3222	235.0	231.6	4.9	11.8	9.2	7.3	8.8	91.9	79
327			3151	235.0	231.6	5.3	11.8	9.4	7.6	8.8	91.9	79
328			2962	235.0	231.2	5.3	11.8	9.5	7.8	8.8	91.9	79
329	9.0	52.2	2812	235.0	228.7	4.3	11.8	8.4	6.7	8.8	91.9	79
330	9.0	52.3	2784	235.0	224.3	4.5	11.7	7.8	5.6	8.8	92.1	79
331	8.7	52.5	2559	235.0	224.2	3.8	11.7	8.0	5.3	8.7	92.3	79
332			2320	235.0	224.1	3.5	11.7	8.8	5.4	8.7	92.3	79
333	8.5	52.7	2419	235.0	224.1	3.5	11.7	8.0	7.2	8.7	92.3	79
334	8.9	52.8	2719	235.0	224.1	3.5	11.7	8.4	7.5	8.7	92.3	79
335	8.9	52.3	2707	235.0	224.1	3.5	11.6	8.3	6.2	8.7	92.3	79
336			2730	235.0	224.1	3.7	11.6	8.8	6.8	8.8	92.3	79
337			3135	235.0	224.1	4.8	11.8	9.5	6.3	8.7	92.3	79
338	10.0	52.8	3323	235.0	224.1	5.4	12.0	9.3	5.7	8.7	92.3	79
339			3153	235.0	224.1	5.1	12.0	9.2	6.0	8.7	92.3	79
340			3170	235.0	224.1	4.7	11.9	9.3	5.5	8.7	92.3	79
341			3097	235.0	224.1	4.7	11.7	9.5	4.4	8.7	92.3	79
342			3043	235.0	224.1	4.5	11.7	9.5	5.4	8.7	92.3	79
343			3110	235.0	224.1	4.5	11.7	9.9	5.1	8.7	92.2	79
344	9.4	52.5	3040	235.0	224.1	4.7	11.7	8.9	4.8	8.7	92.2	79
345	9.6	52.5	3152	235.0	224.1	4.7	11.7	9.1	3.7	8.7	92.2	79
346	9.8	52.8	3215	235.0	224.1	4.9	11.7	8.9	4.2	8.7	92.2	79
347			3481	235.0	224.1	5.5	11.7	8.8	5.1	8.7	92.2	79
348	10.3	52.4	3397	235.0	224.1	5.8	11.7	9.6	4.0	8.7	92.5	79
349			3236	235.0	224.1	5.1	11.7	9.4	5.7	8.6	92.7	79
350	10.5	52.8	3424	235.0	224.1	5.4	11.7	9.7	4.1	8.6	92.7	79
351			3226	235.0	224.1	5.5	11.7	10.0	5.4	8.6	92.7	79
352			3211	235.0	224.1	5.0	11.7	9.5	5.2	8.6	92.7	79

Table E.01 Measurement data - Turbine ON

Project: Romney Wind Energy Centre - IEC 61400- 11 Edition 3.0 - Turbine T1

Report ID: 20019.00.T1.RP1

Created on: 2020-12-18

***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 (kPa)	Relative Humidity (%)
353			3222	235.0	224.1	5.1	11.7	9.7	5.1	8.6	92.7	79
354			3130	235.0	224.1	4.9	11.7	9.1	5.7	8.6	92.4	79
355	9.8	52.9	3264	235.0	224.1	4.5	11.7	9.2	5.8	8.6	92.2	79
356	10.6	52.8	3439	235.0	224.1	5.2	11.7	9.8	7.6	8.6	92.2	79
357			3363	235.0	224.1	5.4	11.7	9.8	5.8	8.6	92.2	79
358			3222	235.0	224.1	5.4	11.7	9.7	4.7	8.6	92.2	79
359			3010	235.0	224.1	4.7	11.6	9.5	3.0	8.6	92.2	79
360			2819	235.0	224.1	4.5	11.6	9.5	4.5	8.6	92.6	79
361			2644	235.0	224.1	4.1	11.6	9.0	3.3	8.6	93.0	79
362	9.3	53.2	2962	235.0	224.1	4.7	11.6	8.8	4.6	8.6	93.0	79
363			2824	235.0	224.1	4.2	11.7	9.1	5.8	8.6	93.0	79
364	9.9	53.2	3300	235.0	224.1	4.5	11.8	9.2	8.3	8.6	93.0	79
365	11.6	52.7	3455	235.0	224.1	6.4	12.0	10.7	7.7	8.6	93.0	79
366	11.5	52.4	3423	235.0	224.1	6.4	12.0	10.7	6.7	8.7	92.7	79
367	9.9	52.5	3317	235.0	224.1	6.4	12.0	9.1	5.7	8.7	92.4	79
368			3152	235.0	224.1	6.0	12.0	10.0	6.6	8.7	92.4	79
369	9.5	53.2	3082	235.0	224.1	4.6	11.8	8.4	7.7	8.7	92.4	79
370	9.7	53.1	3176	235.0	224.1	4.7	11.7	8.8	7.8	8.7	92.4	79
371	9.4	53.6	3023	235.0	224.1	4.6	11.6	8.3	7.6	8.7	92.4	79
372			3377	235.0	224.1	5.1	11.9	9.0	6.3	8.7	92.2	79
373			3379	235.0	224.1	5.4	11.9	9.3	6.1	8.7	92.1	79
374	9.9	54.5	3279	235.0	224.1	5.0	11.9	9.0	6.8	8.7	92.1	79
375			3219	235.0	224.1	5.2	11.9	8.7	6.9	8.7	92.1	79
376	9.4	54.1	3019	235.0	224.1	5.2	11.9	8.8	4.5	8.7	92.1	79
377	9.1	52.3	2851	235.0	224.1	5.0	11.9	8.5	5.5	8.7	92.1	79
378			2741	235.0	224.1	3.7	11.9	8.5	6.6	8.8	92.0	79
379	8.8	52.7	2608	235.0	224.1	3.5	11.9	8.0	6.9	8.7	92.0	79
380			2775	235.0	224.1	3.3	11.9	8.8	6.6	8.7	92.0	79
381	9.7	52.7	3162	235.0	224.1	3.3	11.9	9.1	5.8	8.7	92.0	79
382			3318	235.0	224.1	5.3	11.9	10.0	6.2	8.7	92.0	79
383	10.0	52.9	3350	235.0	224.1	5.3	11.9	9.5	8.2	8.7	92.0	79
384			3438	235.0	224.1	5.1	11.9	9.3	7.8	8.7	91.7	79
385			3539	235.0	224.1	5.8	11.9	9.5	6.8	8.6	91.5	79
386	10.1	52.7	3356	235.0	224.1	5.5	11.9	9.5	5.3	8.6	91.5	79
387	10.4	52.3	3454	235.0	224.1	5.5	11.9	9.6	6.5	8.6	91.5	79
388	10.3	53.0	3442	235.0	224.1	5.4	11.9	9.6	5.0	8.6	91.5	79
389	10.4	53.2	3498	235.0	224.1	5.6	11.9	9.7	6.1	8.6	91.5	79
390			3420	235.0	224.1	5.6	11.9	9.4	6.0	8.6	92.1	79
391	9.7	52.7	3157	235.0	224.6	5.6	11.9	8.7	6.1	8.6	92.7	79
392	9.7	52.7	3159	235.0	228.9	4.7	11.9	9.0	7.1	8.6	92.7	79
393	9.8	52.6	3222	235.0	230.6	5.0	11.7	8.8	8.4	8.6	92.7	79
394			3396	235.0	230.6	4.8	11.9	9.5	6.9	8.6	92.7	79
395	10.4	52.9	3609	235.0	230.6	8.7	11.9	9.7	7.0	8.6	92.7	79
396	11.2	53.5	3623	235.0	230.6	6.1	11.0	10.4	6.0	8.6	92.7	79
397	10.6	52.7	3480	235.0	230.6	5.8	11.5	9.9	6.1	8.6	92.7	79
398			3508	235.0	230.6	6.2	11.6	9.0	6.0	8.6	92.7	79
399	10.6	52.8	3534	235.0	230.4	7.3	11.8	9.8	7.3	8.6	92.7	79
400	10.9	53.1	3484	235.0	228.5	9.4	12.0	10.2	7.8	8.6	92.7	79
401	10.4	52.0	3471	235.0	223.9	8.6	11.6	9.7	7.6	8.6	92.7	79
402	11.1	53.1	3452	235.0	223.6	9.2	11.9	10.3	7.9	8.6	92.3	79
403	11.5	53.1	3450	235.0	223.6	8.8	11.9	10.7	9.7	8.6	91.9	79
404	11.4	53.1	3464	235.0	223.6	8.8	12.1	10.6	7.0	8.6	91.9	79
405	10.4	52.5	3452	235.0	223.6	9.6	11.6	9.7	7.7	8.6	91.9	79
406	11.2	52.6	3446	235.0	223.6	9.0	11.8	10.4	5.7	8.6	91.9	79
407	11.7	52.3	3456	235.0	223.6	9.0	11.8	10.8	7.1	8.6	91.9	79
408	10.7	53.9	3442	235.0	223.6	5.7	11.2	9.9	6.1	8.6	92.1	79
409	11.7	53.1	3463	235.0	223.6	6.1	11.4	10.8	6.7	8.5	92.3	79
410			3318	235.0	223.6	6.4	11.8	9.9	6.7	8.5	92.3	79
411			2997	235.0	223.6	4.6	11.0	9.4	9.5	8.5	92.3	79
412	9.8	52.9	3238	235.0	224.6	5.1	11.2	8.9	8.5	8.5	92.3	79
413			3177	235.0	229.3	5.6	11.8	9.3	8.8	8.5	92.3	79
414			3017	235.0	231.6	4.8	11.8	10.0	8.6	8.6	91.9	79
415			2719	235.0	231.6	4.4	11.7	9.5	7.3	8.5	91.6	79
416			2648	235.0	231.6	3.5	11.5	10.4	6.8	8.5	91.6	79
417			2617	235.0	231.6	3.7	11.7	8.6	7.3	8.5	91.6	79
418			2019	235.0	231.2	3.5	11.6	8.3	6.5	8.5	91.6	79
419	8.0	52.0	2008	235.0	230.9	3.8	11.4	7.7	5.4	8.5	91.6	79
420			2262	235.0	224.3	3.8	11.4	8.1	8.7	8.6	92.4	79
421			2420	235.0	219.3	3.8	11.4	8.1	8.5	8.5	93.1	79
422			2884	235.0	219.3	4.7	11.4	9.4	9.3	8.5	93.1	79
423			2783	235.0	219.6	4.8	11.4	9.5	7.9	8.5	93.1	79
424			2896	235.0	222.7	4.9	11.4	8.7	9.1	8.5	93.1	79
425	9.3	53.1	2973	235.0	228.3	5.1	11.8	8.4	9.7	8.5	93.1	79
426	9.1	52.3	2871	235.0	228.4	5.0	11.8	8.3	9.7	8.6	92.2	79
427			3087	235.0	228.4	4.7	11.8	9.2	9.3	8.5	91.6	79
428	9.8	53.2	3233	235.0	228.4	4.9	11.8	9.1	8.0	8.5	91.6	79
429			2956	235.0	228.4	4.8	11.8	9.3	6.5	8.5	91.6	79
430			2828	235.0	228.4	4.0	11.8	9.1	8.6	8.5	91.6	79
431			2850	235.0	228.4	4.0	11.8	8.7	8.9	8.5	91.6	79
432			2892	235.0	228.4	4.0	11.8	8.9	8.8	8.5	91.4	79
433	9.5	52.9	3099	235.0	228.4	4.6	11.8	8.6	9.2	8.5	91.2	79
434	9.5	52.8	3082	235.0	228.4	4.6	11.8	8.8	8.2	8.5	91.2	79
435	9.0	52.6	2788	235.0	228.4	4.4	11.8	8.4	6.9	8.5	91.2	79
436	8.9	52.8	2747	235.0	228.4	3.6	11.8	7.9	6.4	8.5	91.2	79
437	8.9	52.6	2687	235.0	228.4	3.7	11.8	7.8	7.0	8.5	91.2	79
438	8.9	52.5	2717	235.0	228.4	3.6	11.8	8.4	7.0	8.5	91.5	79
439	9.1	52.6	2880	235.0	228.4	3.6	11.8	8.4	6.7	8.4	91.8	79
440			3091	235.0	228.4	4.1	11.8	9.4	6.1	8.4	91.8	79

***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 (kPa)	Relative Humidity (%)
441			2883	235.0	228.4	4.3	11.8	9.1	6.2	8.4	91.8	79
442			2541	235.0	228.4	3.5	11.8	9.1	7.5	8.4	91.8	79
443			2506	235.0	228.4	3.6	11.8	8.6	7.7	8.4	91.8	79
444	8.3	52.3	2256	235.0	228.4	3.8	11.7	7.8	7.3	8.5	92.0	79
445			2145	235.0	228.4	3.8	11.3	8.2	7.5	8.4	92.1	79
446			2064	235.0	228.4	3.8	11.1	8.4	8.1	8.4	92.1	79
447			2262	235.0	228.4	3.8	11.1	8.6	7.3	8.4	92.1	79
448			2233	235.0	228.4	3.8	11.1	8.7	7.5	8.4	92.1	79
449			2165	235.0	228.4	3.8	11.1	8.5	8.8	8.4	92.1	79
450			2280	235.0	228.4	3.8	11.1	8.3	8.6	8.5	92.1	79
451			2413	235.0	228.4	3.8	11.1	8.0	8.7	8.5	92.0	79
452			2425	235.0	228.4	3.8	11.1	8.3	8.5	8.5	92.0	79
453			2547	235.0	228.4	3.8	11.1	8.2	8.6	8.5	92.0	79
454			2379	235.0	228.4	3.8	11.1	9.0	9.1	8.5	92.0	79
455			2194	235.0	228.4	3.8	11.1	8.0	9.0	8.5	92.0	79
456			2175	235.0	228.4	3.8	11.1	8.0	8.3	8.5	91.4	79
457			2030	235.0	228.4	3.8	11.1	8.1	7.2	8.5	90.9	79
458			2090	235.0	228.4	3.8	10.9	8.0	7.5	8.5	90.9	79
459			2680	235.0	230.7	3.8	10.9	9.2	8.9	8.5	90.9	79
460			2825	235.0	235.1	3.8	10.9	8.7	8.5	8.5	90.9	79
461			2742	235.0	235.6	3.8	10.9	8.8	8.4	8.5	90.9	79
462			2635	235.0	235.6	3.8	11.0	8.8	7.5	8.6	90.7	79
463			2498	235.0	235.6	3.8	11.6	8.4	7.4	8.5	90.6	79
464			2386	235.0	235.6	3.8	11.6	8.6	7.0	8.5	90.6	79
465			2621	235.0	235.6	3.8	11.5	9.4	6.2	8.5	90.6	79
466			2955	235.0	235.6	4.2	11.6	9.8	7.0	8.5	90.6	79
467			3017	235.0	235.6	4.5	11.8	9.3	8.2	8.5	90.6	79
468			3016	235.0	235.6	4.6	11.8	9.7	8.7	8.5	91.4	79
469	9.1	52.6	2877	235.0	235.6	4.6	11.8	8.4	8.4	8.5	92.1	79
470	8.8	52.4	2674	235.0	235.6	4.4	11.8	8.2	8.4	8.5	92.1	79
471			2526	235.0	235.6	3.5	11.8	8.4	8.4	8.5	92.1	79
472			2310	235.0	235.3	3.5	11.8	8.4	7.5	8.5	92.1	79
473			2209	235.0	231.9	3.5	11.8	8.4	6.7	8.5	92.1	79
474			2263	235.0	229.0	3.5	11.8	8.1	7.1	8.5	91.8	79
475	8.3	51.5	2279	235.0	229.0	3.5	11.8	7.6	5.6	8.5	91.6	79
476			2553	235.0	229.0	3.5	11.3	8.5	6.8	8.5	91.6	79
477	9.0	52.9	2826	235.0	229.0	3.5	11.3	8.5	6.6	8.5	91.6	79
478			2838	235.0	229.0	3.8	11.3	9.2	6.6	8.5	91.6	79
479			2577	235.0	228.9	3.8	11.3	9.6	8.1	8.5	91.6	79
480			2537	235.0	228.9	3.8	11.6	9.4	8.4	8.6	91.7	79
481	8.6	52.4	2490	235.0	228.9	3.8	11.6	7.7	7.1	8.5	91.7	79
482	8.7	52.9	2549	235.0	228.9	3.8	11.6	7.9	8.0	8.5	91.7	79
483			2911	235.0	228.9	4.7	11.6	10.6	6.2	8.5	91.7	79
484			3083	235.0	228.9	5.1	11.6	10.6	7.6	8.5	91.7	79
485			2952	235.0	228.9	5.2	11.6	9.8	7.5	8.5	91.7	79
486			2888	235.0	228.9	4.8	11.6	9.2	8.5	8.5	91.5	79
487			2939	235.0	228.9	4.5	11.6	8.9	8.3	8.5	91.4	79
488	9.0	52.4	2807	235.0	228.9	4.4	11.6	8.6	7.7	8.5	91.4	79
489			2543	235.0	228.9	3.8	11.6	8.3	7.8	8.5	91.4	79
490			2181	235.0	228.9	3.6	11.6	8.9	7.9	8.5	91.4	79
491			2052	235.0	228.9	3.8	11.6	8.3	7.9	8.5	91.4	79
492			2048	235.0	228.9	3.8	11.3	8.5	8.0	8.6	91.4	79
493			2064	235.0	230.3	3.8	11.0	8.2	8.7	8.6	91.4	79
494	8.6	52.1	2505	235.0	234.7	3.8	11.0	8.2	8.2	8.6	91.4	79
495			2340	235.0	238.9	3.8	11.0	9.2	8.1	8.6	91.4	79
496			2071	235.0	238.9	3.8	11.0	7.9	8.6	8.6	91.4	79
497			2167	235.0	238.9	3.8	10.9	9.5	8.0	8.6	91.4	79
498			2770	235.0	238.9	4.8	11.3	9.1	8.8	8.6	91.3	79
499	8.9	52.3	2713	235.0	238.9	4.3	11.3	8.1	8.7	8.6	91.2	79
500	9.2	51.8	2934	235.0	238.9	4.9	11.3	8.5	7.7	8.6	91.2	79
501	9.0	52.3	2823	235.0	238.9	4.9	11.3	8.6	7.5	8.6	91.2	79
502			2840	235.0	238.9	4.6	11.7	8.8	7.8	8.6	91.2	79
503			2737	235.0	238.9	4.3	11.7	9.1	8.3	8.6	91.2	79
504			2897	235.0	238.9	4.0	11.7	9.4	8.2	8.6	91.1	79
505			2766	235.0	238.9	4.2	11.7	8.3	9.5	8.6	91.1	79
506			2639	235.0	238.9	3.8	11.7	8.9	8.9	8.6	91.1	79
507			2466	235.0	238.9	3.8	11.7	8.7	9.6	8.6	91.1	79
508			2414	235.0	238.9	3.7	11.7	8.4	8.9	8.6	91.1	79
509			2714	235.0	238.9	3.7	11.7	9.2	8.0	8.6	91.1	79
510	9.2	52.3	2884	235.0	238.9	3.7	11.7	8.6	7.6	8.6	91.2	79
511			2824	235.0	238.9	4.1	11.7	8.6	7.2	8.6	91.3	79
512	8.9	52.5	2722	235.0	238.9	3.8	11.7	8.3	8.2	8.6	91.3	79
513			2680	235.0	238.9	3.8	11.7	8.4	8.2	8.6	91.3	79
514	9.3	53.1	2957	235.0	238.9	4.0	11.7	8.2	7.3	8.6	91.3	79
515			2976	235.0	238.9	4.2	11.7	8.9	6.6	8.6	91.3	79
516	9.4	52.9	3022	235.0	238.9	4.2	11.7	8.8	6.7	8.6	91.1	79
517			2955	235.0	238.9	4.2	11.7	9.3	8.5	8.6	90.9	79
518	9.4	52.6	3034	235.0	238.9	4.2	11.7	8.9	8.4	8.6	90.9	79
519	12.1	52.2	3451	235.0	227.9	10.0	11.9	11.2	9.4	9.3	89.9	79
520	11.9	52.5	3449	235.0	227.9	11.2	11.8	11.0	7.9	9.3	90.1	79
521	11.9	52.3	3446	235.0	227.9	10.0	11.8	11.0	7.4	9.3	90.3	79
522	12.1	52.9	3445	235.0	227.9	11.7	12.3	11.2	7.4	9.3	90.3	79
523	11.6	53.0	3449	235.0	227.9	10.3	11.2	10.8	6.9	9.3	90.3	79
524	12.8	54.1	3448	235.0	227.9	10.8	12.1	11.9	8.2	9.3	90.3	79
525	12.1	52.7	3463	235.0	227.9	11.0	11.4	11.2	9.5	9.3	90.3	79
526	10.8	53.7	3450	235.0	227.8	9.1	11.2	10.1	9.8	9.3	90.1	79
527	11.2	54.0	3459	235.0	227.8	8.4	11.5	10.4	9.5	9.3	89.9	79
528	10.6	53.8	3449	235.0	227.8	9.4	11.9	9.8	8.7	9.3	89.9	79

Table E.01 Measurement data - Turbine ON

Project: Romney Wind Energy Centre - IEC 61400- 11 Edition 3.0 - Turbine T1

Report ID: 20019.00.T1.RP1

Created on: 2020-12-18

***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 (kPa)	Relative Humidity (%)
529	12.4	52.7	3457	235.0	227.8	8.3	11.4	11.5	8.4	9.3	89.9	79
530	11.3	53.0	3462	235.0	227.8	10.2	12.3	10.5	8.2	9.3	89.9	79
531	11.3	52.9	3461	235.0	227.8	9.2	11.4	10.5	8.8	9.3	89.9	79
532	11.3	52.9	3445	235.0	227.8	8.2	11.4	10.5	8.7	9.3	89.8	79
533	10.4	52.5	3452	235.0	227.8	7.8	11.8	9.6	8.5	9.3	89.7	79
534	10.3	53.2	3446	235.0	227.8	5.7	11.4	9.6	7.1	9.3	89.7	78
535	11.0	54.0	3430	235.0	227.8	7.3	12.0	10.2	6.1	9.3	89.7	78
536	11.0	53.6	3433	235.0	226.8	8.6	11.9	10.2	6.7	9.3	89.7	79
537	11.0	52.6	3446	235.0	223.3	8.5	11.5	10.2	6.8	9.3	89.7	79
538			3446	235.0	219.7	8.2	12.0	10.0	8.2	9.4	89.5	79
539			3461	235.0	219.7	8.0	11.4	10.1	6.7	9.3	89.3	79
540			3447	235.0	219.7	8.3	12.2	11.4	4.8	9.3	89.3	79
541			3450	235.0	219.7	9.6	11.7	10.4	5.0	9.3	89.3	79
542	10.9	52.9	3448	235.0	221.0	6.3	11.1	10.1	4.9	9.3	89.3	79
543			3338	235.0	226.1	6.1	11.3	10.1	5.0	9.3	89.3	79
544	10.6	53.8	3472	235.0	227.3	9.6	12.2	9.8	5.0	9.3	89.6	79
545	12.0	53.4	3492	235.0	227.3	11.1	11.7	11.1	6.0	9.2	90.0	79
546	12.6	52.0	3474	235.0	227.3	11.7	12.1	11.7	5.6	9.2	90.0	79
547	12.4	53.5	3468	235.0	227.3	12.0	11.8	11.6	5.1	9.2	90.0	79
548	13.3	52.8	3451	235.0	227.3	11.4	11.8	12.4	7.7	9.2	90.0	79
549	13.2	52.8	3452	235.0	227.3	11.4	11.5	12.2	7.5	9.2	90.0	79
550	12.6	52.9	3460	235.0	227.3	10.8	11.8	11.7	6.9	9.2	89.6	79
551	12.5	52.4	3467	235.0	227.3	11.3	11.5	11.6	6.6	9.2	89.3	79
552	12.6	53.5	3464	235.0	227.3	10.4	11.5	11.7	5.5	9.2	89.3	79
553	12.2	53.9	3457	235.0	227.3	10.8	11.8	11.4	7.7	9.2	89.3	79
554	11.5	53.3	3452	235.0	227.3	10.0	11.5	10.7	7.6	9.2	89.3	79
555	11.4	53.1	3441	235.0	227.3	9.9	11.8	10.6	6.7	9.2	89.3	79
556	10.5	52.8	3445	235.0	227.3	7.6	11.4	9.8	10.4	9.3	89.2	79
557	10.8	54.3	3433	235.0	227.6	7.5	11.8	10.1	9.6	9.2	89.1	79
558			3440	235.0	230.2	7.8	11.7	9.4	8.3	9.2	89.1	79
559	10.9	52.3	3445	235.0	236.3	7.1	11.5	10.1	6.8	9.2	89.1	79
560	10.7	51.9	3450	235.0	236.9	7.3	11.6	9.9	7.4	9.2	89.1	79
561	11.0	52.2	3448	235.0	236.9	8.4	11.7	10.2	7.6	9.2	89.1	79
562			3249	235.0	236.9	5.7	11.2	9.7	7.7	9.2	89.4	79
563	10.0	52.6	3347	235.0	236.9	5.6	11.5	9.5	7.6	9.2	89.7	79
564	11.3	52.8	3590	235.0	236.9	7.8	12.1	10.5	8.3	9.2	89.7	79
565	10.4	53.4	3501	235.0	236.5	8.1	11.7	9.7	8.2	9.2	89.7	79
566	11.5	52.1	3478	235.0	233.1	8.7	11.7	10.7	8.6	9.2	89.7	79
567	11.5	53.3	3456	235.0	230.8	8.9	11.7	10.7	9.1	9.2	89.7	78
568	11.2	52.9	3453	235.0	230.8	9.3	12.0	10.4	9.6	9.2	89.4	77
569	10.9	53.1	3455	235.0	230.8	9.0	11.7	10.1	9.1	9.2	89.2	77
570	12.1	52.7	3453	235.0	230.8	7.4	11.5	11.3	8.5	9.2	89.2	77
571	11.2	51.9	3440	235.0	230.8	7.6	11.8	10.5	7.7	9.2	89.2	77
572			3284	235.0	230.8	5.8	11.3	9.4	8.6	9.2	89.2	77
573			3382	235.0	230.8	5.1	10.9	9.4	8.3	9.2	89.2	78
574	11.5	53.2	3531	235.0	230.8	6.3	11.7	10.7	8.2	9.2	89.3	79
575	11.4	53.1	3480	235.0	230.8	9.6	12.2	10.6	7.8	9.2	89.4	79
576	11.8	53.3	3461	235.0	230.8	7.0	11.1	10.9	7.2	9.2	89.4	79
577	11.1	54.1	3441	235.0	230.8	9.7	12.6	10.3	6.1	9.2	89.4	79
578	10.6	53.5	3423	235.0	230.8	7.4	11.3	9.9	6.3	9.2	89.4	79
579			3219	235.0	230.8	6.8	11.3	9.9	5.9	9.2	89.4	78
580			2948	235.0	230.8	6.2	11.3	9.7	5.7	9.2	90.5	78
581			2995	235.0	230.8	5.8	11.3	9.5	6.2	9.2	91.6	77
582			3117	235.0	230.8	5.2	11.3	9.1	6.5	9.2	91.6	77
583			3189	235.0	229.3	5.5	11.8	10.0	6.7	9.2	91.6	78
584			3164	235.0	224.1	5.2	11.8	10.2	7.1	9.2	91.6	79
585			3392	235.0	223.0	4.8	11.8	8.9	7.7	9.2	91.6	79
586	10.9	53.2	3551	235.0	223.0	4.8	11.8	10.1	8.4	9.2	90.8	79
587	10.9	53.3	3434	235.0	223.0	5.8	11.7	10.1	8.8	9.2	90.1	79
588	9.8	53.2	3248	235.0	223.0	5.8	11.6	8.9	8.5	9.2	90.1	79
589	9.5	52.4	3097	235.0	223.0	5.8	11.6	8.3	7.9	9.2	90.1	79
590			3472	235.0	223.0	5.0	11.6	9.2	5.5	9.2	90.1	79
591	10.7	52.9	3621	235.0	223.0	5.5	11.8	10.0	4.5	9.2	90.1	79
592	10.4	53.3	3436	235.0	223.0	5.7	11.5	9.7	4.6	9.3	90.3	79
593	10.8	52.5	3605	235.0	223.0	5.6	12.1	10.0	4.1	9.3	90.4	79
594	10.5	55.0	3552	235.0	223.0	8.6	11.7	9.8	3.9	9.3	90.4	79
595			3520	235.0	223.0	5.8	11.0	9.5	6.0	9.3	90.4	79
596	11.2	53.4	3485	235.0	223.0	7.6	12.0	10.4	7.0	9.3	90.4	79
597	10.7	53.3	3455	235.0	223.2	7.4	11.5	9.9	8.3	9.3	90.4	79
598	10.3	53.3	3444	235.0	223.3	6.9	11.8	9.5	9.0	9.3	90.0	79
599	10.4	53.2	3438	235.0	233.4	8.0	11.9	9.7	9.4	9.3	89.7	79
600	11.3	53.3	3458	235.0	237.0	8.2	11.8	10.5	8.1	9.3	89.7	79
601	11.4	52.5	3449	235.0	237.0	7.5	11.6	10.6	8.1	9.3	89.7	79
602	10.8	52.4	3448	235.0	237.0	7.9	11.7	10.0	6.7	9.3	89.7	79
603	10.7	52.8	3452	235.0	237.0	8.1	11.6	9.9	8.5	9.3	89.7	79
604	11.0	51.8	3389	235.0	237.0	6.3	11.5	10.2	8.7	9.4	89.6	79
605			3116	235.0	237.0	4.9	11.5	9.6	8.3	9.4	89.5	79
606	9.7	52.5	3193	235.0	237.0	5.0	11.5	9.1	8.8	9.4	89.5	79
607	10.8	52.9	3611	235.0	237.0	6.5	11.7	10.0	8.8	9.4	89.5	79
608	10.8	52.9	3579	235.0	235.5	6.9	11.9	10.0	8.4	9.4	89.5	79
609	11.8	52.6	3501	235.0	232.3	5.5	11.4	11.0	9.1	9.4	89.5	78
610	11.1	53.5	3459	235.0	232.0	7.4	11.9	10.3	9.4	9.4	89.4	76
611	10.3	53.3	3400	235.0	232.0	5.8	11.3	9.6	9.4	9.3	89.3	76
612	10.4	53.1	3454	235.0	232.0	5.9	11.3	9.7	8.7	9.3	89.3	76
613	9.8	52.7	3250	235.0	232.0	5.9	11.3	8.9	7.9	9.3	89.3	78
614	9.6	51.9	3137	235.0	232.0	5.9	11.6	8.9	7.8	9.3	89.3	79
615	9.4	52.5	3023	235.0	232.0	5.6	11.7	8.8	8.1	9.3	89.3	79
616			3076	235.0	232.0	4.6	11.7	9.3	8.1	9.4	89.5	79

***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 (kPa)	Relative Humidity (%)
617	9.6	52.4	3109	235.0	232.0	4.7	11.7	8.9	8.2	9.3	89.6	79
618	9.9	52.1	3278	235.0	232.0	4.8	11.7	8.8	7.8	9.3	89.6	79
619	10.4	52.6	3411	235.0	232.0	5.4	11.7	9.7	7.9	9.3	89.6	79
620			3318	235.0	232.0	5.0	11.7	9.6	7.9	9.3	89.6	79
621	11.1	52.4	3463	235.0	232.0	5.2	11.7	10.3	8.6	9.3	89.6	79
622	11.3	52.8	3607	235.0	232.0	5.9	11.7	10.5	8.7	9.3	89.5	79
623	10.7	52.6	3557	235.0	232.0	5.9	11.7	9.9	9.6	9.3	89.4	79
624			3450	235.0	232.0	5.8	11.7	9.5	8.8	9.3	89.4	79
625			3240	235.0	232.0	5.2	11.7	9.9	8.8	9.3	89.4	79
626	11.1	52.4	3393	235.0	232.0	5.3	11.8	10.3	9.0	9.3	89.4	79
627			3104	235.0	232.0	5.2	11.8	9.3	8.5	9.3	89.4	79
628	9.5	52.2	3089	235.0	232.0	4.5	11.8	8.8	8.5	9.3	89.7	79
629	9.7	52.9	3173	235.0	232.0	4.9	11.8	9.0	9.2	9.2	90.0	79
630	9.6	52.8	3119	235.0	232.0	4.7	11.8	8.9	7.9	9.2	90.0	79
631	9.9	53.1	3288	235.0	232.0	4.9	11.8	9.3	7.6	9.2	90.0	79
632	11.0	53.3	3595	235.0	232.0	5.4	11.8	10.2	7.6	9.2	90.0	79
633	10.5	53.9	3617	235.0	232.0	7.6	11.9	9.8	7.1	9.2	90.0	79
634	10.5	53.7	3424	235.0	232.0	5.3	11.3	9.7	6.4	9.2	89.9	79
635	9.7	53.5	3183	235.0	232.0	5.2	11.3	9.1	7.5	9.2	89.8	77
636	9.6	53.2	3122	235.0	232.0	4.5	11.3	8.8	8.5	9.2	89.8	76
637			2976	235.0	232.0	4.6	11.3	9.3	7.7	9.2	89.8	78
638			3029	235.0	232.0	4.4	11.3	9.9	6.2	9.2	89.8	79
639	10.0	52.5	3335	235.0	232.0	4.2	11.9	9.2	6.6	9.2	89.8	79
640	10.9	53.1	3386	235.0	236.4	5.2	11.9	10.1	6.9	9.2	90.3	79
641	10.4	53.0	3422	235.0	239.1	5.2	11.9	9.7	6.9	9.2	90.8	79
642	11.2	52.3	3606	235.0	239.2	6.0	12.0	10.4	6.3	9.2	90.8	79
643	11.0	53.0	3632	235.0	239.2	8.4	12.3	10.2	6.7	9.2	90.8	79
644	11.4	52.1	3629	235.0	239.2	6.9	11.5	10.6	8.0	9.2	90.8	79
645	11.0	52.5	3589	235.0	239.2	8.4	11.7	10.2	9.2	9.2	90.8	79
646	10.6	52.5	3506	235.0	239.2	7.7	11.5	9.9	9.2	9.2	90.2	79
647	11.0	52.1	3465	235.0	239.2	6.7	12.0	10.2	8.9	9.2	89.7	79

Table E.02 Measurement data - Background

Project: Romney Wind Energy Centre - IEC 61400- 11 Edition 3.0 - Turbine T1

Report ID: 20019.00.T1.RP1

Created on: 2020-12-18

***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 (%)
1	8.0	47.3	0.7	6.0	6.9	92.8	79
2	7.2	47.3	0.7	5.4	6.9	92.8	79
3	7.5	45.8	0.7	5.6	6.9	92.8	79
4	7.8	46.4	0.7	5.9	6.9	92.7	79
5	7.4	46.0	0.7	5.5	6.9	92.5	79
6	7.5	45.6	0.7	5.6	6.9	92.5	79
7	7.0	44.0	0.7	5.2	6.9	92.5	79
8	8.5	44.7	0.7	6.4	6.9	92.5	79
9			0.7	6.8	6.9	92.5	79
10			0.7	6.4	6.9	92.4	79
11	9.5	43.3	0.7	7.1	6.9	92.3	79
12	10.4	45.4	0.7	7.7	6.9	92.3	79
13	9.7	45.7	0.7	7.2	6.9	92.3	79
14	9.6	44.5	0.7	7.2	6.9	92.3	79
15	9.1	42.5	0.7	6.8	6.9	92.3	79
16	8.0	43.6	0.7	5.9	7.0	91.6	79
17	7.9	42.6	0.7	5.9	7.0	90.9	79
18	9.1	42.0	0.7	6.8	7.0	90.9	79
19	8.7	44.7	0.7	6.5	7.0	90.9	79
20	11.2	43.7	0.7	8.4	7.0	90.9	79
21	10.8	43.9	0.7	8.1	7.0	90.9	79
22	10.6	45.0	0.7	7.9	7.1	91.7	79
23	9.1	44.9	0.7	6.8	7.1	92.4	79
24	9.6	45.1	0.7	7.2	7.1	92.4	79
25	9.4	45.8	0.7	7.1	7.1	92.4	79
26			0.7	7.6	7.1	92.4	79
27	10.0	45.1	0.7	7.5	7.1	92.4	79
28	8.3	47.3	0.7	6.2	7.2	92.1	79
29			0.7	7.0	7.2	91.9	79
30	11.4	46.9	0.7	8.5	7.2	91.9	79
31			0.7	7.6	7.2	91.9	79
32			0.7	7.1	7.2	91.9	79
33	9.8	45.0	0.7	7.3	7.2	91.9	79
34	8.5	43.4	0.7	6.3	7.3	91.9	79
35	9.3	45.2	0.7	7.0	7.4	91.9	79
36	10.3	44.5	0.7	7.7	7.4	91.9	79
37	9.8	43.4	0.7	7.3	7.4	91.9	79
38	8.8	47.5	0.7	6.6	7.4	91.9	79
39	7.7	48.3	0.7	5.7	7.4	91.9	79
40	6.9	49.1	0.7	5.1	7.4	92.1	79
41	8.0	50.5	0.7	6.0	7.3	92.2	79
42	6.7	48.0	0.7	5.0	7.3	92.2	79
43	7.2	50.8	0.7	5.3	7.3	92.2	79
44	7.4	50.7	0.7	5.6	7.3	92.2	79
45	8.1	47.7	0.7	6.1	7.3	92.2	79
46	8.8	46.1	0.7	6.6	7.3	92.4	79
47	8.4	50.4	0.7	6.3	7.3	92.5	79
48	9.2	49.0	0.7	6.9	7.3	92.5	79
49	9.4	49.9	0.7	7.0	7.3	92.5	79
50			0.7	7.4	7.3	92.5	79
51			0.7	7.2	7.3	92.5	79
52	8.0	47.2	0.7	5.9	7.3	91.5	79
53	8.6	47.5	0.7	6.4	7.3	90.5	79
54	9.1	47.5	0.7	6.8	7.3	90.5	79
55	9.4	46.7	0.7	7.0	7.3	90.5	79
56	8.8	46.8	0.7	6.6	7.3	90.5	79
57	8.8	48.0	0.7	6.6	7.3	90.5	79
58	7.2	46.9	0.7	5.4	7.3	90.9	79
59	7.9	45.9	0.7	5.9	7.3	91.2	79
60	8.1	44.7	0.7	6.0	7.3	91.2	79
61	7.9	43.5	0.7	5.9	7.3	91.2	79
62	8.0	44.5	0.7	6.0	7.3	91.2	79
63	7.7	42.7	0.6	5.8	7.3	91.2	79
64	8.2	41.0	0.6	6.1	7.3	91.8	79
65	8.0	42.6	0.6	6.0	7.3	92.4	79
66	8.5	43.7	0.5	6.3	7.3	92.4	79
67	8.1	45.4	0.5	6.0	7.3	92.4	79
68	8.7	45.1	0.5	6.5	7.3	92.4	79
69	8.1	44.8	0.5	6.0	7.3	92.4	79
70	7.6	45.3	0.5	5.6	7.3	92.3	79
71	7.5	47.2	0.5	5.6	7.3	92.3	79
72	8.7	48.3	0.5	6.5	7.3	92.3	79
73	7.6	47.2	0.5	5.7	7.3	92.3	79
74	9.4	47.0	0.5	7.0	7.3	92.3	79
75	9.8	48.0	0.5	7.3	7.3	92.3	79
76	8.4	47.0	0.5	6.3	7.4	91.9	79
77	8.8	46.9	0.5	6.5	7.4	91.6	79
78	7.8	48.0	0.5	5.8	7.4	91.6	79
79	7.9	50.3	0.5	5.9	7.4	91.6	79
80	9.0	47.7	0.5	6.7	7.4	91.6	79
81	9.1	46.9	0.5	6.8	7.4	91.6	79
82	8.8	43.8	0.5	6.6	7.4	91.0	79
83	8.3	43.0	0.5	6.2	7.4	90.4	79

***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 (%)
84	9.0	45.9	0.5	6.7	7.4	90.4	79
85	9.1	45.6	0.5	6.8	7.4	90.4	79
86	9.5	44.0	0.5	7.1	7.4	90.4	79
87	8.8	42.1	0.5	6.5	7.4	90.4	79
88	9.1	41.5	0.5	6.8	7.4	91.1	79
89	9.5	41.5	0.5	7.1	7.4	91.8	79
90	8.2	41.9	0.5	6.1	7.4	91.8	79
91	7.5	41.6	0.5	5.6	7.4	91.8	79
92	8.2	42.4	0.5	6.1	7.4	91.8	79
93	7.1	42.2	0.5	5.3	7.4	91.8	79
94	6.7	43.1	0.5	5.0	7.4	92.5	79
95	7.3	43.6	0.5	5.4	7.4	93.2	79
96	6.3	42.0	0.5	4.7	7.4	93.2	79
97	6.7	42.8	0.5	5.0	7.4	93.2	79
98	6.9	44.9	0.5	5.1	7.4	93.2	79
99	7.0	44.4	0.5	5.2	7.4	93.2	79
100	6.8	45.7	0.5	5.1	7.5	92.7	79
101	7.1	45.0	0.5	5.3	7.5	92.2	79
102	8.0	47.1	0.5	6.0	7.5	92.2	79
103	7.5	46.9	0.5	5.6	7.5	92.2	79
104	6.7	47.7	0.5	5.0	7.5	92.2	79
105			0.5	4.8	7.5	92.2	79
106	6.9	48.3	0.5	5.1	7.5	92.1	79
107	7.2	44.9	0.5	5.3	7.5	92.1	79
108	7.1	47.7	0.5	5.3	7.5	92.1	79
109	8.5	47.0	0.5	6.3	7.5	92.1	79
110	8.5	45.7	0.5	6.3	7.5	92.1	79
111	8.1	45.6	0.5	6.1	7.5	92.1	79
112	7.2	45.0	0.5	5.4	7.6	91.3	79
113	7.8	44.7	0.4	5.8	7.6	90.4	79
114	7.3	46.0	0.4	5.5	7.6	90.4	79
115	6.9	41.7	0.4	5.1	7.6	90.4	79
116	6.6	42.1	0.4	4.9	7.6	90.4	79
117	7.7	43.3	0.4	5.7	7.6	90.4	79
118	7.8	44.0	0.4	5.8	7.6	90.5	79
119	7.6	43.4	0.6	5.7	7.6	90.5	79
120	7.2	45.6	0.6	5.4	7.6	90.5	79
121	6.7	44.6	0.6	5.0	7.6	90.5	79
122	6.6	42.8	0.6	4.9	7.6	90.5	79
123	6.3	42.0	0.6	4.7	7.6	90.5	79
124	8.0	40.7	0.6	5.9	7.6	91.2	79
125	8.1	40.4	0.6	6.1	7.6	91.9	79
126	10.1	40.8	0.6	7.5	7.6	91.9	79
127	8.7	44.0	0.5	6.5	7.6	91.9	79
128	7.7	48.6	0.5	5.8	7.6	91.9	79
129	6.7	47.8	0.5	5.0	7.6	91.9	79
130	8.5	45.0	0.5	6.3	7.6	91.9	79
131	8.4	46.0	0.5	6.2	7.6	91.9	79
132	8.4	46.4	0.5	6.3	7.6	91.9	79
133	9.8	46.5	0.5	7.3	7.6	91.9	79
134	8.7	48.8	0.5	6.5	7.6	91.9	79
135	8.2	49.2	0.5	6.1	7.6	91.9	79
136	8.5	49.0	0.5	6.3	7.7	91.3	79
137	8.0	44.8	0.5	5.9	7.6	90.8	79
138	7.1	44.6	0.5	5.3	7.6	90.8	79
139	6.9	44.5	0.5	5.2	7.6	90.8	79
140	6.4	43.7	0.5	4.8	7.6	90.8	79
141	6.8	44.7	0.5	5.1	7.6	90.8	79
142	7.2	44.0	0.5	5.4	7.7	91.0	79
143	7.7	43.2	0.5	5.8	7.6	91.1	79
144	9.7	43.2	0.5	7.2	7.6	91.1	79
145	10.8	43.3	0.5	8.1	7.6	91.1	79
146	9.6	44.1	0.5	7.2	7.6	91.1	79
147	8.4	46.8	0.5	6.3	7.6	91.1	79
148	8.4	45.5	0.5	6.3	7.6	91.8	79
149	8.5	45.5	0.5	6.3	7.6	92.5	79
150	7.9	45.3	0.5	5.9	7.6	92.5	79
151	8.1	46.1	0.5	6.0	7.6	92.5	79
152	7.8	48.0	0.5	5.8	7.6	92.5	79
153	9.0	45.9	0.5	6.8	7.6	92.5	79
154	10.2	46.6	0.5	7.6	7.7	92.1	79
155	9.8	45.6	0.5	7.3	7.8	91.7	79
156	9.0	44.8	0.5	6.7	7.8	91.7	79
157	7.4	45.3	0.5	5.5	7.8	91.7	79
158	9.3	44.2	0.5	6.9	7.8	91.7	79
159	9.3	42.9	0.5	7.0	7.8	91.7	79
160	9.9	43.4	0.5	7.4	7.8	91.1	79
161	9.6	42.6	0.5	7.2	7.7	90.5	79
162	10.5	41.6	0.5	7.9	7.7	90.5	79
163	9.6	41.7	0.5	7.2	7.7	90.5	79
164	9.7	44.5	0.5	7.3	7.7	90.5	79
165	9.3	48.4	0.5	7.0	7.7	90.5	79
166	8.4	45.9	0.5	6.2	7.7	90.6	79

***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 (%)
167	8.0	44.0	0.5	6.0	7.7	90.7	79
168	7.3	43.8	0.5	5.4	7.7	90.7	79
169	6.7	43.2	0.5	5.0	7.7	90.7	79
170	6.4	44.5	0.5	4.8	7.7	90.7	79
171	6.3	46.4	0.5	4.7	7.7	90.7	79
172	6.1	45.8	0.5	4.6	7.7	90.6	79
173	6.0	46.7	0.5	4.5	7.6	90.5	79
174	6.3	46.0	0.5	4.7	7.6	90.5	79
175	6.1	47.2	0.5	4.6	7.6	90.5	79
176	8.8	49.0	0.5	6.5	7.6	90.5	79
177	9.4	45.6	0.5	7.0	7.6	90.5	79
178	7.6	46.5	0.5	5.7	7.6	91.7	79
179	9.3	46.1	0.5	6.9	7.6	92.8	79
180	10.5	43.6	0.5	7.9	7.6	92.8	79
181	9.1	42.9	0.5	6.8	7.6	92.8	79
182	8.9	43.4	0.5	6.7	7.6	92.8	79
183	8.3	46.8	0.5	6.2	7.6	92.8	79
184	6.9	48.8	0.5	5.2	7.7	92.6	79
185	8.0	46.4	0.5	6.0	7.7	92.4	79
186	7.8	44.4	0.5	5.8	7.7	92.4	79
187	7.2	47.5	0.5	5.4	7.7	92.4	79
188	6.7	45.3	0.5	5.0	7.7	92.4	79
189	7.1	43.0	0.5	5.3	7.7	92.4	79
190	8.0	42.5	0.5	6.0	7.8	92.3	79
191	10.0	43.7	0.5	7.5	7.8	92.3	79
192	9.1	43.7	0.5	6.8	7.8	92.3	79
193	8.1	44.5	0.5	6.1	7.8	92.3	79
194	8.4	44.3	0.5	6.2	7.8	92.3	79
195	7.7	45.2	0.5	5.7	7.8	92.3	79
196	8.5	45.6	0.5	6.3	7.8	91.7	79
197	10.4	48.7	0.5	7.8	7.8	91.2	79
198	9.9	48.8	0.5	7.4	7.8	91.2	79
199	10.6	48.6	0.5	7.9	7.8	91.2	79
200	8.9	48.3	0.5	6.7	7.8	91.2	79
201	8.7	47.6	0.5	6.5	7.8	91.2	79
202	10.4	47.0	0.5	7.8	7.8	91.0	79
203	9.6	49.3	0.5	7.2	7.8	90.9	79
204	10.2	48.2	0.5	7.6	7.8	90.9	79
205	9.5	48.8	0.5	7.1	7.8	90.9	79
206	9.3	47.6	0.5	6.9	7.8	90.9	79
207	9.7	49.3	0.5	7.3	7.8	90.9	79
208	9.6	47.8	0.5	7.1	7.8	90.5	79
209	9.4	47.1	0.5	7.0	7.8	90.2	79
210	10.5	42.4	0.7	7.8	8.4	92.0	73
211	9.5	41.3	0.7	7.1	8.4	92.0	72
212	9.3	41.9	0.7	6.9	8.4	91.9	73
213	9.5	43.0	0.7	7.1	8.3	91.5	75
214	9.1	44.7	0.7	6.8	8.3	91.5	79
215	8.3	44.6	0.7	6.2	8.3	91.5	78
216	7.2	41.2	0.7	5.4	8.3	91.5	79
217	6.8	40.8	0.7	5.1	8.3	91.5	78
218	9.0	43.9	0.7	6.7	8.3	91.6	78
219	9.1	44.5	0.7	6.8	8.3	91.9	79
220	8.2	42.4	0.7	6.1	8.3	91.9	78
221	7.0	43.5	0.7	5.2	8.3	91.9	75
222	6.4	45.7	0.7	4.7	8.3	91.9	77
223	6.7	47.3	0.7	5.0	8.3	91.9	75
224	6.5	45.0	0.7	4.8	8.3	92.0	75
225	7.7	41.8	0.7	5.7	8.2	92.2	75
226	7.2	42.7	0.7	5.4	8.2	92.2	76
227	6.7	42.6	0.7	5.0	8.2	92.2	76
228	6.3	44.0	0.7	4.7	8.2	92.2	77
229	9.4	43.6	0.7	7.0	8.2	92.2	76
230	11.1	43.5	0.7	8.3	8.3	92.2	78
231	9.9	44.3	0.7	7.4	8.2	92.1	77
232	10.1	43.7	0.7	7.6	8.2	92.1	75
233	8.5	42.8	0.7	6.4	8.2	92.1	74
234	9.0	43.1	0.7	6.7	8.2	92.1	74
235	10.1	42.9	0.7	7.5	8.2	92.1	77
236	8.5	42.6	0.7	6.4	8.3	91.9	77
237	8.7	42.0	0.7	6.5	8.2	91.3	78
238	8.7	42.1	0.7	6.5	8.2	91.3	76
239	10.0	41.8	0.7	7.5	8.2	91.3	75
240	9.8	42.1	0.7	7.3	8.2	91.3	75
241	10.7	42.7	0.7	8.0	8.2	91.3	77
242	9.3	42.5	0.7	6.9	8.2	91.8	79
243	9.3	42.3	0.7	7.0	8.2	92.8	79
244	8.4	42.8	0.5	6.3	8.2	92.8	79
245	10.7	42.8	0.5	8.0	8.2	92.8	78
246	7.0	43.3	0.6	5.2	8.2	92.8	76
247	8.5	43.9	0.7	6.4	8.2	92.8	76
248	8.7	44.1	0.7	6.5	8.3	92.8	76
249	8.0	44.2	0.7	6.0	8.3	92.7	76

Table E.02 Measurement data - Background

Project: Romney Wind Energy Centre - IEC 61400- 11 Edition 3.0 - Turbine T1

Report ID: 20019.00.T1.RP1

Created on: 2020-12-18

***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	8.0	44.1	0.7	6.0	8.3	92.7	76
251	8.4	44.5	0.7	6.3	8.3	92.7	76
252	9.5	45.5	0.7	7.1	8.3	92.7	76
253	10.3	44.8	0.7	7.7	8.3	92.7	76
254	10.9	44.3	0.7	8.1	8.3	92.4	76
255	11.0	44.6	0.7	8.2	8.3	91.7	77
256	10.8	45.3	0.7	8.1	8.3	91.7	77
257	9.0	44.9	0.7	6.7	8.3	91.7	77
258	9.0	44.3	0.7	6.8	8.3	91.7	77
259	9.4	44.0	0.7	7.0	8.3	91.7	78
260	8.4	42.6	0.7	6.2	8.4	92.1	78
261	10.3	42.3	0.7	7.7	8.4	93.1	78
262	10.4	42.5	0.7	7.8	8.4	93.1	76
263	10.5	43.0	0.7	7.9	8.4	93.1	76
264	10.4	39.6	0.7	7.8	8.4	93.1	76
265	9.2	40.7	0.7	6.9	8.4	93.1	79
266	8.4	43.7	0.7	6.3	8.4	92.7	79
267	7.8	43.1	0.7	5.8	8.4	91.9	76
268	8.5	46.1	0.7	6.4	8.4	91.9	76
269	8.6	45.9	0.7	6.4	8.4	91.9	76
270	8.3	44.0	0.7	6.2	8.4	91.9	76
271	7.1	42.6	0.7	5.3	8.4	91.9	76
272	9.6	43.4	0.7	7.1	8.4	91.9	76
273	8.8	42.5	0.7	6.6	8.4	92.1	76
274	7.4	40.5	0.7	5.6	8.4	92.1	76
275	6.1	40.5	0.7	4.6	8.4	92.1	76
276	8.1	42.3	0.7	6.0	8.4	92.1	76
277	8.6	44.8	0.7	6.4	8.4	92.1	76
278	8.4	42.9	0.7	6.3	8.5	92.3	76
279	9.3	42.9	0.7	6.9	8.5	92.8	76
280	7.5	43.5	0.7	5.6	8.5	92.8	76
281	9.3	43.2	0.7	7.0	8.5	92.8	77
282	9.0	44.7	0.7	6.7	8.5	92.8	77
283	8.7	44.0	0.7	6.5	8.5	92.8	77
284	8.3	43.8	0.7	6.2	8.6	92.8	77
285	8.5	43.3	0.7	6.3	8.6	92.8	78
286	9.7	42.4	0.7	7.2	8.6	92.8	78
287	10.6	41.8	0.7	8.0	8.6	92.8	78
288	9.6	41.3	0.7	7.2	8.6	92.8	78
289	9.0	41.5	0.7	6.8	8.6	92.8	77
290	9.0	42.3	0.7	6.7	8.7	92.5	77
291	7.2	43.0	0.7	5.4	8.7	91.7	77
292	7.7	40.7	0.7	5.8	8.7	91.7	77
293	6.6	40.1	0.7	4.9	8.7	91.7	77
294	6.7	42.1	0.7	5.0	8.7	91.7	77
295	8.1	43.7	0.7	6.0	8.7	91.7	78
296	7.0	43.9	0.7	5.3	8.8	91.9	78
297	5.6	43.0	0.7	4.2	8.7	92.3	78
298	8.5	43.2	0.7	6.3	8.7	92.3	78
299	9.6	44.3	0.7	7.1	8.7	92.3	79
300	9.5	45.7	0.7	7.1	8.7	92.3	79
301	7.5	45.8	0.7	5.6	8.7	92.3	79
302	7.3	43.9	0.7	5.5	8.8	91.9	79
303	8.3	42.3	0.7	6.2	8.8	91.0	79
304	9.1	42.2	0.7	6.8	8.8	91.0	79
305	9.8	44.3	0.7	7.3	8.8	91.0	79
306	9.1	44.3	0.7	6.8	8.8	91.0	79
307	9.2	42.6	0.7	6.9	8.8	91.0	79
308	8.4	42.7	0.7	6.3	8.8	91.2	79
309	8.7	43.6	0.7	6.5	8.7	91.5	79
310	8.4	42.6	0.7	6.3	8.7	91.5	79
311	7.7	42.0	0.7	5.7	8.7	91.5	79
312	7.6	41.7	0.7	5.7	8.7	91.5	79
313	7.5	41.7	0.7	5.6	8.7	91.5	79
314	6.7	44.9	0.7	5.0	8.7	91.8	79
315	7.1	43.8	0.7	5.3	8.6	92.4	77
316	7.1	43.2	0.7	5.3	8.6	92.4	77
317	9.2	46.8	0.7	6.8	8.6	92.4	77
318	9.2	45.9	0.7	6.9	8.6	92.4	78
319	6.4	48.1	0.7	4.8	8.6	92.4	78
320	6.5	46.2	0.7	4.9	8.6	92.2	79
321	6.6	47.6	0.7	4.9	8.6	91.7	78
322	7.7	44.2	0.7	5.7	8.6	91.7	79
323	9.8	42.7	0.7	7.3	8.6	91.7	79
324	7.0	43.7	0.7	5.2	8.6	91.7	79
325	5.8	42.5	0.7	4.3	8.6	91.7	79
326	7.7	42.5	0.7	5.8	8.6	91.7	79
327	8.2	42.9	0.7	6.1	8.6	91.6	79
328	8.4	41.7	0.7	6.3	8.6	91.6	73
329	9.5	41.9	0.7	7.1	8.6	91.6	74
330	7.1	43.5	0.7	5.3	8.6	91.6	77
331	9.6	42.3	0.7	7.2	8.6	91.6	76
332	9.2	40.8	0.7	6.8	8.6	91.5	76

***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	7.9	42.9	0.7	5.9	8.6	91.5	77
334	5.6	42.8	0.7	4.2	8.6	91.5	77
335	5.1	42.7	0.7	3.8	8.6	91.5	76
336	6.5	41.9	0.7	4.9	8.6	91.5	77
337	9.1	42.0	0.7	6.8	8.6	91.5	75
338	8.6	45.0	0.7	6.4	8.6	91.6	75
339	6.9	45.3	0.7	5.2	8.5	91.8	74
340	6.3	44.1	0.7	4.7	8.5	91.8	74
341	6.1	43.4	0.7	4.6	8.5	91.8	74
342	7.4	42.7	0.7	5.5	8.5	91.8	74
343	8.8	42.8	0.7	6.6	8.5	91.8	74
344	9.1	43.2	0.7	6.8	8.6	91.9	74
345	8.2	43.9	0.7	6.1	8.6	92.2	74
346	8.4	46.5	0.7	6.3	8.6	92.2	74
347	9.4	45.0	0.7	7.0	8.6	92.2	74
348	10.0	46.0	0.6	7.5	8.6	92.2	74
349	9.4	43.1	0.6	7.0	8.6	92.2	74
350	8.8	40.8	0.6	6.6	8.6	92.3	75
351	7.9	41.3	0.6	5.9	8.6	92.4	75
352	8.8	41.2	0.6	6.5	8.6	92.4	75
353	8.0	40.8	0.6	6.0	8.6	92.4	74
354	8.0	38.8	0.6	6.0	8.6	92.4	74
355	8.9	41.1	0.6	6.7	8.6	92.4	74
356	9.5	40.7	0.6	7.1	8.6	92.3	74
357	8.8	43.9	0.6	6.6	8.6	92.2	74
358	8.8	48.0	0.6	6.5	8.6	92.2	74
359	9.4	47.5	0.6	7.0	8.6	92.2	74
360	8.4	46.9	0.6	6.3	8.6	92.2	75
361	8.5	51.1	0.6	6.3	8.6	92.2	77
362	8.4	50.8	0.6	6.2	8.7	92.1	77
363	8.3	44.3	0.6	6.2	8.7	91.6	77
364	7.3	46.8	0.6	5.4	8.7	91.6	77
365	7.0	42.3	0.6	5.2	8.7	91.6	77
366	6.9	41.0	0.6	5.2	8.7	91.6	76
367	8.0	45.2	0.6	5.9	8.7	91.6	75
368	8.7	45.1	0.6	6.5	8.7	91.9	74
369	9.6	44.0	0.6	7.2	8.6	92.4	77
370	8.4	45.4	0.7	6.3	8.6	92.4	77
371	10.2	43.6	0.7	7.6	8.6	92.4	77
372	10.5	44.0	0.7	7.8	8.6	92.4	76
373	9.5	42.8	0.7	7.1	8.6	92.4	75
374	9.9	43.0	0.7	7.4	8.6	92.1	75
375	11.7	42.0	0.7	8.7	8.6	91.3	75
376	9.7	42.5	0.7	7.2	8.6	91.3	77
377	8.9	42.8	0.7	6.6	8.6	91.3	77
378	7.6	43.0	0.7	5.7	8.6	91.3	79
379	7.6	42.6	0.7	5.7	8.6	91.3	78
380	8.1	40.8	0.7	6.0	8.6	91.7	76
381	9.3	40.5	0.7	6.9	8.6	92.6	78
382	7.2	40.8	0.7	5.4	8.6	92.6	77
383	8.5	40.6	0.7	6.3	8.6	92.6	79
384	8.8	40.4	0.7	6.5	8.6	92.6	79
385	8.1	42.3	0.7	6.0	8.6	92.6	79
386	7.1	40.4	0.7	5.3	8.6	92.4	79
387	5.8	40.2	0.7	4.3	8.6	92.1	79
388	7.5	39.9	0.7	5.6	8.6	92.1	78
389	7.6	39.6	0.7	5.7	8.6	92.1	77
390	8.1	39.0	0.7	6.0	8.6	92.1	76
391	9.3	40.5	0.7	6.9	8.6	92.1	75
392	9.8	41.5	0.7	7.3	8.6	92.1	75
393	11.7	41.1	0.7	8.7	8.6	92.0	75
394	11.8	41.7	0.7	8.8	8.6	92.0	75
395	11.7	42.2	0.7	8.8	8.6	92.0	75
396	11.8	42.7	0.7	8.8	8.6	92.0	75
397	10.9	44.3	0.7	8.2	8.6	92.0	75
398	10.2	41.7	0.7	7.6	8.6	91.7	75
399	9.9	41.7	0.7	7.4	8.6	91.1	75
400	9.2	43.5	0.7	6.9	8.6	91.1	75
401	9.6	45.3	0.7	7.2	8.6	91.1	75
402	9.0	43.9	0.7	6.7	8.6	91.1	75
403	6.6	41.6	0.7	5.0	8.6	91.4	79
404	8.3	40.9	0.7	6.2	8.6	91.4	79
405	6.8	43.3	0.7	5.1	8.6	91.4	79
406	9.4	42.8	0.7	7.0	8.6	91.4	79
407	9.6	43.1	0.7	7.1	8.6	91.4	79
408	9.2	42.0	0.7	6.9	8.7	91.1	79
409	9.1	43.2	0.7	6.8	8.8	90.8	79
410	6.0	44.0	0.7	4.5	8.8	90.8	79
411	8.5	43.5	0.7	6.4	8.8	90.8	79
412	9.9	42.6	0.7	7.4	8.8	90.8	79
413	9.8	42.3	0.7	7.3	8.8	90.8	79
414	10.6	42.3	0.7	7.9	8.8	91.3	79
415	12.5	42.5	0.7	9.3	8.7	91.8	79

***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 (%)
416	11.8	43.0	0.7	8.8	8.7	91.8	79
417	10.9	42.6	0.7	8.1	8.7	91.8	79
418	10.2	42.8	0.7	7.6	8.7	91.8	79
419	9.3	43.8	0.7	7.0	8.7	91.8	79
420	8.9	44.1	0.7	6.6	8.7	91.8	79
421	8.6	43.9	0.7	6.4	8.6	91.8	79
422	9.3	44.0	0.7	6.9	8.6	91.8	79
423	8.9	45.9	0.7	6.7	8.6	91.8	79
424	8.5	46.1	0.7	6.3	8.6	91.8	79
425	7.8	45.2	0.7	5.9	8.6	91.8	79
426	9.3	44.2	0.7	6.9	8.6	91.8	79
427	10.1	44.9	0.7	7.6	8.6	91.7	79
428	9.9	44.0	0.7	7.4	8.6	91.7	79
429	11.4	43.6	0.7	8.5	8.6	91.7	79
430	11.2	43.2	0.7	8.4	8.6	91.7	79
431	11.7	43.7	0.7	8.7	8.6	91.7	79
432	9.2	42.1	0.7	6.9	8.7	91.3	79
433	7.7	43.8	0.7	5.8	8.7	90.9	79
434	8.1	42.5	0.7	6.1	8.7	90.9	79
435	7.7	43.4	0.7	5.7	8.7	90.9	79
436	6.7	42.4	0.7	5.0	8.7	90.9	79
437	6.5	42.2	0.7	4.9	8.7	90.9	79
438	7.2	43.5	0.7	5.4	8.7	91.2	79
439	9.4	43.6	0.7	7.1	8.6	91.5	79
440	12.3	42.4	0.7	9.2	8.6	91.5	79
441	13.2	42.1	0.7	9.9	8.6	91.5	79
442	11.0	42.9	0.7	8.2	8.6	91.5	79
443	10.5	43.4	0.7	7.9	8.6	91.5	79
444	9.0	43.4	0.7	6.7	8.6	91.6	79
445	10.5	46.5	0.7	7.8	8.6	91.7	79
446	10.1	44.3	0.6	7.6	8.6	91.7	79
447	8.1	45.6	0.6	6.0	8.6	91.7	79
448	8.5	45.3	0.6	6.3	8.6	91.7	79
449	9.4	46.1	0.6	7.0	8.6	91.7	79
450	8.9	46.2	0.5	6.7	8.6	91.5	79
451	10.4	47.7	0.7	7.8	8.6	91.3	79
452	10.1	45.4	0.8	7.6	8.6	91.3	79
453	9.4	45.5	0.8	7.0	8.6	91.3	79
454	9.6	45.1	0.8	7.2	8.6	91.3	79
455	10.2	44.1	0.8	7.6	8.6	91.3	79
456	9.5	45.2	0.8	7.1	8.6	91.5	79
457	8.4	46.2	0.8	6.2	8.6	91.7	79
458	5.1	48.1	0.8	3.8	8.6	91.7	79
459	8.5	47.2	0.8	6.3	8.6	91.7	79
460	6.1	47.4	0.6	4.5	8.6	91.7	79
461	8.4	45.6	0.6	6.3	8.6	91.7	79
462	9.2	45.0	0.6	6.9	8.7	91.8	79
463	7.3	44.8	0.6	5.5	8.7	91.8	79
464	8.5	44.7	0.6	6.3	8.7	91.8	79
465	9.4	44.1	0.6	7.0	8.7	91.8	79
466	10.1	44.7	0.6	7.6	8.7	91.8	79
467	10.1	45.1	0.6	7.5	8.7	91.8	79
468	8.9	42.3	0.6	6.6	8.8	91.9	79
469	9.0	43.5	0.6	6.7	8.8	91.9	79
470	10.6	42.3	0.6	7.9	8.8	91.9	79
471	10.5	43.5	0.6	7.8	8.8	91.9	79
472	10.3	41.6	0.6	7.7	8.8	91.9	79
473	9.5	42.9	0.6	7.1	8.8	91.9	79
474	9.6	43.7	0.6	7.2	8.8	91.9	79
475	9.4	43.1	0.6	7.0	8.8	91.8	79
476	9.6	42.3	0.6	7.2	8.8	91.8	79
477	9.8	44.4	0.6	7.3	8.8	91.8	79
478	9.8	43.1	0.6	7.3	8.8	91.8	79
479	9.0	41.7	0.6	6.8	8.8	91.8	79
480	7.5	43.2	0.6	5.6	8.9	92.4	79
481	6.9	42.7	0.6	5.1	8.9	92.9	79
482	8.3	42.8	0.7	6.2	8.9	92.9	79
483	10.3	44.0	0.7	7.7	8.9	92.9	79
484	10.0	41.8	0.7	7.5	8.9	92.9	79
485	9.6	42.1	0.7	7.2	8.9	92.9	79
486	11.0	43.2	0.7	8.2	8.9	92.0	79
487	9.8	45.4	0.7	7.3	8.9	91.0	79
488	10.8	44.2	0.7	8.1	8.9	91.0	79
489	9.8	47.3	0.7	7.3	8.9	91.0	79
490	11.5	45.9	0.7	8.6	8.9	91.0	79
491	12.0	48.3	0.7	9.0	8.9	91.0	79
492	10.9	46.8	0.7	8.1	8.9	90.9	79
493	11.7	44.3	0.7	8.7	8.8	90.7	79
494	10.7	45.6	0.7	8.0	8.8	90.7	79
495	9.4	44.8	0.7	7.0	8.8	90.7	79
496	8.8	46.0	0.7	6.6	8.8	90.7	79
497	7.5	44.8	0.7	5.6	8.8	90.7	79
498	8.2	43.7	0.7	6.2	8.8	91.0	79

Table E.02 Measurement data - Background

Project: Romney Wind Energy Centre - IEC 61400- 11 Edition 3.0 - Turbine T1

Report ID: 20019.00.T1.RP1

Created on: 2020-12-18

***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 (%)
499	7.9	43.0	0.7	5.9	8.7	91.3	79
500	6.5	43.1	0.7	4.8	8.7	91.3	79
501	9.0	43.2	0.7	6.7	8.7	91.3	79
502	10.1	43.0	0.7	7.5	8.7	91.3	79
503	8.3	44.3	0.7	6.2	8.7	91.3	79
504	5.6	44.7	0.7	4.2	8.8	91.7	79
505	7.3	44.3	0.7	5.4	8.7	92.2	79
506	8.7	44.7	0.7	6.5	8.7	92.2	79
507	7.6	45.9	0.7	5.7	8.7	92.2	79
508	7.6	44.5	0.7	5.7	8.7	92.2	79
509	7.1	43.0	0.7	5.3	8.7	92.2	79
510	8.7	43.6	0.7	6.5	8.8	91.8	79
511	7.5	42.9	0.7	5.6	8.8	91.4	79
512	8.4	42.2	0.7	6.2	8.8	91.4	79
513	10.1	41.5	0.6	7.5	8.8	91.4	79
514	11.8	42.0	0.6	8.8	8.8	91.4	79
515	10.2	41.9	0.9	7.6	8.8	91.4	79
516	8.9	43.5	0.9	6.6	8.9	90.9	79
517	9.0	42.5	0.9	6.7	8.9	90.4	79
518	11.4	41.6	0.9	8.5	8.9	90.4	79
519	10.1	41.3	0.9	7.5	8.9	90.4	79
520	8.1	41.8	0.9	6.0	8.9	90.4	79
521	8.0	41.6	0.9	5.9	8.9	90.4	79
522	8.3	40.9	0.9	6.2	9.0	91.4	79
523	8.8	41.2	0.9	6.6	9.0	92.5	79
524	9.2	43.2	0.9	6.9	9.0	92.5	79
525	9.8	43.6	0.9	7.3	9.0	92.5	79
526	10.2	43.2	0.9	7.6	9.0	92.5	79
527	10.0	42.6	0.9	7.5	9.0	92.5	79
528	10.7	44.7	0.9	8.0	9.1	91.6	79
529	9.7	45.1	0.9	7.3	9.1	90.6	79
530	10.5	46.2	0.9	7.8	9.1	90.6	79
531	11.9	45.7	0.9	8.9	9.1	90.6	79
532	11.7	44.0	0.9	8.7	9.1	90.6	79
533	11.5	43.3	0.9	8.6	9.1	90.6	79
534	10.3	42.3	0.8	7.7	9.2	90.1	79
535	10.0	42.1	0.6	7.4	9.1	89.5	79
536	9.4	41.3	0.6	7.0	9.1	89.5	79
537	8.4	42.0	0.6	6.2	9.1	89.5	79
538	9.6	41.9	0.6	7.2	9.1	89.5	79
539	9.4	42.2	0.6	7.0	9.1	89.5	79
540	8.5	41.7	0.6	6.4	9.1	90.0	79
541	8.9	40.9	0.6	6.7	9.1	90.4	79
542	8.2	40.9	0.6	6.2	9.1	90.4	79
543	7.5	41.3	0.6	5.6	9.1	90.4	79
544	8.3	41.6	0.6	6.2	9.1	90.4	79
545	9.3	42.1	0.6	7.0	9.1	90.4	79
546	11.5	43.3	0.6	8.6	9.1	90.4	79
547	10.8	43.8	0.6	8.0	9.1	90.4	79
548	9.2	44.0	0.6	6.9	9.1	90.4	79
549	8.3	43.6	0.6	6.2	9.1	90.4	79
550	9.8	44.1	0.6	7.3	9.1	90.4	79
551	11.7	44.8	0.6	8.7	9.1	90.4	79
552	8.6	45.0	0.6	6.4	9.1	90.3	79
553	5.5	41.7	0.6	4.1	8.9	90.2	79
554	6.9	41.9	0.6	5.1	8.9	90.2	79
555	8.3	42.2	0.6	6.2	8.9	90.2	79
556	5.9	43.1	0.6	4.4	8.9	90.2	79
557	5.7	44.0	0.6	4.2	8.9	90.2	79
558	7.2	45.8	0.6	5.4	9.0	90.3	79
559	6.2	41.9	0.6	4.7	8.9	90.4	79
560	9.3	42.0	0.6	6.9	8.9	90.4	79
561	8.1	42.0	0.6	6.1	8.9	90.4	79
562	5.7	43.8	0.6	4.3	8.9	90.4	79
563	7.0	43.4	0.6	5.2	8.9	90.4	79
564	7.9	43.9	0.6	5.9	8.9	90.5	79
565	8.5	42.6	0.6	6.3	8.9	90.6	79
566	9.1	44.3	0.6	6.8	8.9	90.6	79
567	7.7	42.2	0.6	5.8	8.9	90.6	79
568	8.7	42.6	0.6	6.5	8.9	90.6	79
569	10.4	43.4	0.6	7.8	8.9	90.6	79
570	9.8	44.1	0.6	7.3	9.0	90.5	79
571	6.5	46.7	0.7	4.9	9.0	90.3	79
572	7.8	44.4	0.7	5.8	9.0	90.3	79
573	8.8	43.1	0.8	6.6	9.0	90.3	79
574	9.6	42.4	0.6	7.2	9.0	90.3	79
575	9.3	40.7	0.6	6.9	9.0	90.3	79
576	11.1	42.9	0.6	8.3	9.1	90.1	79
577	11.1	42.4	0.6	8.3	9.0	89.9	79
578	10.0	41.3	0.6	7.5	9.0	89.9	79
579	8.9	41.6	0.6	6.6	9.0	89.9	79
580	8.7	41.9	0.6	6.5	9.0	89.9	79
581	9.0	40.7	0.6	6.7	9.0	89.9	79

***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 (%)
582	10.5	40.8	0.6	7.9	9.1	89.9	79
583	9.7	40.8	0.6	7.2	9.0	89.9	79
584	10.1	41.8	0.6	7.5	9.0	89.9	79
585	10.5	43.6	0.6	7.9	9.0	89.9	79
586	10.2	42.7	0.6	7.6	9.0	89.9	79
587	9.4	42.5	0.6	7.0	9.0	89.9	79
588	9.5	43.4	0.6	7.1	9.0	90.2	79
589	10.3	43.0	0.6	7.7	9.0	90.4	79
590	9.4	43.3	0.6	7.0	9.0	90.4	79
591	8.8	43.7	0.6	6.6	9.0	90.4	79
592	8.1	46.4	0.6	6.0	9.0	90.4	79
593	8.7	47.0	0.6	6.5	9.0	90.4	79
594	10.2	47.3	0.6	7.6	9.0	90.4	79
595	10.2	46.4	0.6	7.7	9.0	90.3	79
596	9.5	44.0	0.6	7.1	9.0	90.3	79
597	8.3	44.6	0.5	6.2	9.0	90.3	79
598	7.7	45.4	0.5	5.7	9.0	90.3	79
599	8.4	44.0	0.5	6.3	9.0	90.3	79
600	9.2	44.7	0.5	6.9	9.0	90.4	79
601	8.8	44.0	0.5	6.6	9.0	90.4	79
602	9.2	44.0	0.5	6.9	9.0	90.4	79
603	9.4	45.2	0.5	7.0	9.0	90.4	79
604	12.0	43.7	0.5	9.0	9.0	90.4	79
605	12.1	41.5	0.5	9.1	9.0	90.4	79
606	12.3	40.8	0.5	9.2	9.0	90.1	79
607	12.0	41.4	0.5	9.0	9.0	89.9	79
608	10.8	41.4	0.5	8.0	9.0	89.9	79
609	12.1	42.5	0.7	9.1	9.0	89.9	79
610	11.2	44.5	0.7	8.4	9.0	89.9	79
611	11.2	42.3	0.7	8.3	9.0	89.9	79
612	9.2	42.1	0.7	6.9	9.0	90.0	79
613	10.0	41.0	0.7	7.5	9.0	90.1	79
614	10.6	40.6	0.7	7.9	9.0	90.1	79
615	9.9	40.7	0.7	7.4	9.0	90.1	79
616	9.8	41.2	0.7	7.3	9.0	90.1	79
617	10.4	40.8	0.7	7.8	9.0	90.1	79
618	10.2	42.4	0.7	7.6	9.0	90.1	79
619	9.8	42.5	0.7	7.3	9.0	90.2	79
620	8.3	44.2	0.7	6.2	9.0	90.2	79
621	7.2	42.5	0.7	5.4	9.0	90.2	79
622	10.1	41.1	0.7	7.5	9.0	90.2	79
623	10.1	40.9	0.7	7.5	9.0	90.2	79
624	8.6	42.0	0.7	6.4	9.0	90.1	79
625	8.9	41.6	0.7	6.6	9.0	90.0	79
626	8.5	43.8	0.7	6.4	9.0	90.0	79
627	7.6	45.5	0.7	5.7	9.0	90.0	79
628	9.1	46.6	0.7	6.8	9.0	90.0	79
629	8.0	48.6	0.7	6.0	9.0	90.0	79
630	7.0	48.0	0.7	5.3	9.0	90.6	79
631	5.0	49.3	0.7	3.7	9.0	91.3	79
632	3.9	48.0	0.7	2.9	9.0	91.3	79
633	4.4	46.2	0.7	3.3	9.0	91.3	79
634	4.9	43.7	0.7	3.7	9.0	91.3	79
635	4.9	42.7	0.7	3.7	9.0	91.3	79
636	5.7	46.4	0.7	4.3	9.1	90.9	79
637	6.0	46.6	0.7	4.5	9.1	90.5	79
638	9.4	43.4	0.8	7.0	9.3	90.1	79
639	8.7	44.1	0.8	6.5	9.3	90.1	79
640	9.1	43.9	0.8	6.8	9.3	90.1	79
641	9.4	44.3	0.8	7.1	9.3	90.1	79
642	9.2	45.6	0.8	6.9	9.4	90.0	79
643	7.6	45.9	0.8	5.7	9.3	90.0	79
644	5.9	49.1	0.8	4.4	9.3	90.0	79
645			0.8	6.1	9.3	90.0	79
646			0.8	8.1	9.3	90.0	79
647	10.9	44.3	0.8	8.1	9.3	90.0	79
648	11.7	44.2	0.7	8.7	9.4	89.5	79
649	11.8	44.3	0.6	8.8	9.4	89.4	79
650	11.6	42.4	0.6	8.6	9.4	89.4	79
651	10.6	42.8	0.6	7.9	9.4	89.4	79
652	10.6	44.7	0.6	7.9	9.4	89.4	79
653	11.8	44.9	0.6	8.8	9.4	89.4	79
654	10.8	42.6	0.6	8.1	9.4	88.8	79
655	10.1	43.8	0.6	7.6	9.4	88.7	79
656	9.8	43.2	0.6	7.4	9.4	88.7	79
657	8.3	42.8	0.6	6.2	9.4	88.7	79
658	9.1	43.2	0.6	6.8	9.4	88.7	79
659	10.7	45.9	0.7	8.0	9.4	88.7	79
660	10.3	44.3	0.7	7.7	9.4	89.6	79
661	9.8	43.8	0.7	7.3	9.3	89.7	79
662	9.9	43.0	0.7	7.4	9.3	89.7	79
663	9.0	42.9	0.7	6.8	9.3	89.7	79
664	9.1	42.6	0.7	6.8	9.3	89.7	79

***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 (%)
665	9.0	42.1	0.7	6.7	9.3	89.7	79
666	7.6	42.5	0.7	5.6	9.4	89.8	79
667	7.1	42.9	0.7	5.3	9.3	89.8	79
668	7.3	45.1	0.7	5.5	9.3	89.8	79
669	6.4	44.9	0.7	4.7	9.3	89.8	79
670	5.8	44.4	0.7	4.3	9.3	89.8	79
671	8.0	43.0	0.7	6.0	9.3	89.8	79
672	9.0	46.7	0.7	6.7	9.3	90.4	79
673	10.3	46.2	0.7	7.7	9.3	90.4	79
674	11.3	43.7	0.7	8.4	9.3	90.4	79
675	10.7	45.0	0.7	8.0	9.3	90.4	79
676	9.4	45.3	0.7	7.0	9.3	90.4	79
677	9.6	46.3	0.7	7.2	9.3	90.4	79
678	8.9	48.0	0.7	6.6	9.4	90.7	79
679	9.4	46.8	0.7	7.0	9.3	90.7	79
680	9.3	44.9	0.7	6.9	9.3	90.7	79
681	10.1	46.4	0.7	7.5	9.3	90.7	79
682	9.5	44.7	0.7	7.1	9.3	90.7	79
683	9.4	43.2	0.7	7.0	9.3	90.7	79
684	10.1	46.0	0.7	7.5	9.3	90.5	79
685	8.9	42.3	0.6	6.6	9.3	90.5	79
686	8.6	41.9	0.6	6.5	9.3	90.5	79
687	9.6	41.9	0.6	7.2	9.3	90.5	79
688	8.4	42.6	0.6	6.2	9.3	90.5	79
689	9.3	42.9	0.6	6.9	9.3	90.5	79
690	10.2	43.2	0.6	7.6	9.3	90.8	79
691	10.7	42.7	0.6	8.0	9.2	90.9	79
692	8.9	42.1	0.6	6.6	9.2	90.9	79
693	7.2	43.0	0.6	5.4	9.2	90.9	79
694	7.3	42.9	0.6	5.5	9.2	90.9	79
695	7.4	43.2	0.6	5.5	9.2	90.9	79
696	6.8	43.3	0.6	5.1	9.2	91.4	79
697	7.8	45.4	0.6	5.8	9.2	91.4	79
698	9.4	43.7	0.6	7.0	9.2	91.4	79
699	8.0	43.7	0.6	6.0	9.2	91.4	79
700	10.0	43.6	0.6	7.5	9.2	91.4	79
701	11.4	42.8	0.6	8.5	9.2	91.4	79
702	9.3	43.5	0.6	7.0	9.2	90.9	79
703	9.7	42.9	0.6	7.3	9.2	90.9	79
704	10.3	45.0	0.6	7.7	9.2	90.9	79
705	11.2	43.9	0.6	8.4	9.2	90.9	79
706	10.0	42.8	0.6	7.5	9.2	90.9	79
707	10.5	42.7	0.6	7.8	9.2	90.9	79
708	10.6	45.3	0.6	7.9	9.2	90.0	79
709	10.4	44.0	0.6	7.8	9.2	90.0	79
710	10.1	46.8	0.6	7.5	9.2	90.0	79
711	10.2	49.9	0.6	7.6	9.2	90.0	79
712	9.7	48.4	0.6	7.3	9.2	90.0	79
713	9.7	49.1	0.6	7.2	9.2	90.0	79
714	9.1	46.8	0.6	6.8	9.2	90.3	79
715	10.6	47.1	0.6	7.9	9.2	90.3	79
716	10.4	45.3	0.6	7.8	9.2	90.3	79
717	9.5	44.0	0.6	7.1	9.2	90.3	79
718	10.3	42.6	0.6	7.7	9.2	90.3	79
719	11.3	43.0	0.6	8.4	9.2	90.3	79
720	10.7	43.5	0.6	8.0	9.2	90.3	79
721	10.3	44.8	0.6	7.7	9.1	90.3	79
722	10.4	45.9	0.6	7.8	9.1	90.3	79
723	10.8	43.2	0.6	8.1	9.1	90.3	79
724	11.0	45.8	0.6	8.2	9.1	90.3	79
725	10.4	44.5	0.6	7.7	9.1	90.3	79
726	10.2	43.8	0.6	7.6	9.3	89.8	79
727	10.3	42.5	0.6	7.7	9.3	89.7	79
728	9.8	42.2	0.6	7.3	9.3	89.7	79
729	9.3	42.2	0.6	7.0	9.3	89.7	79
730	7.9	42.3	0.6	5.9	9.3	89.7	79
731	8.1	40.6	0.6	6.1	9.3	89.7	79
732	7.7	40.9	0.6	5.8	9.2	91.1	79
733	8.1	41.6	0.6	6.1	9.1	91.3	79
734	9.6	41.9	0.6	7.1	9.1	91.3	79
735	10.3	42.2	0.6	7.7	9.1	91.3	79
736	9.1	43.1	0.6	6.8	9.1	91.3	79
737	8.7	44.8	0.6	6.5	9.1	91.3	79
738	9.2	43.9	0.6	6.9	9.2	90.3	79
739	9.2	44.5	0.6	6.8	9.1	90.2	79
740	8.2	43.9	0.6	6.1	9.1	90.2	79
741	8.7	41.2	0.6	6.5	9.1	90.2	79
742	7.3	40.5	0.6	5.4	9.1	90.2	79
743	7.6	40.6	0.5	5.7	9.1	90.2	79
744	8.4	41.2	0.4	6.3	9.2	89.9	79
745	7.5	40.8	0.4	5.6	9.2	89.9	79
746	8.9	39.9	0.4	6.6	9.2	89.9	79
747	7.4	40.0	0.4	5.5	9.2	89.9	79

Table E.02 Measurement data - Background

Project: Romney Wind Energy Centre - IEC 61400- 11 Edition 3.0 - Turbine T1

Report ID: 20019.00.T1.RP1

Created on: 2020-12-18

***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	8.6	40.4	0.4	6.5	9.2	89.9	79
749	9.6	40.7	0.4	7.2	9.2	89.9	79
750	9.7	43.2	0.4	7.3	9.2	89.9	79
751	10.2	43.0	0.4	7.6	9.2	89.9	79
752	10.0	41.1	0.4	7.5	9.2	89.9	79
753	10.4	40.3	0.4	7.8	9.2	89.9	79
754	9.8	40.8	0.4	7.3	9.2	89.9	79
755	9.7	41.2	0.4	7.2	9.2	89.9	79
756	10.0	40.9	0.4	7.4	9.2	89.4	79
757	9.7	41.4	0.4	7.2	9.2	89.3	79
758	9.6	43.4	0.4	7.1	9.2	89.3	79
759	10.0	43.7	0.4	7.5	9.2	89.3	79
760	9.1	42.8	0.6	6.8	9.2	89.3	79
761	10.1	42.4	0.6	7.6	9.2	89.3	79
762	10.2	44.1	0.6	7.6	9.2	89.2	79
763	9.2	44.3	0.6	6.9	9.2	89.2	79
764	7.8	44.2	0.6	5.8	9.2	89.2	79
765	9.5	43.2	0.6	7.1	9.2	89.2	79

***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 (%)

***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 (%)

aercoustics

Aercoustics Engineering Ltd.
1004 Middlegate Road, Suite 1100
Mississauga, ON L4Y 0G1

Tel: 416-249-3361
Fax 416-249-3613
aercoustics.com

Appendix F
Supplemental Regulatory Information

aercoustics

Aercoustics Engineering Ltd.
1004 Middlegate Road, Suite 1100
Mississauga, ON L4Y 0G1

Tel: 416-249-3361
Fax 416-249-3613
aercoustics.com

Appendix F.01
Calibration Certificates

West Caldwell Calibration Laboratories Inc.

Certificate of Calibration

for

MICROPHONE UNIT

Manufactured by:	**BRUEL & KJAER**
Model No:	**4189-A-021(ID#00365)**
Serial No:	**2622170**
Calibration Recall No:	**30268**

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 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-A-021 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.
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 Date: 26-Aug-19

Certificate No: 30268 -3

ACCREDITED

Calibration Lab. Cert. # 1533.01

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

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

ISO/IEC 17025: 2005

West Caldwell Calibration Laboratories, Inc.
uncompromised calibration

ACCREDITED
Calibration Lab. Cert. # 1533.01

1575 State Route 96, Victor NY 14564

REPORT OF CALIBRATION

for

Brüel & Kjær Microphone Unit

Model No.: 4189-A-021 **Serial No.: 2622170**
Mic. Model No.: 4189 **Serial No.: 2625197**
Preamp. Model No.: 2671 **Serial No.: 2614901**
Company: Aercoustics Engineering Ltd. **I. D. No.: 00365**

Calibration results:

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

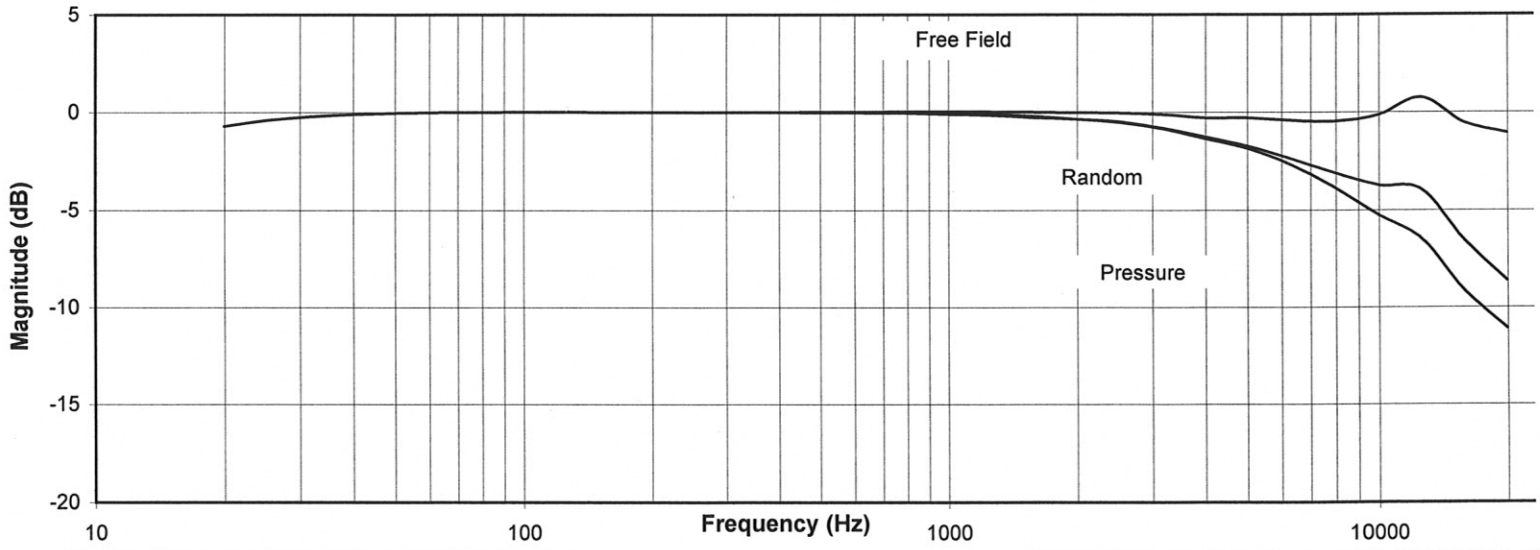
Combined Sensitivity @ **250** **Hz** **and pressure of** **100.08** **kPa**
(Sens. with mic. and preamp.) **0** Volts Polarization voltage (External):
-26.63 dB re.1V/Pascal
46.62 mV/Pascal
0.63 Ko (- dB re 50 mV/Pascal)
Sensitivity: **Pass**
Freq. Response: **Pass**
All tests: **Pass**

Ambient Temperature:	20.2	°C
Ambient Humidity:	54.6	% RH
Ambient Pressure:	100.083	kPa
Calibration Date:	26-Aug-2019	
Calibration Due:	26-Aug-2020	
Report Number:	30268	-3
Control Number:	30268	

The above listed instrument meets or exceeds the tested manufacturer's specifications.
The IEC 651:1979 & 1993 Type 1 specification passed.
This Calibration is traceable through NIST test numbers: 683/290345-18
The expanded uncertainty of calibration: 0.12 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 P4189A021B&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

West Caldwell Calibration Laboratories Inc.
1575 State Route 96, Victor NY 14564
Tel. (585) 586-3900 FAX (585) 586-4327

Calibration Data Record

for

Brüel & Kjær Microphone Unit **Model No.: 4189-A-021** **Serial No.: 2622170**
Company: Aercoustics Engineering Ltd. **I. D. No.: 00365**

Frequency Response (Reference = 0 dB @ 250Hz)

Frequency [Hz]	Pressure [dB]	Free Field (dB)	Random (dB)
19.95	-0.70	-0.70	-0.70
25.12	-0.40	-0.40	-0.40
31.62	-0.21	-0.21	-0.21
39.81	-0.09	-0.09	-0.09
50.12	-0.03	-0.03	-0.03
63.10	0.00	0.00	0.00
79.43	0.01	0.01	0.01
100.00	0.01	0.01	0.01
125.89	0.01	0.01	0.01
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	0.00	0.00
398.11	-0.01	0.00	-0.01
501.19	-0.01	0.01	-0.01
630.96	-0.02	0.02	-0.02
794.33	-0.03	0.03	-0.03
1000.00	-0.07	0.03	-0.09
1258.93	-0.11	0.04	-0.15
1584.89	-0.20	0.02	-0.26
1995.26	-0.34	-0.02	-0.34
2511.89	-0.51	-0.03	-0.47
3162.28	-0.83	-0.12	-0.80
3981.07	-1.34	-0.27	-1.25
5011.87	-1.85	-0.28	-1.71
6309.57	-2.68	-0.40	-2.37
7943.28	-3.85	-0.46	-3.10
10000.00	-5.25	-0.13	-3.72
12589.25	-6.45	0.74	-3.94
15848.93	-9.11	-0.52	-6.53
19952.62	-11.09	-1.04	-8.61

Freq. response: Expanded Uncertainty (dB) with coverage factor K = 2
20 to 63Hz 0.11 dB, 63 to 12.5kHz 0.10 dB, 12.5k to 16kHz 0.11 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	16-Jul-2019	683/290345-18	16-Jul-2020
Brüel & Kjær	3560	S/N 2215835	28-Jun-2019	683/290345-18	28-Jun-2020
HP	33120A	S/N US360089	5-Jul-2019	,1010733	5-Jul-2020
HP	34401A	S/N US360942	5-Jul-2019	,1010733	5-Jul-2020

Cal. Date: 26-Aug-2019 **Tested by: James Zhu**

Calibrated on WCCL system type 9700

West Caldwell Calibration Laboratories Inc.

Certificate of Calibration

for

SOUND CALIBRATOR

Manufactured by:	**BRUEL & KJAER**
Model No:	**4231**
Serial No:	**3012380**
Calibration Recall No:	**30753**

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. 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.
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

Calibration Date: 10-Mar-20

Certificate No: 30753 - 1

ISO/IEC 17025:2005

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

ACCREDITED

Calibration Lab. Cert. # 1533.01

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

ISO/IEC 17025: 2005
ACCREDITED
Calibration Lab. Cert. # 1533.01

REPORT OF CALIBRATION

for

Brüel & Kjær Sound Calibrator **Model No.: 4231** **Serial No.: 3012380**
Company: Aercoustics Engineering Ltd. **ID No.: XXXX**

Calibration results:

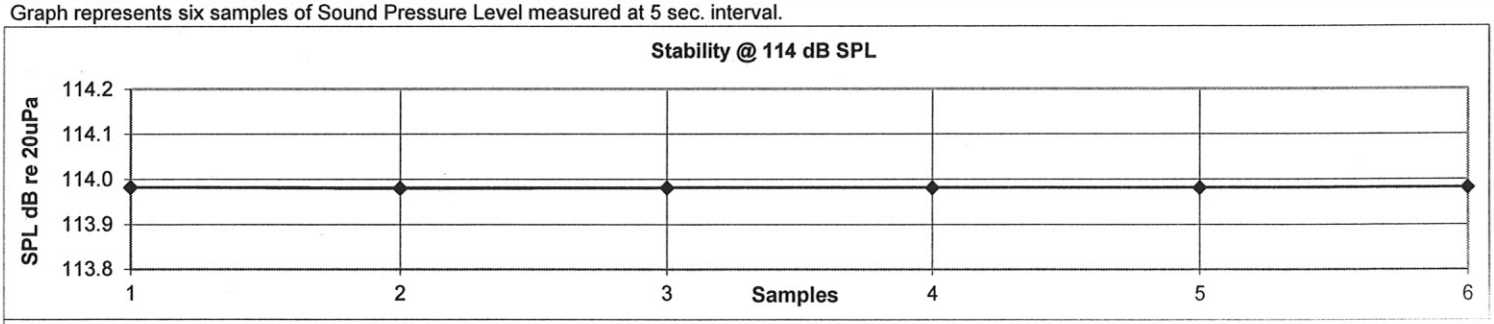
Before data: ..... **After data:** .....
Before & after data same: ...X...
Sound Pressure Level at 1000.0 Hz and pressure of 1013 hPa (mbar)
was 113.98 dB re 20 µPa
(Calibrator tested with ½" adaptor UC 0210)
IEC 1094-4 Type WS 2 P Microphone was used for measurement.

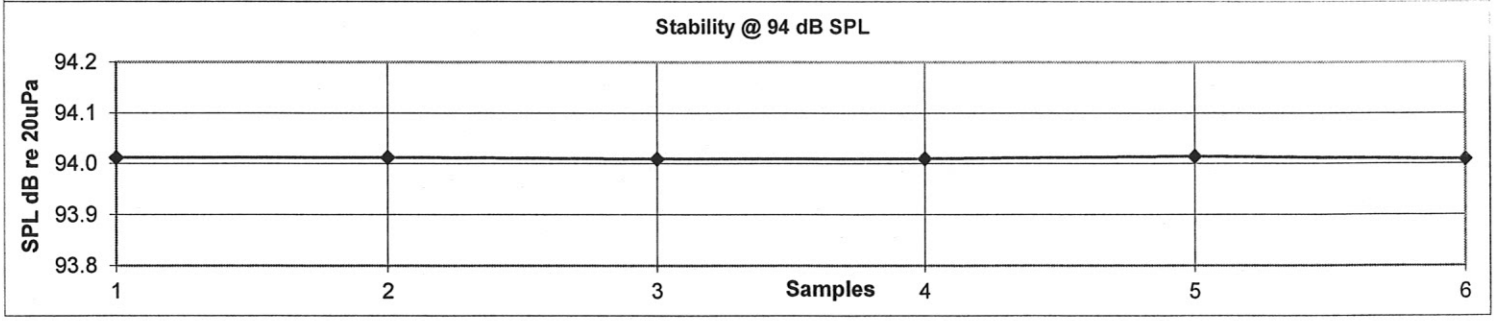
	114 dB	94 dB
Sound Pressure Level:	**Pass**	**Pass**
Frequency:	**Pass**	**Pass**
Distortion:	**Pass**	**Pass**
Stability:	**Pass**	**Pass**
All tested parameters:		**Pass**

Laboratory Environment:		
Ambient Temperature:	21.6	°C
Ambient Humidity:	34.7	% RH
Ambient Pressure:	98.885	kPa
Calibration Date:	10-Mar-2020	
Calibration Due:	10-Mar-2021	
Report Number:	30753	-1
Control Number:	30753	

The above listed instrument meets or exceeds the tested manufacturer's specifications
The IEC 60942:2003 Class 1 specifications, passed.
The ANSI S1.40-2006 specifications, passed.
This Calibration is traceable through NIST test numbers: 683/290345-18
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: 10-Mar-2020 Measurements performed by: MS
Matthew Smith

Calibrated on WCCL system type 9700

West Caldwell Calibration Laboratories Inc.
1575 State Route 96, Victor NY 14564
Tel. (585) 586-3900 FAX (585) 586-4327

Calibration Data Record

for

Brüel & Kjær Sound Calibrator **Model No.: 4231** **Serial No.: 3012380**

Company: Aercoustics Engineering Ltd.

All tested parameters: Pass

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

Sample	1	113.98 dB re 20 µPa		94.01 dB re 20 µPa	
	2	113.98		94.01	
	3	113.98		94.01	
	4	113.98		94.01	
	5	113.98		94.01	
	6	113.98		94.01	
	Average	**113.98**	Spec. 114dB ± 0.2dB	**94.01**	Spec. 94 dB ± 0.2 dB

Frequency measured (Three samples at 30 sec. Interval)

Sample	1	999.97 Hz	999.97 Hz	
	2	999.98	999.98	
	3	999.98	999.98	
	Average	**999.98**	**999.97**	Spec. 1000 Hz ±0.1%

The Frequency expanded uncertainty of calibration:45 µHz/Hz at 95% confidence level with a coverage factor of k=2.

Distortion measured	-55.7 dB	-54.1 dB	Spec. ≤-40 dB

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):	**0.11**	**0.1**	**0.21**
Frequency Measure (DC to 10 MHz):	**5.0 parts in [10^9] Hz**		

Instruments used for calibration:			Date of Cal.	Traceability No.	Re-cal. Due Date
Brüel & Kjær	4231	S/N 2205492	10-Jul-2019	683/290345-18	10-Jul-2020
Brüel & Kjær	4134	S/N 173494	1-Jul-2019	683/290345-18	1-Jul-2020
Brüel & Kjær	2669	S/N 1835080	8-Jul-2019	683/290345-18	8-Jul-2020
HP	34401A	S/N US361009	3-Jul-2019	,1010733	3-Jul-2020
Brüel & Kjær	2636	S/N 1487493	10-Jul-2019	683/290345-18	10-Jul-2020
HP	33120A	S/N SG400116	3-Jul-2019	,1010733	3-Jul-2020

Cal. Date: 10-Mar-2020 **Tested by: Matthew Smith**

Calibrated on WCCL system type 9700

Certificate number: **2020-22143211**

Adjustment report

Product type: Simcenter SCADAS

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

Customer:

Company name	: Aercoustics 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 ºC
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

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Siemens PLM Software
5755 New King Street
Troy, MI 48098
USA
Phone: +1 248 952 5664

ISO17025

As Left RECALIBRATION CERTIFICATE

Sales Region:	NA
Account:	Aercoustics Engineering Ltd
Instrument:	Simcenter SCADAS
Manufacturer:	Siemens Industry Software B.V.
Type:	SCR202
Serial number(s):	22143211
Calibration method:	Two calibrated external standards (DC voltage and frequency) are used to calibrate the internal Simcenter SCADAS references: time/frequency accuracy of the internal system clock and amplitude accuracy of the internal signal sources. All input channels are calibrated against the internal references.
Ambient conditions:	The calibrations have been carried out in a controlled environment, at an ambient temperature of 23,0°C ± 0.3°C and a relative humidity of 38% ± 5%.
Calibration date:	June 5, 2020
Results:	The calibration results, together with their associated uncertainties, are included in this calibration certificate. *Calibration results within specification.*
Uncertainty:	The reported expanded uncertainty of measurement is stated as the standard uncertainty of measurement multiplied by the coverage factor k=2, which for a normal distribution corresponds to a coverage probability of approximately 95%. The standard uncertainty of measurement has been determined in accordance with publication EA-4/02.
Traceability:	The measurements have been executed using methods for which the traceability to international standards has been demonstrated towards the Raad voor Accreditatie.

Breda, June 5, 2020

Calibration performed by:

H. Dam, Customer Service Engineer

Certificate approved by:

F.Lemmens, Production Manager

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Table of contents

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1 Explanation of the factory calibration procedure

The production process of an Simcenter SCADAS front-end consists of a number of stages. Every single board or module that will be part of the system is tested extensively on reliability and functionality before it is inserted in the Simcenter SCADAS frame.
After assembly, the amplitude accuracy and offset errors of all input and output channels are adjusted to a value as close to zero as possible. The adjustment procedure incorporates external measurement equipment, which is documented in the next section of this report.

As a final step, the front-end is submitted to a factory calibration. The factory calibration verifies whether all input and output channels meet their published specifications with respect to amplitude accuracy, offset, and a number of dynamic capabilities such as distortion, signal to noise ratio and inter-channel crosstalk. The measurements that are done as a part of the calibration use an internal reference source, which has been calibrated against an external standard (documented in the next section of this report).
The results of this calibration procedure are documented in the *Calibration Certificate* you have in front of you.

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2 External reference - used equipment

	Type	Serial Number	Cal Certificate	Cal Date
Digital multimeter	Agilent 34401A	MY41040399	201902414.00	June 14, 2019
Calibration software	2.15.0001	NA	NA	NA

The external reference (DMM) is calibrated on a yearly basis by a calibration laboratory that is ISO17025:2005 accredited by The Dutch Accreditation Council RvA.

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3 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	

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4 V8_E_h18s0

4.1 Gain Accuracy after Adjustment

Description of calibration:
Determination of the amplitude accuracy of the input channels over all input ranges and available ADC bandwidths, by applying an accurate 1kHz -3dBFS (max 4V) sine wave which is generated by the internal reference generator. For charge amplifiers, the reference voltage signal is translated to a reference charge signal.
The reported values represent the deviations from the expected signal amplitude, both absolute (either in Volt or Coulomb, depending on the input channel type) and relative (in %).

AdcBw 102400Hz, Range 0.316V
Alternating voltage 100mV < IR <= 316mV
Spec: <= ±0.100%
Uncertainty: 66µV

Chan	Value
0,1,x,0	-0.052 mV, -0.023%
0,1,x,1	-0.055 mV, -0.025%
0,1,x,2	-0.056 mV, -0.025%
0,1,x,3	-0.055 mV, -0.025%
0,1,x,4	-0.055 mV, -0.025%
0,1,x,5	-0.058 mV, -0.026%
0,1,x,6	-0.054 mV, -0.024%
0,1,x,7	-0.054 mV, -0.024%
0,2,x,0	-0.056 mV, -0.025%
0,2,x,1	-0.055 mV, -0.025%
0,2,x,2	-0.054 mV, -0.024%
0,2,x,3	-0.056 mV, -0.025%
0,2,x,4	-0.055 mV, -0.024%
0,2,x,5	-0.055 mV, -0.025%
0,2,x,6	-0.055 mV, -0.025%
0,2,x,7	-0.056 mV, -0.025%

AdcBw 102400Hz, Range 1V
Alternating voltage 316mV < IR <= 1V
Spec: <= ±0.100%
Uncertainty: 120µV

Chan	Value
0,1,x,0	-0.128 mV, -0.018%
0,1,x,1	-0.138 mV, -0.019%
0,1,x,2	-0.135 mV, -0.019%
0,1,x,3	-0.134 mV, -0.019%
0,1,x,4	-0.132 mV, -0.019%
0,1,x,5	-0.142 mV, -0.020%
0,1,x,6	-0.130 mV, -0.018%
0,1,x,7	-0.131 mV, -0.019%
0,2,x,0	-0.139 mV, -0.020%
0,2,x,1	-0.136 mV, -0.019%
0,2,x,2	-0.133 mV, -0.019%
0,2,x,3	-0.136 mV, -0.019%
0,2,x,4	-0.131 mV, -0.019%
0,2,x,5	-0.132 mV, -0.019%
0,2,x,6	-0.136 mV, -0.019%
0,2,x,7	-0.135 mV, -0.019%

AdcBw 102400Hz, Range 3.16V
Alternating voltage 1V < IR <= 3.16V
Spec: <= ±0.100%
Uncertainty: 310µV

Chan	Value
0,1,x,0	-0.317 mV, -0.014%
0,1,x,1	-0.356 mV, -0.016%
0,1,x,2	-0.348 mV, -0.016%
0,1,x,3	-0.346 mV, -0.016%
0,1,x,4	-0.347 mV, -0.016%
0,1,x,5	-0.370 mV, -0.017%
0,1,x,6	-0.334 mV, -0.015%
0,1,x,7	-0.345 mV, -0.015%
0,2,x,0	-0.374 mV, -0.017%
0,2,x,1	-0.347 mV, -0.016%
0,2,x,2	-0.346 mV, -0.015%
0,2,x,3	-0.366 mV, -0.016%
0,2,x,4	-0.341 mV, -0.015%
0,2,x,5	-0.339 mV, -0.015%
0,2,x,6	-0.361 mV, -0.016%
0,2,x,7	-0.345 mV, -0.015%

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AdcBw 102400Hz, Range 10V Alternating voltage 3.16V < IR <= 10V Spec: <= ±0.100% Uncertainty: 530µV	
Chan	Value
0,1,x,0	-0.486 mV, -0.012%
0,1,x,1	-0.520 mV, -0.013%
0,1,x,2	-0.530 mV, -0.013%
0,1,x,3	-0.535 mV, -0.013%
0,1,x,4	-0.526 mV, -0.013%
0,1,x,5	-0.564 mV, -0.014%
0,1,x,6	-0.522 mV, -0.013%
0,1,x,7	-0.524 mV, -0.013%
0,2,x,0	-0.547 mV, -0.014%
0,2,x,1	-0.499 mV, -0.012%
0,2,x,2	-0.503 mV, -0.013%
0,2,x,3	-0.536 mV, -0.013%
0,2,x,4	-0.521 mV, -0.013%
0,2,x,5	-0.503 mV, -0.013%
0,2,x,6	-0.528 mV, -0.013%
0,2,x,7	-0.533 mV, -0.013%

AdcBw 51200Hz, Range 1V Alternating voltage 316mV < IR <= 1V Spec: <= ±0.100% Uncertainty: 120µV	
Chan	Value
0,1,x,0	-0.081 mV, -0.011%
0,1,x,1	-0.091 mV, -0.013%
0,1,x,2	-0.089 mV, -0.013%
0,1,x,3	-0.088 mV, -0.012%
0,1,x,4	-0.085 mV, -0.012%
0,1,x,5	-0.096 mV, -0.014%
0,1,x,6	-0.084 mV, -0.012%
0,1,x,7	-0.085 mV, -0.012%
0,2,x,0	-0.094 mV, -0.013%
0,2,x,1	-0.090 mV, -0.013%
0,2,x,2	-0.086 mV, -0.012%
0,2,x,3	-0.091 mV, -0.013%
0,2,x,4	-0.085 mV, -0.012%
0,2,x,5	-0.085 mV, -0.012%
0,2,x,6	-0.090 mV, -0.013%
0,2,x,7	-0.089 mV, -0.013%

AdcBw 51200Hz, Range 10V Alternating voltage 3.16V < IR <= 10V Spec: <= ±0.100% Uncertainty: 530µV	
Chan	Value
0,1,x,0	-0.290 mV, -0.007%
0,1,x,1	-0.326 mV, -0.008%
0,1,x,2	-0.336 mV, -0.008%
0,1,x,3	-0.341 mV, -0.009%
0,1,x,4	-0.335 mV, -0.008%
0,1,x,5	-0.374 mV, -0.009%
0,1,x,6	-0.330 mV, -0.008%
0,1,x,7	-0.332 mV, -0.008%
0,2,x,0	-0.358 mV, -0.009%
0,2,x,1	-0.310 mV, -0.008%
0,2,x,2	-0.307 mV, -0.008%
0,2,x,3	-0.341 mV, -0.009%
0,2,x,4	-0.335 mV, -0.008%
0,2,x,5	-0.317 mV, -0.008%
0,2,x,6	-0.340 mV, -0.009%
0,2,x,7	-0.346 mV, -0.009%

AdcBw 51200Hz, Range 0.316V Alternating voltage 100mV < IR <= 316mV Spec: <= ±0.100% Uncertainty: 66µV	
Chan	Value
0,1,x,0	-0.023 mV, -0.010%
0,1,x,1	-0.026 mV, -0.012%
0,1,x,2	-0.027 mV, -0.012%
0,1,x,3	-0.027 mV, -0.012%
0,1,x,4	-0.027 mV, -0.012%
0,1,x,5	-0.030 mV, -0.013%
0,1,x,6	-0.025 mV, -0.011%
0,1,x,7	-0.026 mV, -0.012%
0,2,x,0	-0.027 mV, -0.012%
0,2,x,1	-0.026 mV, -0.012%
0,2,x,2	-0.025 mV, -0.011%
0,2,x,3	-0.027 mV, -0.012%
0,2,x,4	-0.026 mV, -0.011%
0,2,x,5	-0.026 mV, -0.012%
0,2,x,6	-0.027 mV, -0.012%
0,2,x,7	-0.028 mV, -0.012%

AdcBw 51200Hz, Range 3.16V Alternating voltage 1V < IR <= 3.16V Spec: <= ±0.100% Uncertainty: 310µV	
Chan	Value
0,1,x,0	-0.198 mV, -0.009%
0,1,x,1	-0.236 mV, -0.011%
0,1,x,2	-0.231 mV, -0.010%
0,1,x,3	-0.230 mV, -0.010%
0,1,x,4	-0.229 mV, -0.010%
0,1,x,5	-0.253 mV, -0.011%
0,1,x,6	-0.217 mV, -0.010%
0,1,x,7	-0.229 mV, -0.010%
0,2,x,0	-0.255 mV, -0.011%
0,2,x,1	-0.227 mV, -0.010%
0,2,x,2	-0.226 mV, -0.010%
0,2,x,3	-0.247 mV, -0.011%
0,2,x,4	-0.224 mV, -0.010%
0,2,x,5	-0.221 mV, -0.010%
0,2,x,6	-0.245 mV, -0.011%
0,2,x,7	-0.228 mV, -0.010%

AdcBw 25600Hz, Range 0.316V Alternating voltage 100mV < IR <= 316mV Spec: <= ±0.100% Uncertainty: 66µV	
Chan	Value
0,1,x,0	-0.016 mV, -0.007%
0,1,x,1	-0.019 mV, -0.009%
0,1,x,2	-0.020 mV, -0.009%
0,1,x,3	-0.020 mV, -0.009%
0,1,x,4	-0.020 mV, -0.009%
0,1,x,5	-0.023 mV, -0.010%
0,1,x,6	-0.018 mV, -0.008%
0,1,x,7	-0.019 mV, -0.008%
0,2,x,0	-0.021 mV, -0.009%
0,2,x,1	-0.019 mV, -0.009%
0,2,x,2	-0.018 mV, -0.008%
0,2,x,3	-0.020 mV, -0.009%
0,2,x,4	-0.019 mV, -0.008%
0,2,x,5	-0.019 mV, -0.008%
0,2,x,6	-0.020 mV, -0.009%
0,2,x,7	-0.021 mV, -0.009%

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AdcBw 25600Hz, Range 1V Alternating voltage 316mV < IR <= 1V Spec: <= ±0.100% Uncertainty: 120µV	
Chan	Value
0,1,x,0	-0.057 mV, -0.008%
0,1,x,1	-0.067 mV, -0.009%
0,1,x,2	-0.064 mV, -0.009%
0,1,x,3	-0.063 mV, -0.009%
0,1,x,4	-0.062 mV, -0.009%
0,1,x,5	-0.072 mV, -0.010%
0,1,x,6	-0.060 mV, -0.008%
0,1,x,7	-0.061 mV, -0.009%
0,2,x,0	-0.070 mV, -0.010%
0,2,x,1	-0.066 mV, -0.009%
0,2,x,2	-0.062 mV, -0.009%
0,2,x,3	-0.066 mV, -0.009%
0,2,x,4	-0.061 mV, -0.009%
0,2,x,5	-0.062 mV, -0.009%
0,2,x,6	-0.066 mV, -0.009%
0,2,x,7	-0.065 mV, -0.009%

AdcBw 25600Hz, Range 3.16V Alternating voltage 1V < IR <= 3.16V Spec: <= ±0.100% Uncertainty: 310µV	
Chan	Value
0,1,x,0	-0.137 mV, -0.006%
0,1,x,1	-0.173 mV, -0.008%
0,1,x,2	-0.168 mV, -0.008%
0,1,x,3	-0.167 mV, -0.007%
0,1,x,4	-0.168 mV, -0.008%
0,1,x,5	-0.192 mV, -0.009%
0,1,x,6	-0.154 mV, -0.007%
0,1,x,7	-0.166 mV, -0.007%
0,2,x,0	-0.191 mV, -0.009%
0,2,x,1	-0.167 mV, -0.007%
0,2,x,2	-0.164 mV, -0.007%
0,2,x,3	-0.183 mV, -0.008%
0,2,x,4	-0.163 mV, -0.007%
0,2,x,5	-0.161 mV, -0.007%
0,2,x,6	-0.183 mV, -0.008%
0,2,x,7	-0.168 mV, -0.007%

AdcBw 25600Hz, Range 10V Alternating voltage 3.16V < IR <= 10V Spec: <= ±0.100% Uncertainty: 530µV	
Chan	Value
0,1,x,0	-0.246 mV, -0.006%
0,1,x,1	-0.277 mV, -0.007%
0,1,x,2	-0.284 mV, -0.007%
0,1,x,3	-0.287 mV, -0.007%
0,1,x,4	-0.285 mV, -0.007%
0,1,x,5	-0.321 mV, -0.008%
0,1,x,6	-0.280 mV, -0.007%
0,1,x,7	-0.283 mV, -0.007%
0,2,x,0	-0.299 mV, -0.007%
0,2,x,1	-0.259 mV, -0.006%
0,2,x,2	-0.259 mV, -0.006%
0,2,x,3	-0.287 mV, -0.007%
0,2,x,4	-0.281 mV, -0.007%
0,2,x,5	-0.266 mV, -0.007%
0,2,x,6	-0.288 mV, -0.007%
0,2,x,7	-0.296 mV, -0.007%

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4.2 Residual Offset after Adjustment

Description of calibration:
Determination of the residual input offsets of the input channels over all input ranges and available ADC bandwidths, by internally shorting the input channels to ground.

AdcBw 102400Hz, Range 0.316V Direct voltage IR <= 316mV Spec: <= ±0.316 mV Uncertainty: 4.8µV	
Chan	Value
0,1,x,0	0.003 mV
0,1,x,1	0.000 mV
0,1,x,2	0.007 mV
0,1,x,3	0.008 mV
0,1,x,4	0.008 mV
0,1,x,5	0.008 mV
0,1,x,6	0.009 mV
0,1,x,7	0.010 mV
0,2,x,0	0.005 mV
0,2,x,1	-0.001 mV
0,2,x,2	0.000 mV
0,2,x,3	0.004 mV
0,2,x,4	0.004 mV
0,2,x,5	0.005 mV
0,2,x,6	0.009 mV
0,2,x,7	0.004 mV

AdcBw 102400Hz, Range 3.16V Direct voltage 1V < IR <= 3.16V Spec: <= ±3.160 mV Uncertainty: 8µV	
Chan	Value
0,1,x,0	0.017 mV
0,1,x,1	0.025 mV
0,1,x,2	0.034 mV
0,1,x,3	0.043 mV
0,1,x,4	0.030 mV
0,1,x,5	0.016 mV
0,1,x,6	0.029 mV
0,1,x,7	0.043 mV
0,2,x,0	0.034 mV
0,2,x,1	0.025 mV
0,2,x,2	0.009 mV
0,2,x,3	0.035 mV
0,2,x,4	0.049 mV
0,2,x,5	0.034 mV
0,2,x,6	0.035 mV
0,2,x,7	0.039 mV

AdcBw 51200Hz, Range 0.316V Direct voltage IR <= 316mV Spec: <= ±0.316 mV Uncertainty: 4.8µV	
Chan	Value
0,1,x,0	0.002 mV
0,1,x,1	0.002 mV
0,1,x,2	0.008 mV
0,1,x,3	0.005 mV
0,1,x,4	0.004 mV
0,1,x,5	0.003 mV
0,1,x,6	0.002 mV
0,1,x,7	0.008 mV
0,2,x,0	0.003 mV
0,2,x,1	0.000 mV
0,2,x,2	-0.000 mV
0,2,x,3	0.004 mV
0,2,x,4	0.002 mV
0,2,x,5	0.002 mV
0,2,x,6	0.006 mV
0,2,x,7	0.003 mV

AdcBw 51200Hz, Range 3.16V Direct voltage 1V < IR <= 3.16V Spec: <= ±3.160 mV Uncertainty: 8µV	
Chan	Value
0,1,x,0	0.016 mV
0,1,x,1	0.028 mV
0,1,x,2	0.031 mV
0,1,x,3	0.033 mV
0,1,x,4	0.035 mV
0,1,x,5	0.015 mV
0,1,x,6	0.028 mV
0,1,x,7	0.038 mV
0,2,x,0	0.039 mV
0,2,x,1	0.017 mV
0,2,x,2	0.022 mV
0,2,x,3	0.032 mV
0,2,x,4	0.039 mV
0,2,x,5	0.033 mV
0,2,x,6	0.042 mV
0,2,x,7	0.032 mV

AdcBw 102400Hz, Range 1V Direct voltage 316mV < IR <= 1V Spec: <= ±1.000 mV Uncertainty: 5.2µV	
Chan	Value
0,1,x,0	0.006 mV
0,1,x,1	0.005 mV
0,1,x,2	0.013 mV
0,1,x,3	0.014 mV
0,1,x,4	0.013 mV
0,1,x,5	0.011 mV
0,1,x,6	0.012 mV
0,1,x,7	0.018 mV
0,2,x,0	0.013 mV
0,2,x,1	0.006 mV
0,2,x,2	0.003 mV
0,2,x,3	0.014 mV
0,2,x,4	0.010 mV
0,2,x,5	0.010 mV
0,2,x,6	0.018 mV
0,2,x,7	0.012 mV

AdcBw 102400Hz, Range 10V Direct voltage 3.16V < IR <= 10V Spec: <= ±10.000 mV Uncertainty: 21µV	
Chan	Value
0,1,x,0	0.052 mV
0,1,x,1	0.075 mV
0,1,x,2	0.094 mV
0,1,x,3	0.112 mV
0,1,x,4	0.113 mV
0,1,x,5	0.052 mV
0,1,x,6	0.093 mV
0,1,x,7	0.116 mV
0,2,x,0	0.091 mV
0,2,x,1	0.068 mV
0,2,x,2	0.062 mV
0,2,x,3	0.098 mV
0,2,x,4	0.134 mV
0,2,x,5	0.109 mV
0,2,x,6	0.121 mV
0,2,x,7	0.109 mV

AdcBw 51200Hz, Range 1V Direct voltage 316mV < IR <= 1V Spec: <= ±1.000 mV Uncertainty: 5.2µV	
Chan	Value
0,1,x,0	0.006 mV
0,1,x,1	0.006 mV
0,1,x,2	0.011 mV
0,1,x,3	0.015 mV
0,1,x,4	0.012 mV
0,1,x,5	0.003 mV
0,1,x,6	0.003 mV
0,1,x,7	0.015 mV
0,2,x,0	0.011 mV
0,2,x,1	0.003 mV
0,2,x,2	0.006 mV
0,2,x,3	0.011 mV
0,2,x,4	0.013 mV
0,2,x,5	0.006 mV
0,2,x,6	0.016 mV
0,2,x,7	0.008 mV

AdcBw 51200Hz, Range 10V Direct voltage 3.16V < IR <= 10V Spec: <= ±10.000 mV Uncertainty: 21µV	
Chan	Value
0,1,x,0	0.048 mV
0,1,x,1	0.099 mV
0,1,x,2	0.109 mV
0,1,x,3	0.112 mV
0,1,x,4	0.118 mV
0,1,x,5	0.054 mV
0,1,x,6	0.090 mV
0,1,x,7	0.113 mV
0,2,x,0	0.107 mV
0,2,x,1	0.065 mV
0,2,x,2	0.066 mV
0,2,x,3	0.115 mV
0,2,x,4	0.137 mV
0,2,x,5	0.096 mV
0,2,x,6	0.110 mV
0,2,x,7	0.099 mV

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AdcBw 25600Hz, Range 0.316V Direct voltage IR <= 316mV Spec: <= ±0.316 mV Uncertainty: 4.8µV	
Chan	Value
0,1,x,0	0.000 mV
0,1,x,1	-0.000 mV
0,1,x,2	0.006 mV
0,1,x,3	0.007 mV
0,1,x,4	0.002 mV
0,1,x,5	0.001 mV
0,1,x,6	0.000 mV
0,1,x,7	0.005 mV
0,2,x,0	0.002 mV
0,2,x,1	-0.000 mV
0,2,x,2	-0.001 mV
0,2,x,3	0.003 mV
0,2,x,4	0.001 mV
0,2,x,5	-0.000 mV
0,2,x,6	0.008 mV
0,2,x,7	0.000 mV

AdcBw 25600Hz, Range 3.16V Direct voltage 1V < IR <= 3.16V Spec: <= ±3.160 mV Uncertainty: 8µV	
Chan	Value
0,1,x,0	0.021 mV
0,1,x,1	0.023 mV
0,1,x,2	0.028 mV
0,1,x,3	0.034 mV
0,1,x,4	0.028 mV
0,1,x,5	0.026 mV
0,1,x,6	0.026 mV
0,1,x,7	0.038 mV
0,2,x,0	0.029 mV
0,2,x,1	0.016 mV
0,2,x,2	0.014 mV
0,2,x,3	0.028 mV
0,2,x,4	0.037 mV
0,2,x,5	0.018 mV
0,2,x,6	0.035 mV
0,2,x,7	0.029 mV

AdcBw 25600Hz, Range 1V Direct voltage 316mV < IR <= 1V Spec: <= ±1.000 mV Uncertainty: 5.2µV	
Chan	Value
0,1,x,0	0.005 mV
0,1,x,1	0.008 mV
0,1,x,2	0.011 mV
0,1,x,3	0.009 mV
0,1,x,4	0.010 mV
0,1,x,5	0.008 mV
0,1,x,6	0.007 mV
0,1,x,7	0.011 mV
0,2,x,0	0.008 mV
0,2,x,1	0.002 mV
0,2,x,2	0.004 mV
0,2,x,3	0.007 mV
0,2,x,4	0.007 mV
0,2,x,5	0.006 mV
0,2,x,6	0.014 mV
0,2,x,7	0.007 mV

AdcBw 25600Hz, Range 10V Direct voltage 3.16V < IR <= 10V Spec: <= ±10.000 mV Uncertainty: 21µV	
Chan	Value
0,1,x,0	0.071 mV
0,1,x,1	0.074 mV
0,1,x,2	0.077 mV
0,1,x,3	0.095 mV
0,1,x,4	0.079 mV
0,1,x,5	0.083 mV
0,1,x,6	0.076 mV
0,1,x,7	0.107 mV
0,2,x,0	0.086 mV
0,2,x,1	0.039 mV
0,2,x,2	0.058 mV
0,2,x,3	0.097 mV
0,2,x,4	0.136 mV
0,2,x,5	0.067 mV
0,2,x,6	0.093 mV
0,2,x,7	0.101 mV

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4.3 Total Harmonic Distortion

Description of calibration:
Determination of the harmonic distortion of the input channels over all input ranges, by applying an accurate 1kHz -3dBFS (max 4V) sine wave which is generated by the internal reference generator. For charge amplifiers, the reference voltage signal is translated to a reference charge signal. Harmonic components 2, 3, 4 and 5 are determined to calculate the harmonic content (either in Volt or Coulomb, depending on the input channel type) and the ratio between the fundamental tone and its harmonics (in dB).

Range 10V
Distortion 3.16V < IR <= 10V
Spec: <= -94.0dB
Uncertainty: 2.6µV

Chan	Value
0,1,x,0	14.208 µV, -109.0dB
0,1,x,1	13.956 µV, -109.1dB
0,1,x,2	13.690 µV, -109.3dB
0,1,x,3	13.856 µV, -109.2dB
0,1,x,4	14.117 µV, -109.0dB
0,1,x,5	13.855 µV, -109.2dB
0,1,x,6	14.080 µV, -109.1dB
0,1,x,7	14.598 µV, -108.8dB
0,2,x,0	13.921 µV, -109.2dB
0,2,x,1	14.336 µV, -108.9dB
0,2,x,2	13.557 µV, -109.4dB
0,2,x,3	14.309 µV, -108.9dB
0,2,x,4	13.641 µV, -109.3dB
0,2,x,5	14.913 µV, -108.6dB
0,2,x,6	13.443 µV, -109.5dB
0,2,x,7	15.262 µV, -108.4dB

Range 1 V
Distortion 316mV < IR <= 1V
Spec: <= -94.0dB
Uncertainty: 290nV

Chan	Value
0,1,x,0	3.157 µV, -107.0dB
0,1,x,1	3.051 µV, -107.3dB
0,1,x,2	3.352 µV, -106.5dB
0,1,x,3	2.907 µV, -107.7dB
0,1,x,4	3.164 µV, -107.0dB
0,1,x,5	2.968 µV, -107.5dB
0,1,x,6	3.489 µV, -106.1dB
0,1,x,7	3.186 µV, -106.9dB
0,2,x,0	3.209 µV, -106.9dB
0,2,x,1	3.323 µV, -106.6dB
0,2,x,2	2.875 µV, -107.8dB
0,2,x,3	2.967 µV, -107.5dB
0,2,x,4	3.411 µV, -106.3dB
0,2,x,5	3.602 µV, -105.9dB
0,2,x,6	3.601 µV, -105.9dB
0,2,x,7	3.546 µV, -106.0dB

Range 3.16V
Distortion 1V < IR <= 3.16V
Spec: <= -94.0dB
Uncertainty: 0.8µV

Chan	Value
0,1,x,0	7.139 µV, -109.9dB
0,1,x,1	7.279 µV, -109.7dB
0,1,x,2	7.127 µV, -109.9dB
0,1,x,3	6.793 µV, -110.3dB
0,1,x,4	7.220 µV, -109.8dB
0,1,x,5	7.351 µV, -109.7dB
0,1,x,6	8.058 µV, -108.9dB
0,1,x,7	8.624 µV, -108.3dB
0,2,x,0	7.424 µV, -109.6dB
0,2,x,1	7.981 µV, -108.9dB
0,2,x,2	6.661 µV, -110.5dB
0,2,x,3	7.048 µV, -110.0dB
0,2,x,4	7.750 µV, -109.2dB
0,2,x,5	8.629 µV, -108.3dB
0,2,x,6	6.767 µV, -110.4dB
0,2,x,7	9.324 µV, -107.6dB

Range 0.316V
Distortion 100mV < IR <= 316mV
Spec: <= -91.0dB
Uncertainty: 140nV

Chan	Value
0,1,x,0	2.962 µV, -97.6dB
0,1,x,1	3.022 µV, -97.4dB
0,1,x,2	3.200 µV, -96.9dB
0,1,x,3	3.019 µV, -97.4dB
0,1,x,4	3.031 µV, -97.4dB
0,1,x,5	3.007 µV, -97.4dB
0,1,x,6	3.282 µV, -96.7dB
0,1,x,7	3.052 µV, -97.3dB
0,2,x,0	2.981 µV, -97.5dB
0,2,x,1	3.203 µV, -96.9dB
0,2,x,2	2.833 µV, -97.9dB
0,2,x,3	2.986 µV, -97.5dB
0,2,x,4	3.145 µV, -97.0dB
0,2,x,5	3.442 µV, -96.2dB
0,2,x,6	3.461 µV, -96.2dB
0,2,x,7	3.178 µV, -96.9dB

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4.4 RMS Noise

Description of calibration:
Determination of the noise contribution of the input channels, by internally shorting the input channels to ground. The reported values are RMS values over the corresponding bandwidth.

Range 10V, Bw 80kHz Not in Scope Spec: < 311.0000µVrms	
Chan	Value
0,1,x,0	219.2995µVrms
0,1,x,1	215.5898µVrms
0,1,x,2	215.2229µVrms
0,1,x,3	211.8512µVrms
0,1,x,4	213.7274µVrms
0,1,x,5	212.7200µVrms
0,1,x,6	215.2069µVrms
0,1,x,7	210.2820µVrms
0,2,x,0	215.5941µVrms
0,2,x,1	229.4134µVrms
0,2,x,2	236.8441µVrms
0,2,x,3	216.1900µVrms
0,2,x,4	213.0670µVrms
0,2,x,5	214.5266µVrms
0,2,x,6	223.7468µVrms
0,2,x,7	213.6956µVrms

Range 10V, Bw 40kHz Not in Scope Spec: < 42.0000µVrms	
Chan	Value
0,1,x,0	30.4527µVrms
0,1,x,1	30.0133µVrms
0,1,x,2	29.4962µVrms
0,1,x,3	29.4491µVrms
0,1,x,4	29.8311µVrms
0,1,x,5	29.6992µVrms
0,1,x,6	30.0058µVrms
0,1,x,7	30.0235µVrms
0,2,x,0	29.5844µVrms
0,2,x,1	32.6199µVrms
0,2,x,2	33.0204µVrms
0,2,x,3	30.7658µVrms
0,2,x,4	29.8134µVrms
0,2,x,5	30.6530µVrms
0,2,x,6	31.5606µVrms
0,2,x,7	30.2541µVrms

Range 10V, Bw 20kHz Noise 3.16V < IR <= 10V Spec: <= 29.000 µV Uncertainty: 3.4nV	
Chan	Value
0,1,x,0	20.460 µV
0,1,x,1	20.249 µV
0,1,x,2	19.825 µV
0,1,x,3	19.831 µV
0,1,x,4	20.676 µV
0,1,x,5	20.456 µV
0,1,x,6	20.319 µV
0,1,x,7	20.034 µV
0,2,x,0	20.311 µV
0,2,x,1	20.476 µV
0,2,x,2	20.602 µV
0,2,x,3	21.102 µV
0,2,x,4	20.549 µV
0,2,x,5	21.111 µV
0,2,x,6	20.675 µV
0,2,x,7	21.019 µV

Range 0.316V, Bw 80kHz Not in Scope Spec: < 10.5000µVrms	
Chan	Value
0,1,x,0	7.3108µVrms
0,1,x,1	7.2935µVrms
0,1,x,2	7.1991µVrms
0,1,x,3	7.1960µVrms
0,1,x,4	7.1852µVrms
0,1,x,5	7.2616µVrms
0,1,x,6	7.2404µVrms
0,1,x,7	7.1330µVrms
0,2,x,0	7.2808µVrms
0,2,x,1	7.6726µVrms
0,2,x,2	7.8168µVrms
0,2,x,3	7.2500µVrms
0,2,x,4	7.1218µVrms
0,2,x,5	7.2521µVrms
0,2,x,6	7.5376µVrms
0,2,x,7	7.2022µVrms

Range 0.316V, Bw 40kHz Not in Scope Spec: < 2.8000µVrms	
Chan	Value
0,1,x,0	2.0888µVrms
0,1,x,1	2.0764µVrms
0,1,x,2	2.0657µVrms
0,1,x,3	2.0693µVrms
0,1,x,4	2.0736µVrms
0,1,x,5	2.0834µVrms
0,1,x,6	2.0777µVrms
0,1,x,7	2.0793µVrms
0,2,x,0	2.0485µVrms
0,2,x,1	2.1016µVrms
0,2,x,2	2.1748µVrms
0,2,x,3	2.0654µVrms
0,2,x,4	2.0515µVrms
0,2,x,5	2.0745µVrms
0,2,x,6	2.0793µVrms
0,2,x,7	2.0642µVrms

Range 0.316V, Bw 20kHz Noise IR <= 316mV Spec: <= 1.980 µV Uncertainty: 2.0nV	
Chan	Value
0,1,x,0	1.468 µV
0,1,x,1	1.471 µV
0,1,x,2	1.465 µV
0,1,x,3	1.476 µV
0,1,x,4	1.463 µV
0,1,x,5	1.465 µV
0,1,x,6	1.477 µV
0,1,x,7	1.462 µV
0,2,x,0	1.445 µV
0,2,x,1	1.458 µV
0,2,x,2	1.548 µV
0,2,x,3	1.459 µV
0,2,x,4	1.456 µV
0,2,x,5	1.456 µV
0,2,x,6	1.460 µV
0,2,x,7	1.459 µV

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4.5 Spurious Free Floor

Description of calibration:
Determination of the peak spurious components generated by the input channels, by internally shorting the input channels to ground. The reported values are peak values over the corresponding bandwidth.

Range 10V, Bw 80kHz Not in Scope Spec: < 40.0000µV	
Chan	Value
0,1,x,0	20.7326µV
0,1,x,1	19.2704µV
0,1,x,2	18.7359µV
0,1,x,3	17.6430µV
0,1,x,4	17.6573µV
0,1,x,5	19.6950µV
0,1,x,6	19.1608µV
0,1,x,7	19.3202µV
0,2,x,0	20.9712µV
0,2,x,1	22.9429µV
0,2,x,2	19.3401µV
0,2,x,3	20.8824µV
0,2,x,4	18.9231µV
0,2,x,5	21.6006µV
0,2,x,6	19.6203µV
0,2,x,7	20.4135µV

Range 10V, Bw 40kHz Not in Scope Spec: < 3.0000µV	
Chan	Value
0,1,x,0	1.7408µV
0,1,x,1	2.0375µV
0,1,x,2	1.4817µV
0,1,x,3	1.5497µV
0,1,x,4	1.7081µV
0,1,x,5	1.4942µV
0,1,x,6	2.0153µV
0,1,x,7	1.5670µV
0,2,x,0	1.6872µV
0,2,x,1	1.7575µV
0,2,x,2	1.9567µV
0,2,x,3	2.0374µV
0,2,x,4	1.7184µV
0,2,x,5	2.1925µV
0,2,x,6	2.0341µV
0,2,x,7	1.6646µV

Range 10V, Bw 20kHz Spurious 3.16V < IR <= 10V Spec: <= 2.300 µV Uncertainty: 3.4nV	
Chan	Value
0,1,x,0	1.481 µV
0,1,x,1	1.770 µV
0,1,x,2	1.254 µV
0,1,x,3	1.504 µV
0,1,x,4	1.651 µV
0,1,x,5	1.262 µV
0,1,x,6	1.592 µV
0,1,x,7	1.139 µV
0,2,x,0	1.228 µV
0,2,x,1	1.306 µV
0,2,x,2	1.469 µV
0,2,x,3	1.673 µV
0,2,x,4	1.449 µV
0,2,x,5	1.908 µV
0,2,x,6	1.293 µV
0,2,x,7	1.303 µV

ICP Not in Scope Spec: < 0.2600µVp	
Chan	Value
0,1,x,0	0.0825µVp
0,1,x,1	0.0781µVp
0,1,x,2	0.0942µVp
0,1,x,3	0.1008µVp
0,1,x,4	0.0760µVp
0,1,x,5	0.0912µVp
0,1,x,6	0.0949µVp
0,1,x,7	0.0978µVp
0,2,x,0	0.0796µVp
0,2,x,1	0.0904µVp
0,2,x,2	0.0846µVp
0,2,x,3	0.0966µVp
0,2,x,4	0.0854µVp
0,2,x,5	0.0920µVp
0,2,x,6	0.1215µVp
0,2,x,7	0.0808µVp

Range 0.316V, Bw 80kHz Not in Scope Spec: < 1.2000µV	
Chan	Value
0,1,x,0	0.6358µV
0,1,x,1	0.6669µV
0,1,x,2	0.6115µV
0,1,x,3	0.6824µV
0,1,x,4	0.6034µV
0,1,x,5	0.5812µV
0,1,x,6	0.6714µV
0,1,x,7	0.6993µV
0,2,x,0	0.6019µV
0,2,x,1	0.5878µV
0,2,x,2	0.6468µV
0,2,x,3	0.5944µV
0,2,x,4	0.5972µV
0,2,x,5	0.5699µV
0,2,x,6	0.6443µV
0,2,x,7	0.6894µV

Range 0.316V, Bw 40kHz Not in Scope Spec: < 0.1600µV	
Chan	Value
0,1,x,0	0.0806µV
0,1,x,1	0.1010µV
0,1,x,2	0.0863µV
0,1,x,3	0.0848µV
0,1,x,4	0.0845µV
0,1,x,5	0.0965µV
0,1,x,6	0.1054µV
0,1,x,7	0.0894µV
0,2,x,0	0.0979µV
0,2,x,1	0.0893µV
0,2,x,2	0.0952µV
0,2,x,3	0.0794µV
0,2,x,4	0.0912µV
0,2,x,5	0.0797µV
0,2,x,6	0.1116µV
0,2,x,7	0.0838µV

Range 0.316V, Bw 20kHz Spurious IR <= 316mV Spec: <= 0.130 µV Uncertainty: 2.0nV	
Chan	Value
0,1,x,0	0.069 µV
0,1,x,1	0.073 µV
0,1,x,2	0.057 µV
0,1,x,3	0.081 µV
0,1,x,4	0.066 µV
0,1,x,5	0.058 µV
0,1,x,6	0.089 µV
0,1,x,7	0.074 µV
0,2,x,0	0.059 µV
0,2,x,1	0.074 µV
0,2,x,2	0.079 µV
0,2,x,3	0.077 µV
0,2,x,4	0.065 µV
0,2,x,5	0.069 µV
0,2,x,6	0.061 µV
0,2,x,7	0.073 µV

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4.6 Inter-channel Crosstalk

Description of calibration:
Determination of the crosstalk between the input channels in a system. The channel under calibration is internally shorted to ground, while its neighbour channels are fed with a near full scale sine wave signal which is generated by the internal reference generator. This is done for two input range settings of the channel under calibration, and two signal frequencies. The reported results represent the measured crosstalk values in the channels under calibration (either in Volt or Coulomb, depending on the input channel type) and the ratio between the applied signal amplitude and the crosstalk values (in dB).

Range 0.316V, F 1K5 Crosstalk 100mV < IR <= 316mV Spec: <= -120.0dB Uncertainty: 68nV	
Chan	Value
0,1,x,0	0.216 µV, -127.3dB
0,1,x,1	0.150 µV, -130.4dB
0,1,x,2	0.131 µV, -131.6dB
0,1,x,3	0.094 µV, -134.5dB
0,1,x,4	0.093 µV, -134.6dB
0,1,x,5	0.074 µV, -136.6dB
0,1,x,6	0.126 µV, -132.0dB
0,1,x,7	0.143 µV, -130.9dB
0,2,x,0	0.110 µV, -133.2dB
0,2,x,1	0.118 µV, -132.5dB
0,2,x,2	0.115 µV, -132.7dB
0,2,x,3	0.092 µV, -134.7dB
0,2,x,4	0.104 µV, -133.6dB
0,2,x,5	0.070 µV, -137.0dB
0,2,x,6	0.102 µV, -133.8dB
0,2,x,7	0.121 µV, -132.3dB

Range 10V, F 1K5 Crosstalk 3.16V < IR <= 10V Spec: <= -108.0dB Uncertainty: 1.3µV	
Chan	Value
0,1,x,0	0.401 µV, -121.9dB
0,1,x,1	0.470 µV, -120.5dB
0,1,x,2	0.465 µV, -120.6dB
0,1,x,3	0.391 µV, -122.1dB
0,1,x,4	0.340 µV, -123.4dB
0,1,x,5	0.659 µV, -117.6dB
0,1,x,6	0.490 µV, -120.2dB
0,1,x,7	0.484 µV, -120.3dB
0,2,x,0	0.301 µV, -124.4dB
0,2,x,1	0.330 µV, -123.6dB
0,2,x,2	0.408 µV, -121.8dB
0,2,x,3	0.326 µV, -123.7dB
0,2,x,4	0.345 µV, -123.2dB
0,2,x,5	0.320 µV, -123.9dB
0,2,x,6	0.447 µV, -121.0dB
0,2,x,7	0.408 µV, -121.8dB

Range 0.316V, F 15K Crosstalk 100mV < IR <= 316mV Spec: <= -107.0dB Uncertainty: 68nV	
Chan	Value
0,1,x,0	0.840 µV, -115.5dB
0,1,x,1	1.340 µV, -111.4dB
0,1,x,2	1.370 µV, -111.2dB
0,1,x,3	1.379 µV, -111.2dB
0,1,x,4	1.379 µV, -111.2dB
0,1,x,5	1.333 µV, -111.5dB
0,1,x,6	1.182 µV, -112.5dB
0,1,x,7	1.090 µV, -113.2dB
0,2,x,0	0.802 µV, -115.9dB
0,2,x,1	1.330 µV, -111.5dB
0,2,x,2	1.372 µV, -111.2dB
0,2,x,3	1.360 µV, -111.3dB
0,2,x,4	1.365 µV, -111.3dB
0,2,x,5	1.307 µV, -111.7dB
0,2,x,6	1.195 µV, -112.4dB
0,2,x,7	1.065 µV, -113.4dB

Range 10V, F 15K Crosstalk 3.16V < IR <= 10V Spec: <= -105.0dB Uncertainty: 1.3µV	
Chan	Value
0,1,x,0	0.829 µV, -115.6dB
0,1,x,1	1.392 µV, -111.1dB
0,1,x,2	1.530 µV, -110.3dB
0,1,x,3	1.460 µV, -110.7dB
0,1,x,4	1.687 µV, -109.4dB
0,1,x,5	1.409 µV, -111.0dB
0,1,x,6	1.445 µV, -110.8dB
0,1,x,7	1.216 µV, -112.3dB
0,2,x,0	0.816 µV, -115.7dB
0,2,x,1	1.488 µV, -110.5dB
0,2,x,2	1.658 µV, -109.6dB
0,2,x,3	1.539 µV, -110.2dB
0,2,x,4	1.489 µV, -110.5dB
0,2,x,5	1.541 µV, -110.2dB
0,2,x,6	1.722 µV, -109.3dB
0,2,x,7	1.013 µV, -113.9dB

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4.7 Inter-channel Phase Match

Description of calibration:
Determination of the phase difference between the input channels in a system, by applying an accurate -3dBFS (max 4V) sine wave which is generated by the internal reference generator. For charge amplifiers, the reference voltage signal is translated to a reference charge signal. The reported values represent the highest phase differences found between any of the channels in the system. This is done for two input range settings and two signal frequencies.

Range 10V, F 9k9 Not in Scope Spec: < 0.3000°	
Chan	Value
0,1,x,0	0.0168°
0,1,x,1	0.0310°
0,1,x,2	0.0244°
0,1,x,3	0.0169°
0,1,x,4	0.0236°
0,1,x,5	0.0234°
0,1,x,6	0.0156°
0,1,x,7	0.0295°
0,2,x,0	0.0310°
0,2,x,1	0.0191°
0,2,x,2	0.0210°
0,2,x,3	0.0177°
0,2,x,4	0.0158°
0,2,x,5	0.0217°
0,2,x,6	0.0198°
0,2,x,7	0.0281°

Range 10V, F 19k9 Not in Scope Spec: < 0.4000°	
Chan	Value
0,1,x,0	0.0338°
0,1,x,1	0.0616°
0,1,x,2	0.0485°
0,1,x,3	0.0335°
0,1,x,4	0.0470°
0,1,x,5	0.0462°
0,1,x,6	0.0308°
0,1,x,7	0.0590°
0,2,x,0	0.0616°
0,2,x,1	0.0390°
0,2,x,2	0.0425°
0,2,x,3	0.0360°
0,2,x,4	0.0320°
0,2,x,5	0.0437°
0,2,x,6	0.0396°
0,2,x,7	0.0556°

Range 0.316V, F 9k9 Not in Scope Spec: < 0.4500°	
Chan	Value
0,1,x,0	0.0473°
0,1,x,1	0.0643°
0,1,x,2	0.0684°
0,1,x,3	0.0598°
0,1,x,4	0.0654°
0,1,x,5	0.0532°
0,1,x,6	0.0477°
0,1,x,7	0.0438°
0,2,x,0	0.0543°
0,2,x,1	0.0675°
0,2,x,2	0.0505°
0,2,x,3	0.0626°
0,2,x,4	0.0835°
0,2,x,5	0.0711°
0,2,x,6	0.0835°
0,2,x,7	0.0587°

Range 0.316V, F 19k9 Not in Scope Spec: < 0.9000°	
Chan	Value
0,1,x,0	0.0922°
0,1,x,1	0.1264°
0,1,x,2	0.1346°
0,1,x,3	0.1172°
0,1,x,4	0.1285°
0,1,x,5	0.1101°
0,1,x,6	0.0986°
0,1,x,7	0.0846°
0,2,x,0	0.1088°
0,2,x,1	0.1354°
0,2,x,2	0.1018°
0,2,x,3	0.1266°
0,2,x,4	0.1677°
0,2,x,5	0.1432°
0,2,x,6	0.1677°
0,2,x,7	0.1179°

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5 SYSCON_REC_h11s0

5.1 Gain Accuracy after Adjustment

Description of calibration:
Determination of the amplitude accuracy of the input channels over all input ranges and available ADC bandwidths, by applying an accurate 1kHz -3dBFS (max 4V) sine wave which is generated by the internal reference generator. For charge amplifiers, the reference voltage signal is translated to a reference charge signal.
The reported values represent the deviations from the expected signal amplitude, both absolute (either in Volt or Coulomb, depending on the input channel type) and relative (in %).

BW 25k6 **Alternating voltage 3.16V < IR <= 10V** **Spec: <= ±0.100%** **Uncertainty: 530µV**	
Chan	Value
0,x,x,0	0.239 mV, 0.006%
0,x,x,1	0.395 mV, 0.010%

BW 51k2 **Alternating voltage 3.16V < IR <= 10V** **Spec: <= ±0.100%** **Uncertainty: 530µV**	
Chan	Value
0,x,x,0	0.354 mV, 0.009%
0,x,x,1	0.527 mV, 0.013%

BW 102k4 **Not in Scope** **Spec: 1.00000 ±0.10%**	
Chan	Value
0,x,x,0	1.00008, 0.01%
0,x,x,1	1.00013, 0.01%

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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

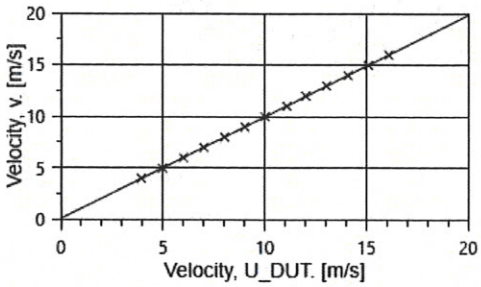
Certificate number: 20.US1.00288 **Date of issue:** February 04, 2020
Type: Vaisala Weather Transmitter, WXT536 **Serial number:** R2510790
Manufacturer: Vaisala, Oyj, Pl 26, FIN-00421 Helsinki, Finland
Client: Aercoustics Engineering Ltd., 1004 Middlegate RD, Suite 1100, S.Tower, Mississauga, ON L4Y 1M4, Canada

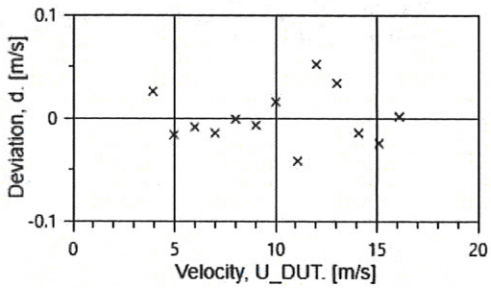
Anemometer received: January 30, 2020 **Anemometer calibrated:** February 04, 2020
Calibrated by: MEJ **Procedure:** MEASNET, IEC 61400-12-1:2017 Annex F
Certificate prepared by: EJF **Approved by:** Calibration engineer, EJF

Calibration equation obtained: v [m/s] = 0.98766 · U [m/s] + 0.07507

Standard uncertainty, slope: 0.00199 **Standard uncertainty, offset:** 0.28086
Covariance: -0.0000388 (m/s)²/m/s **Coefficient of correlation:** ρ = 0.999978
Absolute maximum deviation: 0.052 m/s at 11.995 m/s
Barometric pressure: 996.3 hPa **Relative humidity:** 21.4%

Succession	Velocity pressure, q. [Pa]	Temperature in wind tunnel [°C]	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	9.45	18.6	24.7	3.989	3.9367	0.026	0.023
13-last	14.68	18.9	24.8	4.974	4.9767	-0.016	0.026
2	21.30	18.6	24.7	5.989	5.9967	-0.009	0.030
12	28.88	18.9	24.7	6.977	7.0033	-0.015	0.034
3	37.96	18.6	24.7	7.995	8.0200	-0.001	0.038
11	47.86	19.0	24.7	8.983	9.0267	-0.007	0.042
4	59.19	18.6	24.7	9.984	10.0167	0.016	0.047
10	71.62	19.0	24.7	10.990	11.0933	-0.042	0.051
5	85.42	18.7	24.7	11.995	12.0167	0.052	0.055
9	99.87	19.0	24.7	12.978	13.0300	0.034	0.059
6	116.04	18.7	24.7	13.983	14.0967	-0.014	0.064
8	132.84	18.9	24.7	14.968	15.1033	-0.024	0.068
7	151.36	18.8	24.7	15.974	16.0967	0.001	0.072





AC-1746

EQUIPMENT USED

Serial Number	Description
Njord1	Wind tunnel, blockage factor = 1.0035
2254	Control cup anemometer
-	Mounting tube, D = 19 mm
TT004	Summit Electronics, 1XPT100, 0-10V Output, wind tunnel temp.
TP001	PR Electronics 5102, 0-10V Output, differential pressure box temp.
DP005	Setra Model 239, 0-1inWC, differential pressure transducer
HY004	Dwyer RHP-2D20, 0-10V Output, humidity transmitter
BP001	Setra Model 278, barometer
PL8	Pitot tube
XB002	Computer Board. 16 bit A/D data acquisition board
Njord1-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.US1.00288

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

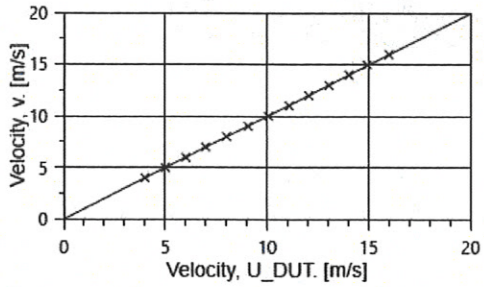
Certificate number: 20.US1.00287 **Date of issue:** February 04, 2020
Type: Vaisala Weather Transmitter, WXT536 **Serial number:** R2510790
Manufacturer: Vaisala, Oyj, Pl 26, FIN-00421 Helsinki, Finland
Client: Aercoustics Engineering Ltd., 1004 Middlegate RD, Suite 1100, S.Tower, Mississauga, ON L4Y 1M4, Canada

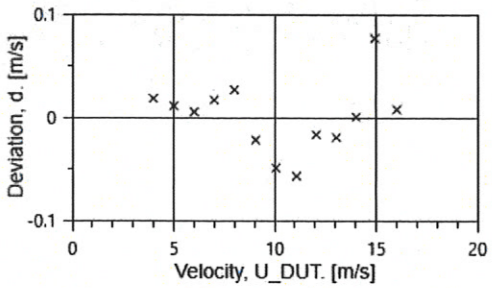
Anemometer received: January 30, 2020 **Anemometer calibrated:** February 04, 2020
Calibrated by: MEJ **Procedure:** MEASNET, IEC 61400-12-1:2017 Annex F
Certificate prepared by: EJF **Approved by:** Calibration engineer, EJF

Calibration equation obtained: v [m/s] = 0.99806 · U [m/s] + -0.02018

Standard uncertainty, slope: 0.00267 **Standard uncertainty, offset:** -1.41229
Covariance: -0.0000711 (m/s)²/m/s **Coefficient of correlation:** ρ = 0.999961
Absolute maximum deviation: 0.077 m/s at 14.964 m/s
Barometric pressure: 996.2 hPa **Relative humidity:** 21.6%

Succession	Velocity pressure, q. [Pa]	Temperature in wind tunnel [°C]	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	9.45	18.4	24.6	3.987	3.9967	0.018	0.023
13-last	14.73	18.7	24.7	4.981	5.0000	0.011	0.026
2	21.23	18.3	24.6	5.977	6.0033	0.005	0.030
12	28.92	18.7	24.7	6.980	6.9967	0.017	0.034
3	37.98	18.3	24.6	7.995	8.0033	0.027	0.038
11	48.08	18.7	24.7	9.000	9.0600	-0.022	0.042
4	59.20	18.4	24.6	9.981	10.0700	-0.049	0.047
10	71.57	18.8	24.7	10.981	11.0800	-0.057	0.051
5	85.40	18.4	24.6	11.990	12.0500	-0.017	0.055
9	100.00	18.7	24.7	12.982	13.0467	-0.019	0.059
6	116.12	18.5	24.6	13.983	14.0300	0.001	0.064
8	132.89	18.7	24.6	14.964	14.9367	0.077	0.068
7	151.26	18.6	24.7	15.963	16.0067	0.008	0.072





AC-1746

EQUIPMENT USED

Serial Number	Description
Njord1	Wind tunnel, blockage factor = 1.0035
2254	Control cup anemometer
-	Mounting tube, D = 19 mm
TT004	Summit Electronics, 1XPT100, 0-10V Output, wind tunnel temp.
TP001	PR Electronics 5102, 0-10V Output, differential pressure box temp.
DP005	Setra Model 239, 0-1inWC, differential pressure transducer
HY004	Dwyer RHP-2D20, 0-10V Output, humidity transmitter
BP001	Setra Model 278, barometer
PL8	Pitot tube
XB002	Computer Board. 16 bit A/D data acquisition board
Njord1-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 0° position during calibration.

Certificate number: 20.US1.00287

TRANSCAT CANADA
Trust in every measure

CERTIFICATE OF CALIBRATION

SCC Lab No 22

CLAS 2000-03

Customer: AERCOUSTICS ENGINEERING LTD
1004 MIDDLEGATE ROAD
SUITE 1100
MISSISSAUGA, ON L4Y 0G1
PO Number: TR2019.03.22_875FT-00

Certificate/SO Number: 9-Q1F7P-20-1 Revision 0

Manufacturer: Nokeval
Model Number: 7470
Description: Serial to Analog Converter
Serial Number: A198729
ID: NONE

As-Found: In Tolerance
As-Left: In Tolerance

Calibration Date: Mar 29, 2019
Due Date: Mar 29, 2021

Calibrated To: Manufacturer Specification
Calibration Procedure: 1-AC58014-0

Transcat Calibration Laboratories have been audited and found in compliance with ISO/IEC 17025:2005. 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 Revision 2.0, the customer's Purchase Order and/or Quality Agreement requirements, ISO 9001:2008, 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 of 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 B89.7.3.1-2001 (R2011) 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 be 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).

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PO Number: TR2019.03.22_875FT-00

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CLAS NRC·CNRC — CLAS 2000-03
ilac-MRA

Certificate/SO Number: 9-Q1F7P-20-1 Revision 0

As Found/As Left Data

Description	Setpoints	Accuracy	Low Limit	High Limit	As Found / As Left	OOT	Cal Process Uncertainty (k=2; ±)	Measurement Uncertainty (k=2; ±)	Units	TUR
DC Current % Source - 4-20mA Ch #1										
4 - 20mA	0%	±(0.1% Span)	3.984	4.016	4.003 mA		1.6e-004	1.9e-003	mA	100.0 : 1
	25%	±(0.1% Span)	7.984	8.016	8.001 mA		2.6e-004	1.9e-003	mA	61.5 : 1
	50%	±(0.1% Span)	11.984	12.016	12.002 mA		1.1e-003	2.2e-003	mA	14.5 : 1
	75%	±(0.1% Span)	15.984	16.016	16.000 mA		1.3e-003	2.3e-003	mA	12.3 : 1
	100%	±(0.1% Span)	19.984	20.016	19.998 mA		1.4e-003	2.3e-003	mA	11.4 : 1
DC Current % Source - 4-20mA Ch #2										
4 - 20mA	0%	±(0.1% Span)	3.984	4.016	3.999 mA		1.6e-004	1.9e-003	mA	100.0 : 1
	25%	±(0.1% Span)	7.984	8.016	7.998 mA		2.6e-004	1.9e-003	mA	61.5 : 1
	50%	±(0.1% Span)	11.984	12.016	11.999 mA		1.1e-003	2.2e-003	mA	14.5 : 1
	75%	±(0.1% Span)	15.984	16.016	15.998 mA		1.3e-003	2.3e-003	mA	12.3 : 1
	100%	±(0.1% Span)	19.984	20.016	19.997 mA		1.4e-003	2.3e-003	mA	11.4 : 1
DC Current % Source - 4-20mA Ch #3										
4 - 20mA	0%	±(0.1% Span)	3.984	4.016	3.999 mA		1.6e-004	1.9e-003	mA	100.0 : 1
	25%	±(0.1% Span)	7.984	8.016	7.998 mA		2.6e-004	1.9e-003	mA	61.5 : 1
	50%	±(0.1% Span)	11.984	12.016	12.003 mA		1.1e-003	2.2e-003	mA	14.5 : 1
	75%	±(0.1% Span)	15.984	16.016	16.001 mA		1.3e-003	2.3e-003	mA	12.3 : 1
	100%	±(0.1% Span)	19.984	20.016	19.999 mA		1.4e-003	2.3e-003	mA	11.4 : 1
DC Current % Source - 4-20mA Ch #4										
4 - 20mA	0%	±(0.1% Span)	3.984	4.016	4.001 mA		1.6e-004	1.9e-003	mA	100.0 : 1
	25%	±(0.1% Span)	7.984	8.016	7.998 mA		2.6e-004	1.9e-003	mA	61.5 : 1
	50%	±(0.1% Span)	11.984	12.016	12.002 mA		1.1e-003	2.2e-003	mA	14.5 : 1
	75%	±(0.1% Span)	15.984	16.016	15.999 mA		1.3e-003	2.3e-003	mA	12.3 : 1
	100%	±(0.1% Span)	19.984	20.016	19.996 mA		1.4e-003	2.3e-003	mA	11.4 : 1

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Certificate/SO Number: 9-Q1F7P-20-1 Revision 0

As Found/As Left Data

Description	Setpoints	Accuracy	Low Limit	High Limit	As Found / As Left	OOT	Cal Process Uncertainty (k=2; ±)	Measurement Uncertainty (k=2; ±)	Units	TUR
DC Current % Source - 0-20mA Ch #1										
0 - 20mA	0%	±(0.1% Span)	-0.020	0.020	0.004 mA		9.2e-007	2.3e-003	mA	100.0 : 1
	25%	±(0.1% Span)	4.980	5.020	4.999 mA		1.9e-004	2.3e-003	mA	100.0 : 1
	50%	±(0.1% Span)	9.980	10.020	9.999 mA		3.1e-004	2.3e-003	mA	64.5 : 1
	75%	±(0.1% Span)	14.980	15.020	15.000 mA		1.2e-003	2.6e-003	mA	16.7 : 1
	100%	±(0.1% Span)	19.980	20.020	19.998 mA		1.4e-003	2.7e-003	mA	14.3 : 1
DC Current % Source - 0-20mA Ch #2										
0 - 20mA	0%	±(0.1% Span)	-0.020	0.020	0.001 mA		9.2e-007	2.3e-003	mA	100.0 : 1
	25%	±(0.1% Span)	4.980	5.020	5.001 mA		1.9e-004	2.3e-003	mA	100.0 : 1
	50%	±(0.1% Span)	9.980	10.020	10.002 mA		3.1e-004	2.3e-003	mA	64.5 : 1
	75%	±(0.1% Span)	14.980	15.020	15.003 mA		1.2e-003	2.6e-003	mA	16.7 : 1
	100%	±(0.1% Span)	19.980	20.020	19.997 mA		1.4e-003	2.7e-003	mA	14.3 : 1
DC Current % Source - 0-20mA Ch #3										
0 - 20mA	0%	±(0.1% Span)	-0.020	0.020	0.002 mA		9.2e-007	2.3e-003	mA	100.0 : 1
	25%	±(0.1% Span)	4.980	5.020	5.001 mA		1.9e-004	2.3e-003	mA	100.0 : 1
	50%	±(0.1% Span)	9.980	10.020	10.001 mA		3.1e-004	2.3e-003	mA	64.5 : 1
	75%	±(0.1% Span)	14.980	15.020	15.000 mA		1.2e-003	2.6e-003	mA	16.7 : 1
	100%	±(0.1% Span)	19.980	20.020	19.999 mA		1.4e-003	2.7e-003	mA	14.3 : 1
DC Current % Source - 0-20mA Ch #4										
0 - 20mA	0%	±(0.1% Span)	-0.020	0.020	0.000 mA		9.2e-007	2.3e-003	mA	100.0 : 1
	25%	±(0.1% Span)	4.980	5.020	5.002 mA		1.9e-004	2.3e-003	mA	100.0 : 1
	50%	±(0.1% Span)	9.980	10.020	10.000 mA		3.1e-004	2.3e-003	mA	64.5 : 1
	75%	±(0.1% Span)	14.980	15.020	14.999 mA		1.2e-003	2.6e-003	mA	16.7 : 1
	100%	±(0.1% Span)	19.980	20.020	19.996 mA		1.4e-003	2.7e-003	mA	14.3 : 1

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Certificate/SO Number: 9-Q1F7P-20-1 Revision 0

As Found/As Left Data

Description	Setpoints	Accuracy	Low Limit	High Limit	As Found / As Left	OOT	Cal Process Uncertainty (k=2; ±)	Measurement Uncertainty (k=2; ±)	Units	TUR
DC Voltage % Source - 0-5V Ch#1										
0 -5V	0%	±(0.1% Span)	-0.0050	0.0050	0.0018 V		5.8e-007	5.8e-004	V	100.0 : 1
	20%	±(0.1% Span)	0.9950	1.0050	1.0009 V		5.6e-006	5.8e-004	V	100.0 : 1
	40%	±(0.1% Span)	1.9950	2.0050	2.0000 V		1.1e-005	5.8e-004	V	100.0 : 1
	60%	±(0.1% Span)	2.9950	3.0050	3.0010 V		1.6e-005	5.8e-004	V	100.0 : 1
	80%	±(0.1% Span)	3.9950	4.0050	4.0005 V		2.1e-005	5.8e-004	V	100.0 : 1
	100%	±(0.1% Span)	4.9950	5.0050	4.9997 V		2.6e-005	5.8e-004	V	100.0 : 1
DC Voltage % Source - 0-5V Ch#2										
0 -5V	0%	±(0.1% Span)	-0.0050	0.0050	0.0006 V		5.8e-007	5.8e-004	V	100.0 : 1
	20%	±(0.1% Span)	0.9950	1.0050	1.0002 V		5.6e-006	5.8e-004	V	100.0 : 1
	40%	±(0.1% Span)	1.9950	2.0050	2.0004 V		1.1e-005	5.8e-004	V	100.0 : 1
	60%	±(0.1% Span)	2.9950	3.0050	3.0006 V		1.6e-005	5.8e-004	V	100.0 : 1
	80%	±(0.1% Span)	3.9950	4.0050	4.0007 V		2.1e-005	5.8e-004	V	100.0 : 1
	100%	±(0.1% Span)	4.9950	5.0050	5.0014 V		2.6e-005	5.8e-004	V	100.0 : 1
DC Voltage % Source - 0-5V Ch#3										
0 -5V	0%	±(0.1% Span)	-0.0050	0.0050	0.0008 V		5.8e-007	5.8e-004	V	100.0 : 1
	20%	±(0.1% Span)	0.9950	1.0050	1.0002 V		5.6e-006	5.8e-004	V	100.0 : 1
	40%	±(0.1% Span)	1.9950	2.0050	1.9997 V		1.1e-005	5.8e-004	V	100.0 : 1
	60%	±(0.1% Span)	2.9950	3.0050	2.9988 V		1.6e-005	5.8e-004	V	100.0 : 1
	80%	±(0.1% Span)	3.9950	4.0050	4.0012 V		2.1e-005	5.8e-004	V	100.0 : 1
	100%	±(0.1% Span)	4.9950	5.0050	5.0015 V		2.6e-005	5.8e-004	V	100.0 : 1
DC Voltage % Source - 0-5V Ch#4										
0 -5V	0%	±(0.1% Span)	-0.0050	0.0050	0.0007 V		5.8e-007	5.8e-004	V	100.0 : 1
	20%	±(0.1% Span)	0.9950	1.0050	1.0018 V		5.6e-006	5.8e-004	V	100.0 : 1
	40%	±(0.1% Span)	1.9950	2.0050	2.0008 V		1.1e-005	5.8e-004	V	100.0 : 1
	60%	±(0.1% Span)	2.9950	3.0050	2.9993 V		1.6e-005	5.8e-004	V	100.0 : 1
	80%	±(0.1% Span)	3.9950	4.0050	3.9988 V		2.1e-005	5.8e-004	V	100.0 : 1
	100%	±(0.1% Span)	4.9950	5.0050	5.0009 V		2.6e-005	5.8e-004	V	100.0 : 1

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As Found/As Left Data

Description	Setpoints	Accuracy	Low Limit	High Limit	As Found / As Left	OOT	Cal Process Uncertainty (k=2; ±)	Measurement Uncertainty (k=2; ±)	Units	TUR
DC Voltage % Source - 0-10V Ch#1										
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	4.000 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#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	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#3										
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	2.000 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	6.001 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	9.999 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	3.999 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	8.001 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

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Traceable Standards

Asset	Manufacturer	Model Number	Description	Cal Date	Due Date	Traceability Number	Use
ED-0050	HP	3458A Opt 002	Digital Multimeter, 8.5 Digit	6-Jul-18	31-Jul-19	9-&ED-0050-12-1	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
74.75°F /23.75°C	18.40%	LEM-0003

Calibrated At:
916 Gateway
Burlington, ON L7L 5K7

Facility Responsible:
916 Gateway
Burlington, ON L7L 5K7
800-828-1470

Calibrated By:
Electronically Signed By:
Lawrence Loi

Lawrence Loi	Mar 29, 2019
Calibration Technician	15:33:38 -04:00

Reviewed By:
Electronically Signed By:
Tony Ghanbari

Tony Ghanbari	Mar 29, 2019
Lab Manager	15:39:53 -04:00

Unit Barcode: 900B0177370

Date Received: March 26, 2019
Service Level : R9

Customer Number: 9-322110-00C

aercoustics

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Appendix F.02
Summary of Measurement Results

Summary of Measurement Results

This section provides a summary of the calculated apparent sound power level and tonal audibility results for the test turbine compared to the allowable limits and thresholds prescribed in the facility Renewable Energy Approval ("REA") as well as the MECP guidance document Compliance Protocol for Wind Turbine Noise. A compliance statement is also provided with respect to whether the tested turbine has met the applicable regulatory limits.

Note that the IEC 61400-11 standard is equivalent to the CAN/CSA Standard C61400-11 that is reference in the facility REA.

1.1 Octave Band Sound Power Levels

The wind bin spectra in octave bands of turbine T01 are presented in the tables below.

Turbine T1 (Mode 0) octave band spectra, converted from the spectra in Table C.01 of 20019.00.T01.RP1

Wind Bin (m/s)	Octave Band Sound Power Level (dBA) 63	125	250	500	1000	2000	4000	8000	Lwa
7.5	83.8	89.2	94.2	97.2	97.6	96.1	92.4	84.7	103.2
8	84.3	90.5	94.7	97.2	96.8	96.0	90.7	81.9	102.9
8.5	85.9	92.5	95.8	98.1	97.8	96.5	87.5	76.3	103.7
9	85.4	92.3	96.1	98.3	98.3	96.9	87.9	76.7	104.0
9.5	85.1	92.7	96.4	98.9	98.4	97.2	89.4	79.1	104.4
10	86.7	92.4	96.1	99.5	98.7	97.2	89.5	78.6	104.6
10.5	84.4	92.3	95.4	99.9	98.6	97.3	90.2	80.7	104.7
11	85.0	91.7	95.7	100.1	98.6	97.4	90.9	82.2	104.8
11.5	85.4	91.8	95.3	99.5	98.9	97.6	90.6	81.2	104.6
12	85.5	91.6	94.9	99.4	98.9	97.8	90.5	80.9	104.6

1.2 Overall Sound Power Levels

The overall tested sound power levels for each wind speed bin are provided below.

From Table 11 of IEC test report 20019.00.T01.RP1:

Wind Speed (m/s)	Apparent L_{WA}, (dBA)	Maximum Sound Power Level (dBA) †
7.5	103.2	106.5
8	102.9	106.5
8.5	103.7	106.5
9	104.0	106.5
9.5	104.4	106.5
10	104.6	106.5
10.5	104.7	106.5
11	104.8	106.5
11.5	104.6	106.5
12	104.6	106.5

† From Schedule B of the Romney REA, including +0.5 dB allowance, per Section E3.1 of the MECP Compliance Protocol for Wind Turbine Noise

1.3 Tonal Audibility Values

The tonal audibility values for each wind speed of turbine T01 are provided below.

From Table 14 of IEC test report 20019.00.T01.RP1:

Wind Speed (m/s)	Frequency (Hz)	Tonal Audibility, ΔL_a (dB)	Tonal Audibility Limit* (dB)
8.5	551	-0.4	3
9	558	-1.6	3
9.5	562	-0.5	3
10	564	1.1	3
10.5	105	-1.2	3
10.5	544	5.7	3
11	550	4.9	3
11.5	548	5.8	3
12	110	-2.7	3
12	548	3.7	3

* Per Appendix E of the Acoustic Assessment Report referenced in the Romney REA

1.4 Statement of Compliance

Based on the results in Table 11 of the IEC 61400-11 test report to which this statement is attached, the maximum apparent sound power level of the test turbine is below the maximum allowable sound power level and the sound power level used in the facility's Renewable Energy Approval Application.

Further, based on the results in Table 14 of the IEC 61400-11 to which this statement is attached, the maximum tonal audibility of the test turbine is above the tonal audibility level stated by the manufacturer in Appendix E of the facility Acoustic Assessment report .

As such, a formal assessment of tonal audibility has been conducted in the Immission Audit ("I-audit"). The results of the tonal investigation indicate that the tonal audibility at the receptor is below the threshold for penalties. Phase 1 of the I-Audit is complete and indicates full compliance with the applicable sound level limits. Phase 2 is currently underway.

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Appendix F.03
E-Audit Checklist

Appendix F.02 - (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

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End of Report