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Report ID: 17283.03.T4.RP3

North Kent Wind 1 LP / Turbine T04
IEC 61400-11 Edition 3.0 Measurement Report

Prepared for:

North Kent Wind 1 LP
2050 Derry Road West, 2nd Floor
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L5N 0B9

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January 28, 2021

Revision History

Version	Description	Author	Reviewed	Date
RP1	Initial Report	CB	PA	December 4, 2020
RP2	Dataset revised to address background measurement points with high sound levels. Associated tables and figures updated accordingly.	CB	PA	January 12, 2021
RP3	Revised Table E.01 Revised Table E.02 Added Table C.05	CB	PA	January 28, 2021

This report in its entirety, including appendices contains 129 pages.

Statement of 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 North Kent Wind 1 LP to conduct acoustic measurements of the wind turbine T04, located in the North Kent Wind 1 LP. 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 T04 operating in its 2.628 MW reduced noise emission (-3 dB) mode.

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 T04 was provided by the client and is summarized in Table 1 to Table 5.

Table 1 - Wind Turbine Details

Wind Turbine Details	
Manufacturer	Siemens
Model Number	SWT-3.2-113 IEC IIA
Turbine ID (Serial Number)	T04 (3200857)

Table 2 - Operating Details

Operating Details	
Vertical or Horizontal axis wind turbine	Horizontal
Upwind or downwind rotor	Upwind
Hub height	99.5 m
Horizontal distance from rotor centre to tower axis	5.5 m
Diameter of rotor	113 m
Tower type (lattice or tube)	Tubular steel tower
Passive stall, active stall, or pitch controlled turbine	Pitch controlled turbine
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	2.628 MW
Control software version	139.0.021

Table 3 - Rotor Details

Rotor Details	
Rotor control devices	Siemens Integrated Control System (SICS)
Presence of aerodynamic add-ons, such as vortex generators, stall strips, serrated trailing edges, etc.	Vortex generators, DinoTails
Blade type	B55
Serial number	Blade A 550360901 Blade B 550271601 Blade C 550272801 Blade Set 7800
Number of blades	3

Table 4 - Gearbox Details

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

Table 5 - Generator Details

Generator Details	
Manufacturer	Siemens AG
Model number	Electrical generator UL DD22 SICS v.5
Serial number	5100246712

2.2 Wind Turbine Location / Physical Environment

UTM coordinates of Turbine T04 are 395100.64 m E and 4709125.95 m N, Zone 17 T. The area surrounding the test turbine was flat and consists primarily of farmland.

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

3 Measurement Details

3.1 Instrumentation

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

3.1.1 Acoustic Equipment

Acoustic equipment used for the testing is summarized in Table 6. The acoustic equipment used in the test conforms to the traceable calibration requirements prescribed in

Section 6.3 of [1]. A field calibration of the measurement chain was performed at the beginning and end of each measurement day.

Table 6 – Acoustic Measurement Equipment

Equipment	Make & Model	Serial Number	Last Calibration Date
Data acquisition system	LMS SCADA Mobile	22163146	2020.03.19
Microphone	B&K 4189	2625417	2019.08.19
Pre-amplifier	B&K 2671	2614900	2019.08.19
Signal Conditioner	PCB 480E09	34208	2020.03.16
Acoustic calibrator	B&K 4231	2053016	2020.08.14

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 WXT520	K2420011	2020.07.10
Serial to Analog Converter	Nokeval 7470	A165152	2020.08.04

3.1.3 Turbine Operational Information

Turbine operational parameters were acquired from the turbine controller simultaneously with the acoustic and meteorological data using Aercoustics' data acquisition system. 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 = 156 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. The slant distance from microphone location to rotor centre was R_1 = 189.7 m (includes the distance from rotor center to tower centreline).

[1] Above ground level

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 flat, grassy fields. 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].

The insertion loss of the double windscreen in comparison to a single windscreen setup is provided in Appendix C.

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
November 17, 2020	Turbine ON	10:27 AM	10:34 AM
	Turbine ON	10:43 AM	10:47 AM
	Turbine ON	10:48 AM	10:55 AM
	Background	10:57 AM	11:30 AM
	Turbine ON	11:37 AM	12:00 AM
	Background	12:02 PM	12:30 PM
	Turbine ON	12:37 PM	1:30 PM
	Turbine ON	1:34 PM	1:58 PM
	Background	1:59 PM	2:02 PM
	Background	2:13 PM	3:03 PM
	Turbine ON	3:09 PM	3:24 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
0.95	1.21

3.4 Deviations from IEC-61400-11 Edition 3.0

No deviations.

3.5 Special Notes & Considerations

Turbine T03 was parked during the measurement period. This turbine, and its position relative to the test turbine, is shown in Figure A.01.

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	50.7	14	37.1	18	50.5
8	51.7	26	39.9	17	51.4
8.5	51.7	46	41.9	18	51.3
9	51.6	61	42.8	28	51.1
9.5	51.5	75	41.3	30	51.1
10	51.4	59	41.3	39	51.0
10.5	51.4	43	43.6	50	50.7
11	51.5	45	42.7	46	50.9
11.5	51.6	53	42.6	51	51.1
12	51.5	51	42.7	47	50.9
12.5	51.6	46	43.4	29	50.9

* denotes a 3 to 6 dB difference between Turbine ON and Background
** denotes a less than 3 dB difference between Turbine ON and Background; 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	101.1	0.8
8	102.0	0.8
8.5	101.8	0.9
9	101.6	0.9
9.5	101.7	0.8
10	101.6	0.8
10.5	101.3	0.9
11	101.5	0.9

Wind Speed (m/s)	Apparent L_{WA}, (dBA)	Uncertainty (dB)
11.5	101.6	0.9
12	101.5	0.9
12.5	101.5	0.9

* denotes a 3 to 6 dB difference between Turbine ON and Background
** denotes a less than 3 dB difference between Turbine ON and Background; 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	-	-
6	101.7	0.8
7	101.5	0.8
8	101.5	0.9
9	101.7	0.8

\- denotes insufficient data to report
* 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	65	-2.7	-0.7	14	14	100%
8	67	-3.0	-1.0	26	26	100%
8.5	66	-2.5	-0.5	45	46	98%
9	66	-2.7	-0.7	59	61	97%
9	132	-4.8	-2.8	59	61	97%
9.5	66	-2.0	0.0	74	75	99%
9.5	131	-4.3	-2.3	71	75	95%
10	65	-2.7	-0.7	56	59	95%
10.5	66	-3.2	-1.2	39	43	91%
10.5	131	-4.2	-2.2	43	43	100%
11	66	-3.0	-1.0	44	45	98%
11	131	-4.1	-2.1	44	45	98%
11.5	67	-2.4	-0.4	50	53	94%
11.5	132	-2.8	-0.8	51	53	96%
12	66	-2.2	-0.1	44	51	86%
12	132	-3.0	-0.9	49	51	96%
12.5	66	-3.2	-1.2	40	46	87%
12.5	132	-4.0	-2.0	43	46	93%

5 Closure

Measurements and analyses per IEC 61400-11 (edition 3.0) were performed on turbine T04 of the North Kent Wind 1 LP, located in Chatham, Ontario, operating in its 2.628 MW reduced noise emission (-3 dB) mode. The test turbine was found to have a maximum apparent sound power level of 102.0 dBA and a maximum tonal audibility of 0.0 dB.

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

Appendix A
Site Details

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Scale: As Shown Drawn by: CB Reviewed by: AM Date: Jan 2021 Revision: 3	North Kent Wind Farm - IEC 61400- 11 Edition 3.0 - Turbine T4
	Figure Title Site Plan

Figure A.01

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17283.03.T4.RP3	
Scale: As Shown Drawn by: CB Reviewed by: AM Date: Jan 2021 Revision: 3	

Project Name

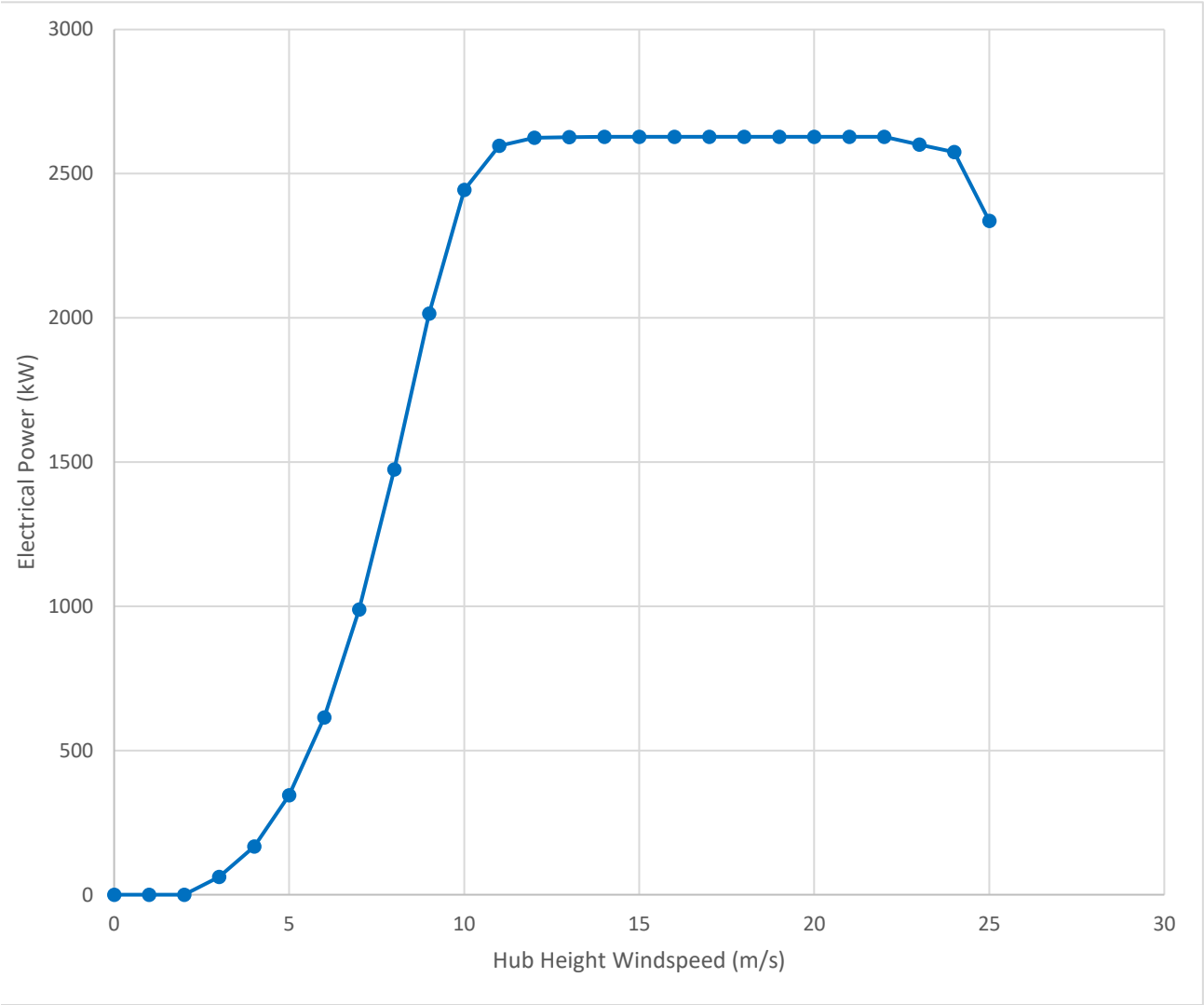
North Kent Wind Farm - IEC 61400- 11 Edition 3.0 - Turbine T4

Figure Title

Site Photos

Figure A.02

Appendix B
Turbine Information



Power Curve	
Hub Wind Speed (m/s)	Power [kW]
0	0
1	0
2	0
3	62
4	167
5	345
6	614
7	989
8	1474
9	2015
10	2444
11	2597
12	2625
13	2627
14	2628
15	2628
16	2628
17	2628
18	2628
19	2628
20	2628
21	2628
22	2628
23	2601
24	2575
25	2336

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Date: Jan 2021
Revision: 3

Project Name

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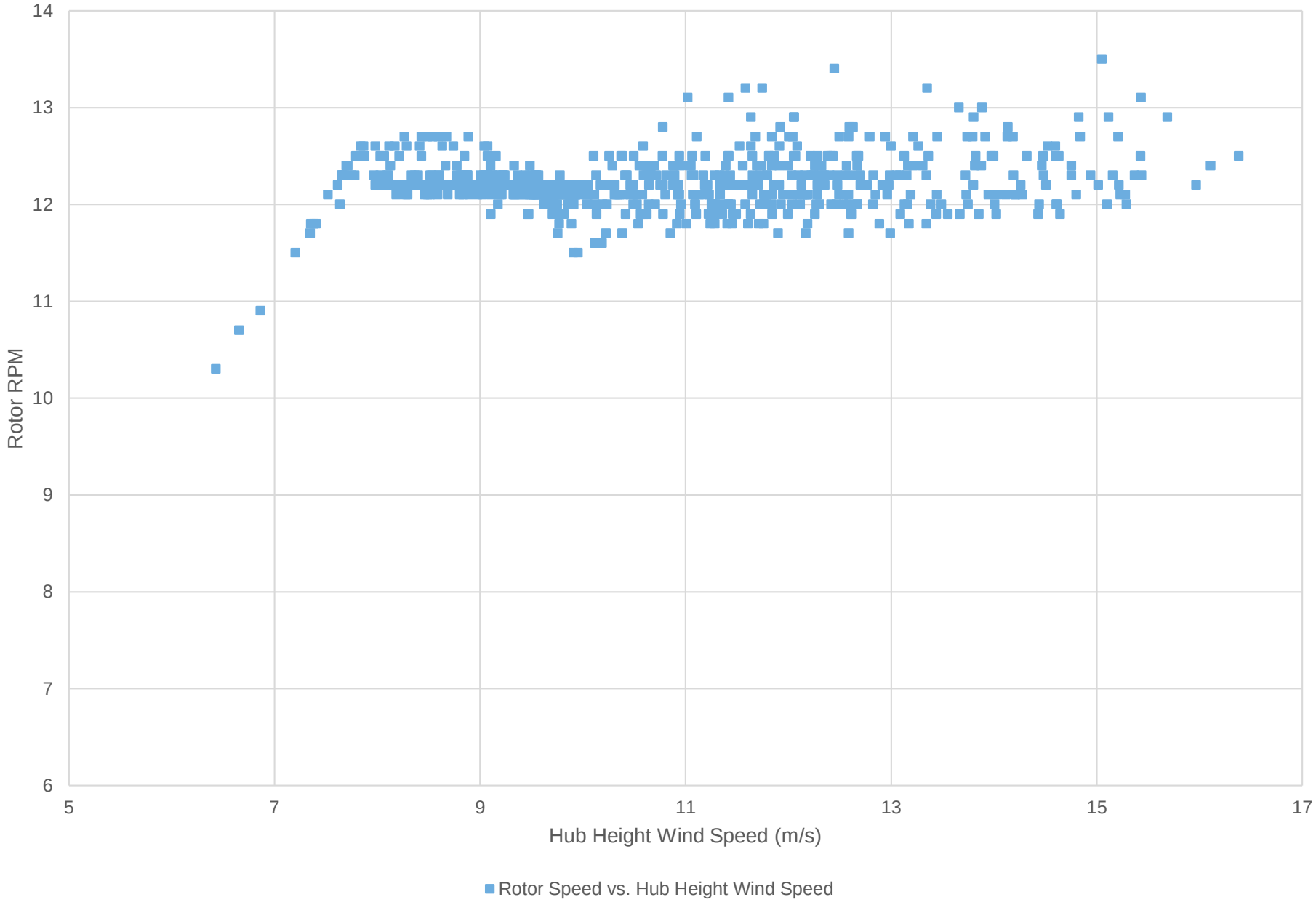
Figure Title

Power Curve

Figure B.01



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Scale: NTS Drawn by: CB Reviewed by: AM Date: Jan 2021 Revision: 3	North Kent Wind Farm - IEC 61400- 11 Edition 3.0 - Turbine T4
	Figure Title Rotor RPM vs. Wind Speed

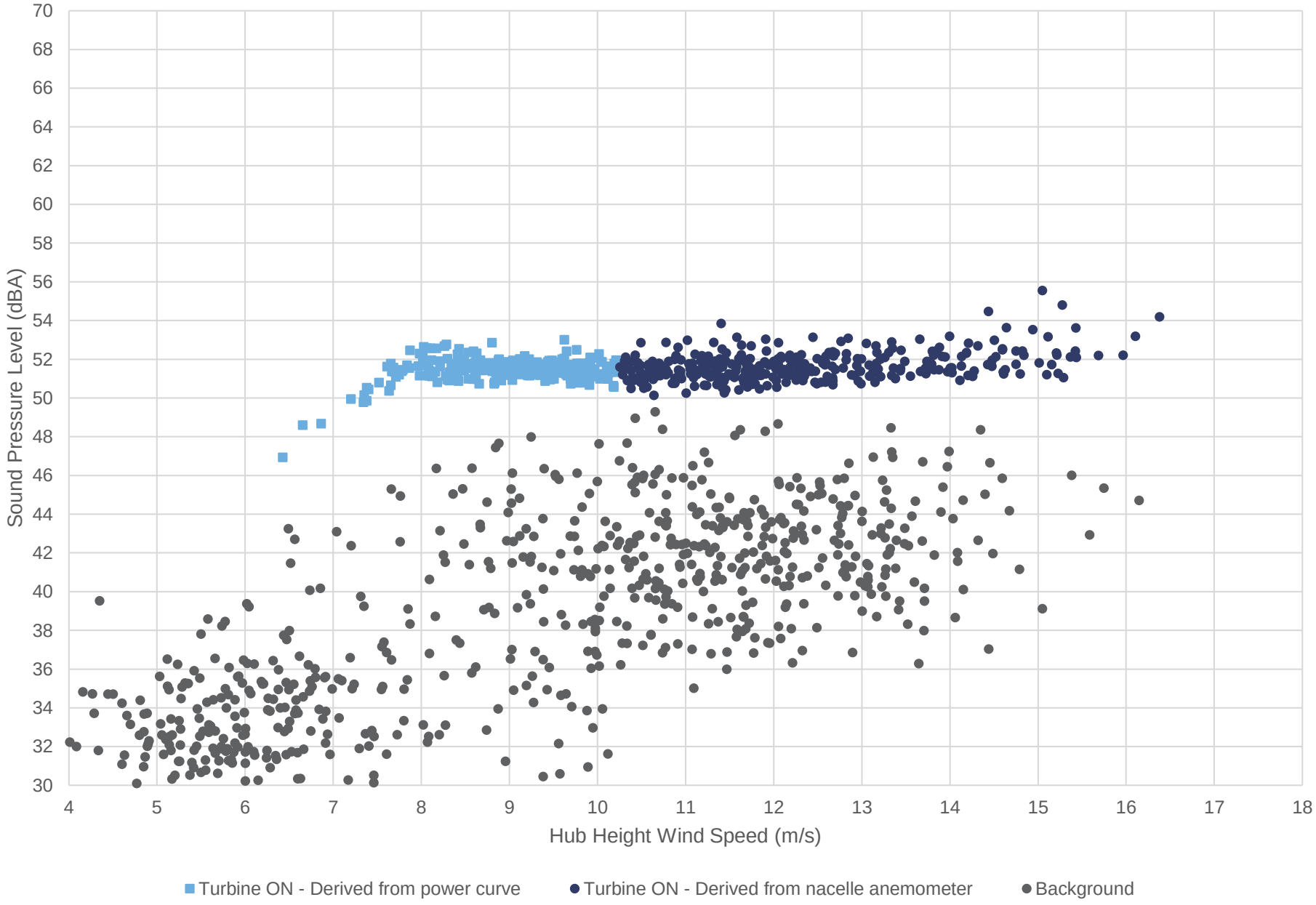
Figure B.02

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	2	m/s
Acceptable range max	10	m/s
Min allowable range	2	m/s
Max allowable range	10	m/s
Power Output	2628	kW
85% Power	2233.8	kW
Corresponding wind speed	9.51	m/s
Minimum bin	7.5	m/s
Maximum bin	12.5	m/s

Power Curve		
Hub Wind Speed (m/s)	Power [kW]	slope
0	0	-52.56
1	0	-52.56
2	0	9.44
3	62	52.44
4	167	125.44
5	345	216.44
6	614	322.44
7	989	432.44
8	1474	488.44
9	2015	376.44
10	2444	100.44
11	2597	-24.56
12	2625	-50.56
13	2627	-51.56
14	2628	-52.56
15	2628	-52.56
16	2628	-52.56
17	2628	-52.56
18	2628	-52.56
19	2628	-52.56
20	2628	-52.56
21	2628	-52.56
22	2628	-79.56
23	2601	-78.56
24	2575	-291.56
25	2336	

Appendix C
Apparent Sound Power Level



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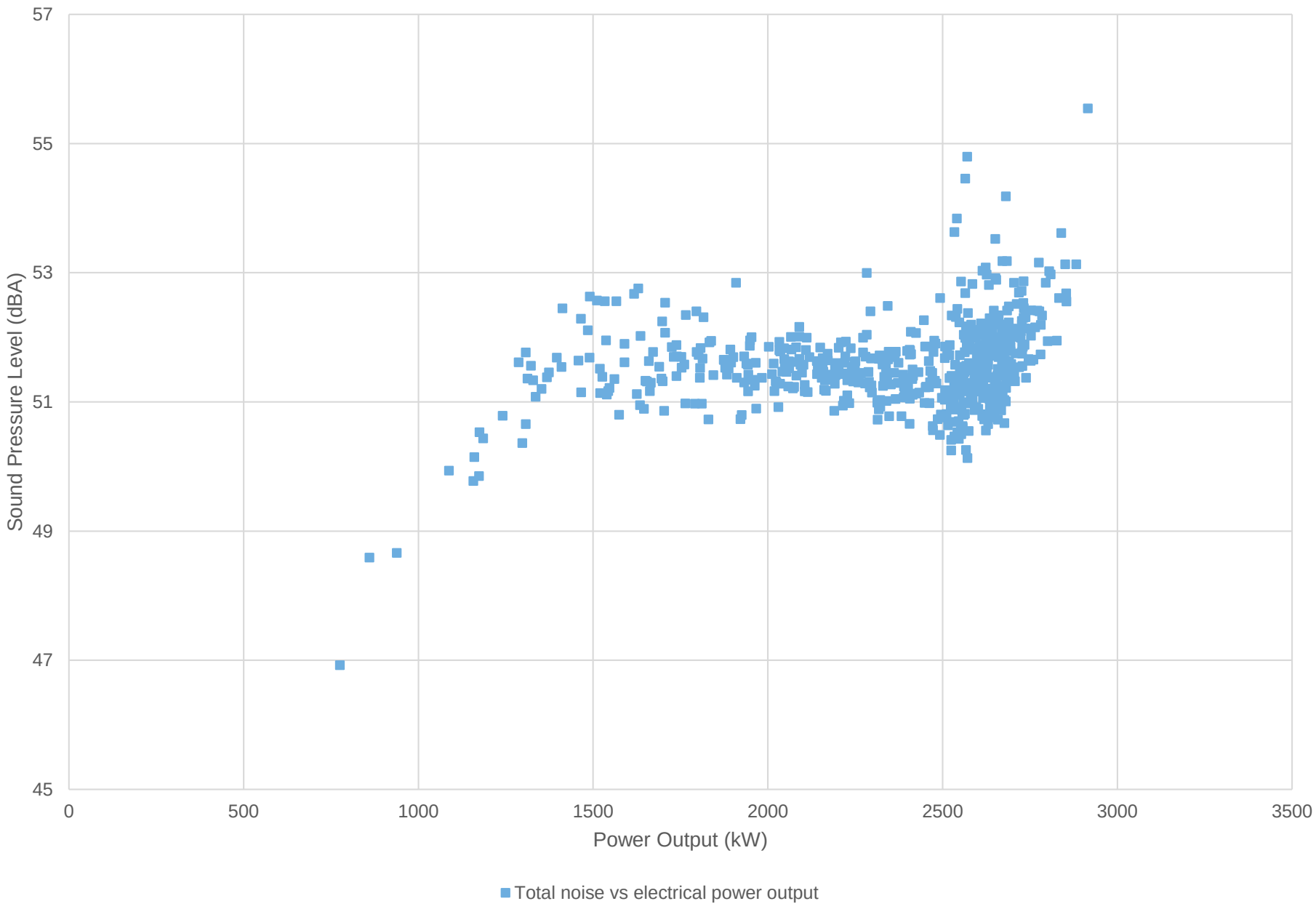
Scale: NTS Drawn by: CB Reviewed by: AM Date: Jan 2021 Revision: 3	North Kent Wind Farm - IEC 61400- 11 Edition 3.0 - Turbine T4
	Figure Title Plot of overall measurement data pairs at Position 1 (Turbine ON & Background)

Figure C.01



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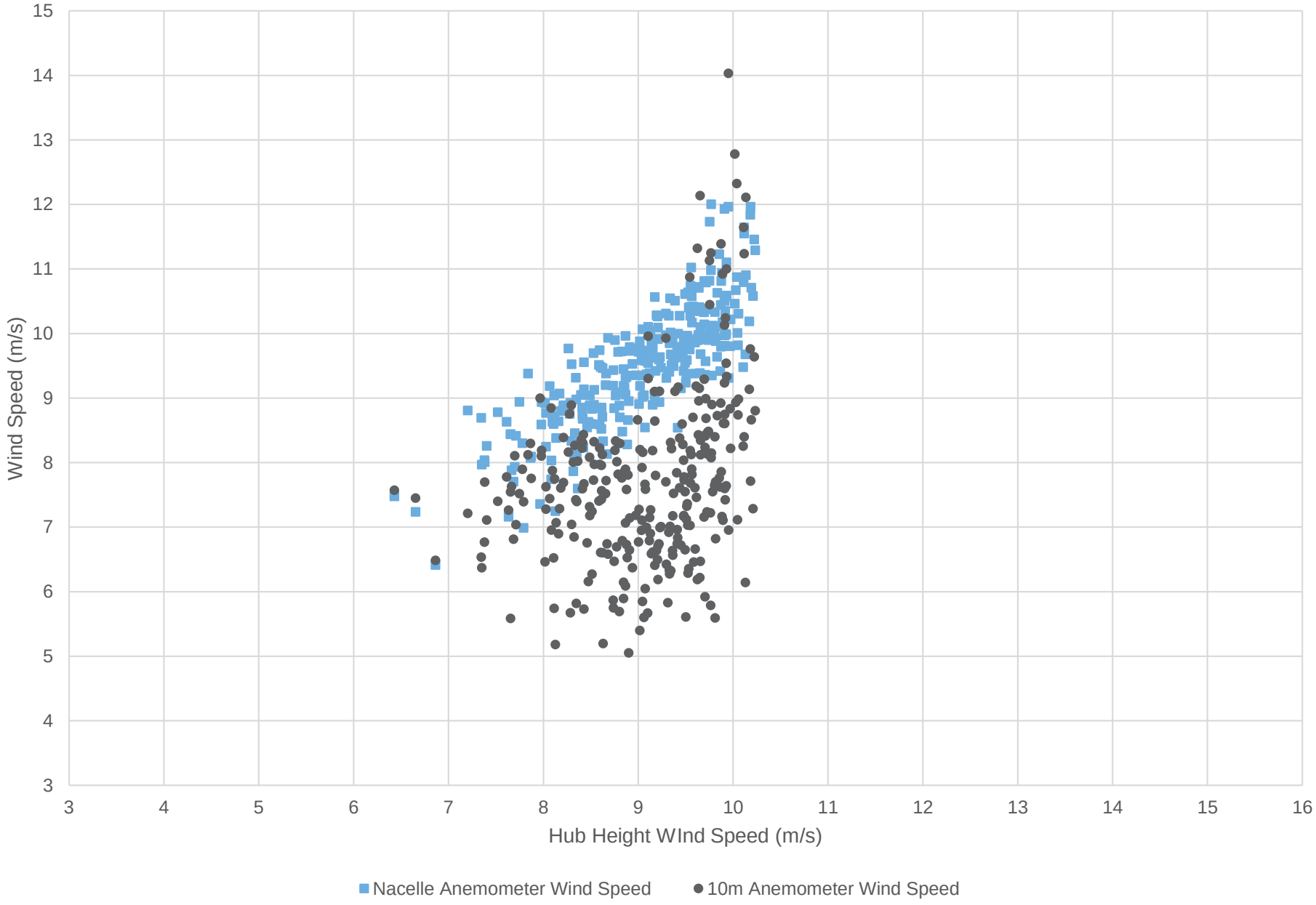
Scale: NTS Drawn by: CB Reviewed by: AM Date: Jan 2021 Revision: 3	North Kent Wind Farm - IEC 61400- 11 Edition 3.0 - Turbine T4
	Figure Title Plot of measured total noise vs. electrical power output

Figure C.02



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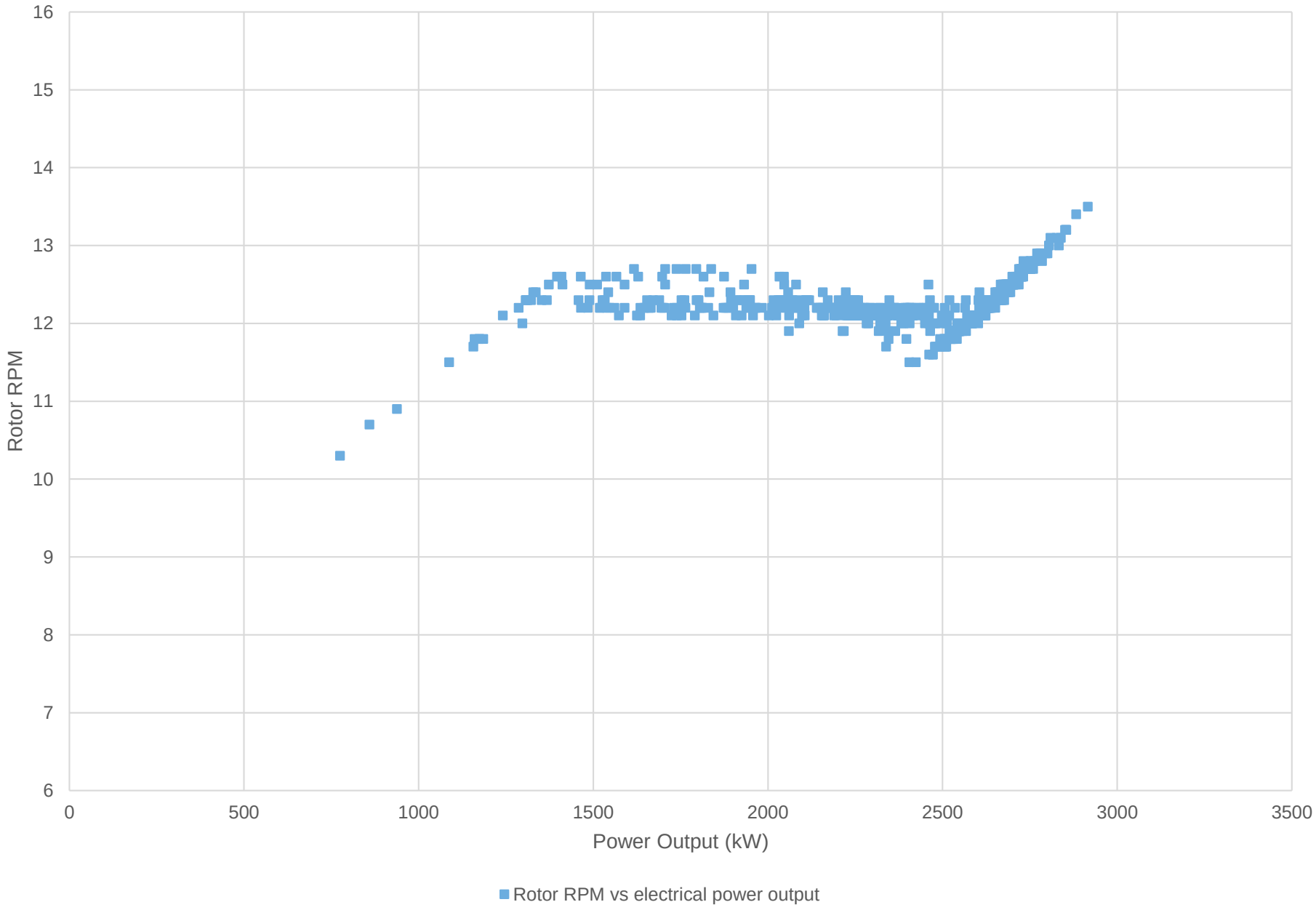
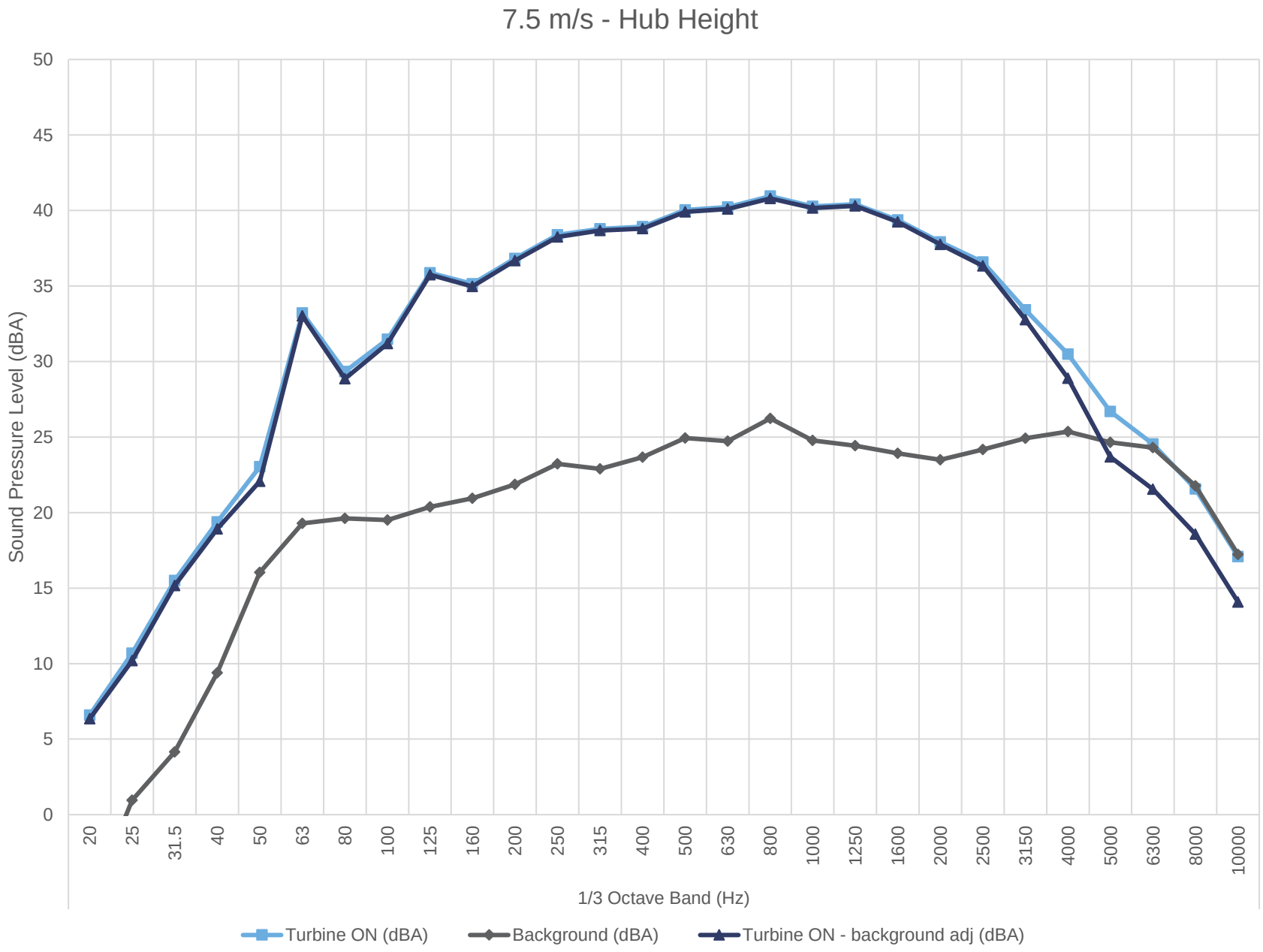
Scale: NTS Drawn by: CB Reviewed by: AM Date: Jan 2021 Revision: 3	North Kent Wind Farm - IEC 61400- 11 Edition 3.0 - Turbine T4
	Figure Title Plot of power curve relative to nacelle anemometer and 10m anemometer

Figure C.03



aercoustics	17283.03.T4.RP3 Scale: NTS Drawn by: CB Reviewed by: AM Date: Jan 2021 Revision: 3	**Project Name** North Kent Wind Farm - IEC 61400- 11 Edition 3.0 - Turbine T4 **Figure Title** Plot of Rotor RPM vs. electrical power output

Figure C.04



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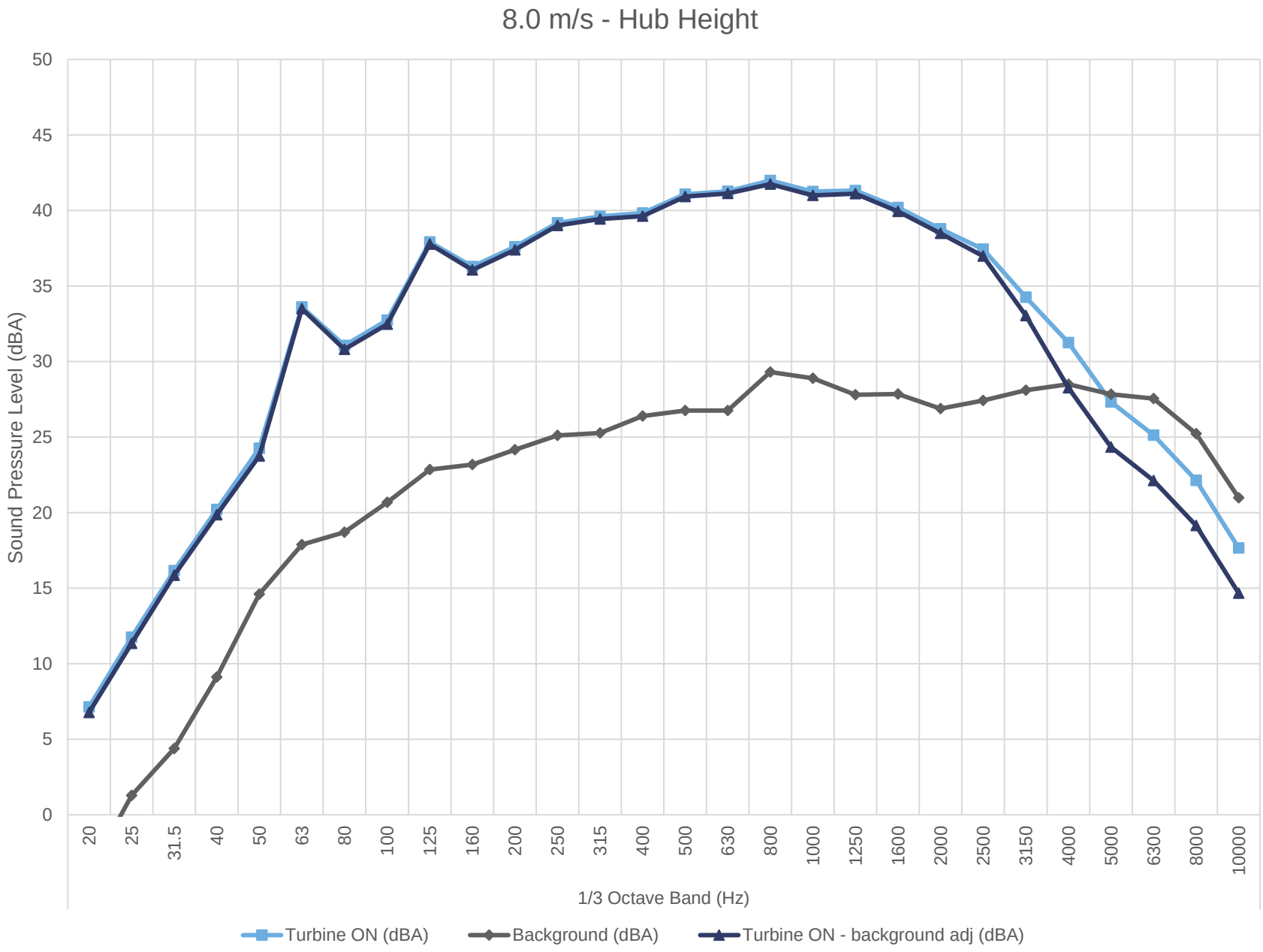
Scale: NTS Drawn by: CB Reviewed by: AM Date: Jan 2021 Revision: 3	North Kent Wind Farm - IEC 61400- 11 Edition 3.0 - Turbine T4
	Figure Title Plot of sound pressure spectrum at 1/3 Octave at 7.5 m/s

Figure C.05



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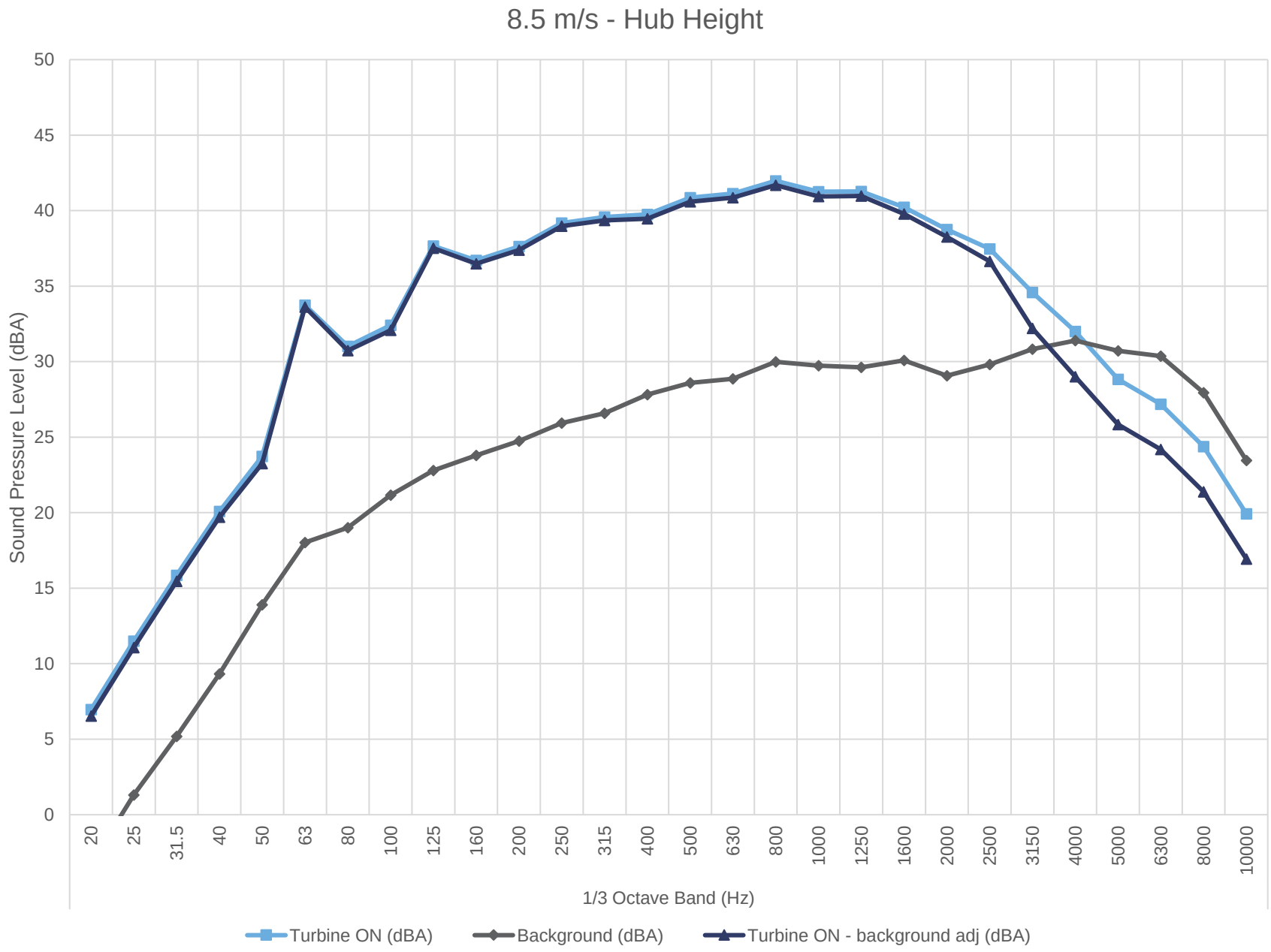
Scale: NTS Drawn by: CB Reviewed by: AM Date: Jan 2021 Revision: 3	North Kent Wind Farm - IEC 61400- 11 Edition 3.0 - Turbine T4
	Figure Title Plot of sound pressure spectrum at 1/3 Octave at 8.0 m/s

Figure C.06



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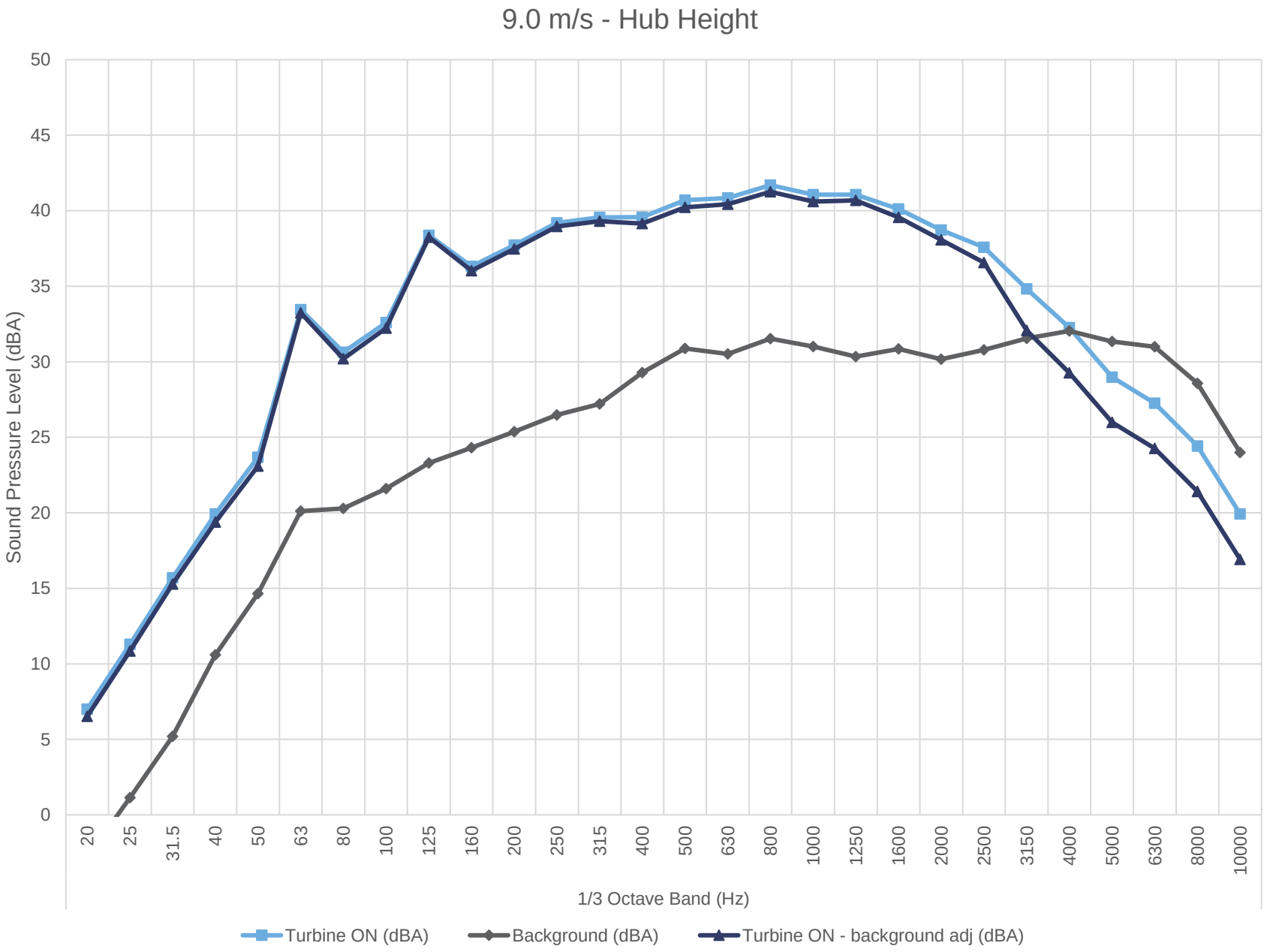
Scale: NTS Drawn by: CB Reviewed by: AM Date: Jan 2021 Revision: 3	North Kent Wind Farm - IEC 61400- 11 Edition 3.0 - Turbine T4
	Figure Title Plot of sound pressure spectrum at 1/3 Octave at 8.5 m/s

Figure C.07



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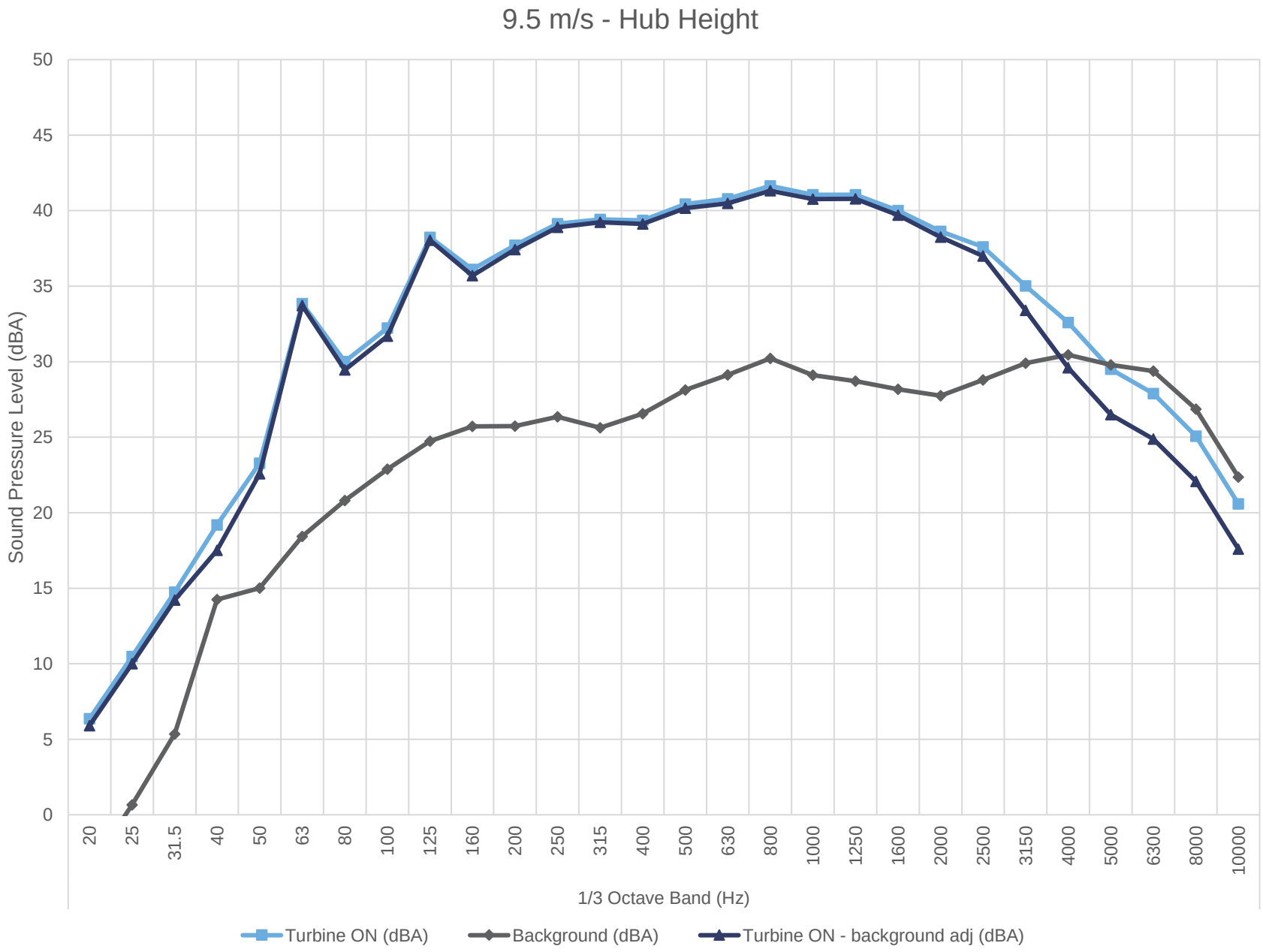
Scale: NTS Drawn by: CB Reviewed by: AM Date: Jan 2021 Revision: 3	North Kent Wind Farm - IEC 61400- 11 Edition 3.0 - Turbine T4
	Figure Title Plot of sound pressure spectrum at 1/3 Octave at 9.0 m/s

Figure C.08



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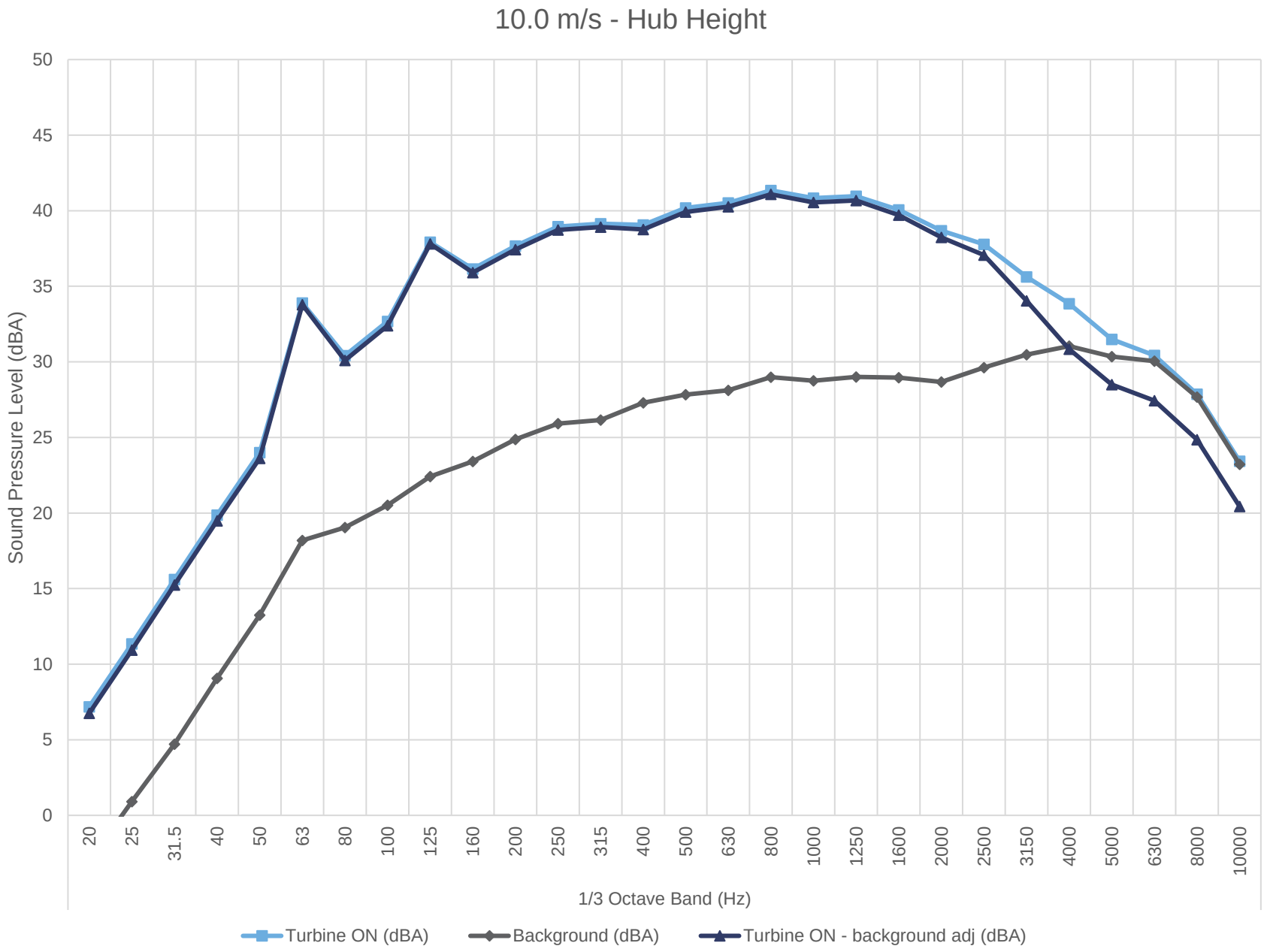
Scale: NTS Drawn by: CB Reviewed by: AM Date: Jan 2021 Revision: 3	North Kent Wind Farm - IEC 61400- 11 Edition 3.0 - Turbine T4
	Figure Title Plot of sound pressure spectrum at 1/3 Octave at 9.5 m/s

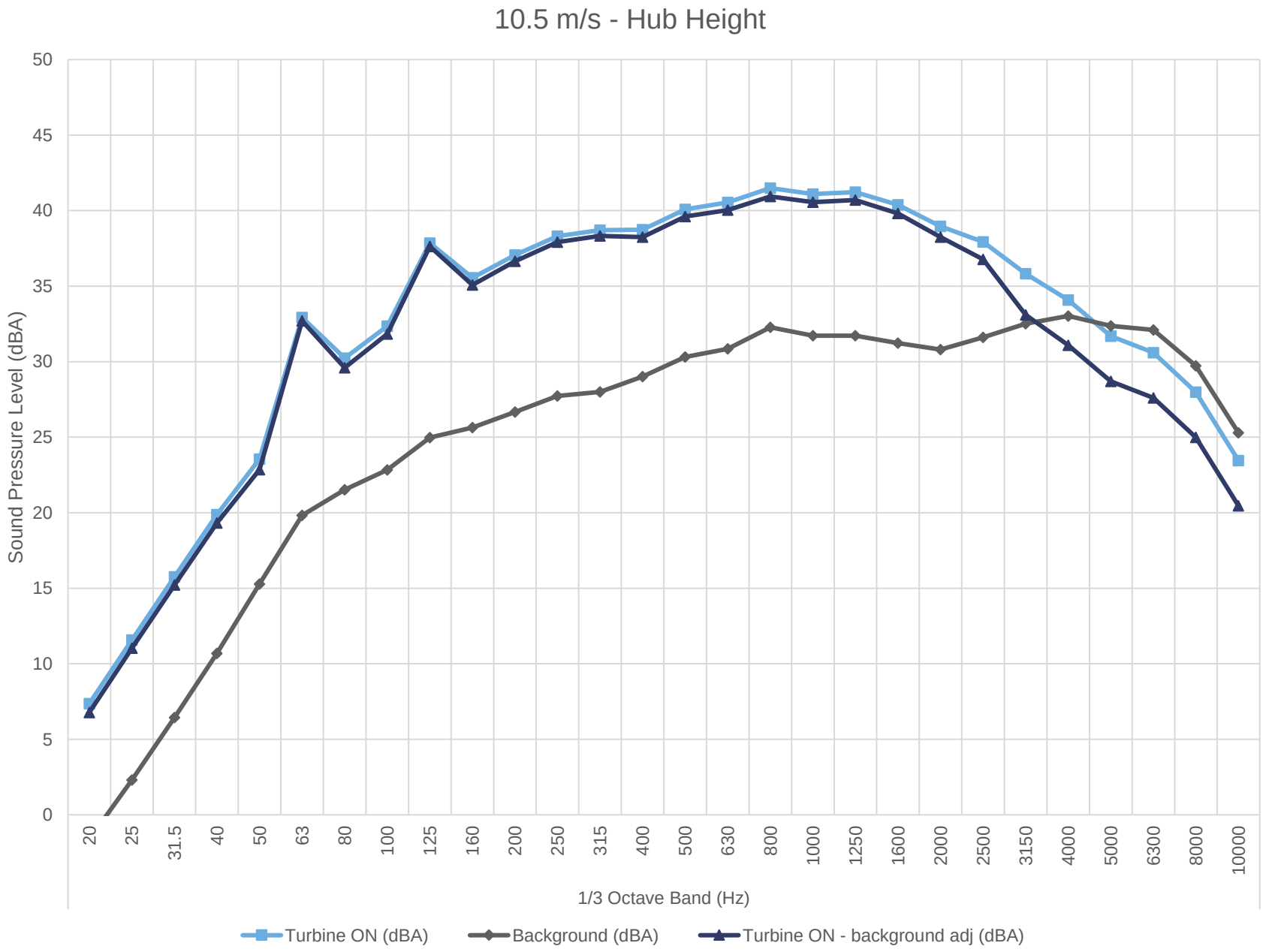
Figure C.09



aercoustics

17283.03.T4.RP3	**Project Name**
Scale: NTS Drawn by: CB Reviewed by: AM Date: Jan 2021 Revision: 3	North Kent Wind Farm - IEC 61400- 11 Edition 3.0 - Turbine T4
	Figure Title Plot of sound pressure spectrum at 1/3 Octave at 10.0 m/s

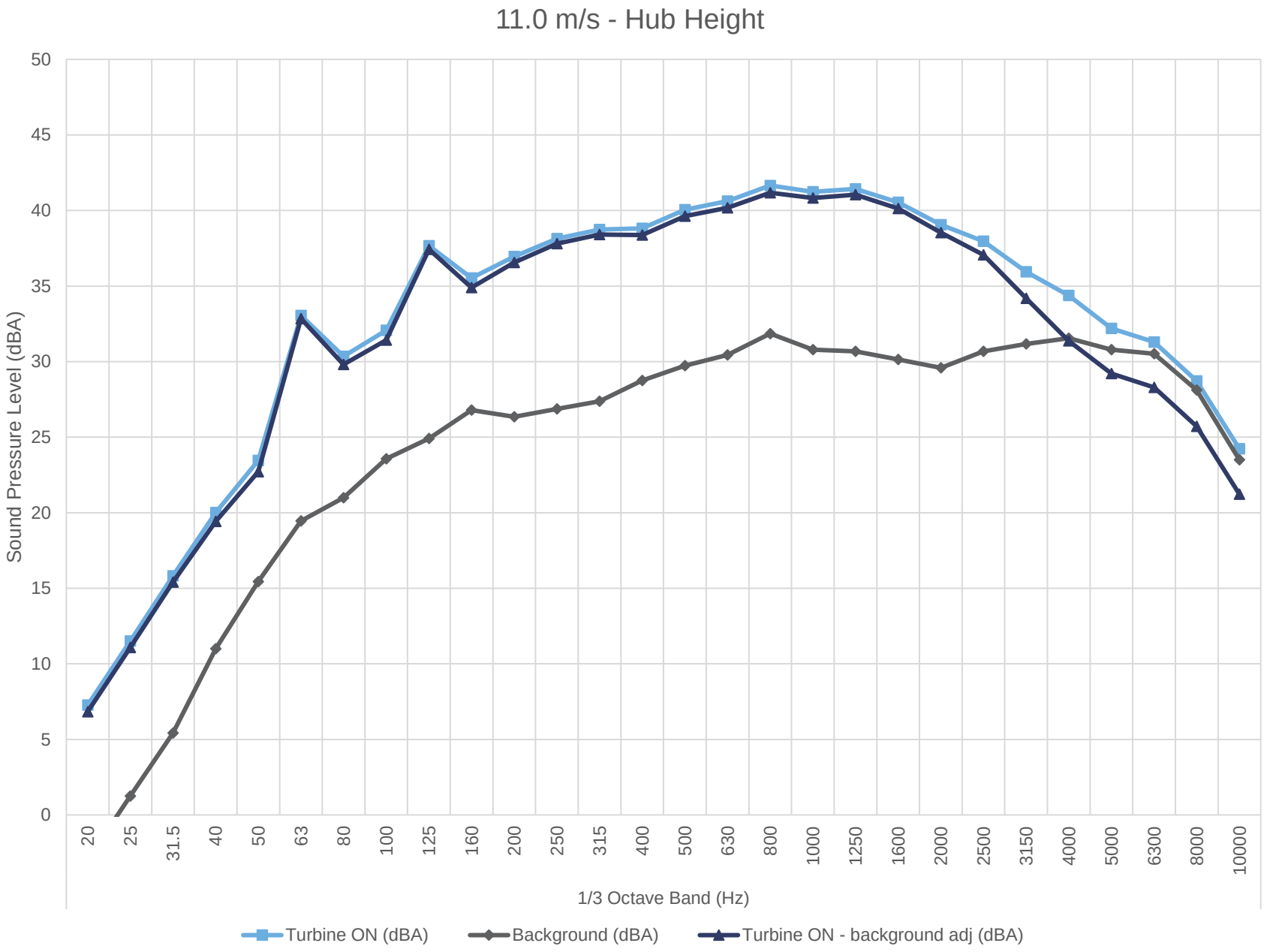
Figure C.10



aercoustics

17283.03.T4.RP3	**Project Name**
Scale: NTS Drawn by: CB Reviewed by: AM Date: Jan 2021 Revision: 3	North Kent Wind Farm - IEC 61400- 11 Edition 3.0 - Turbine T4
	Figure Title Plot of sound pressure spectrum at 1/3 Octave at 10.5 m/s

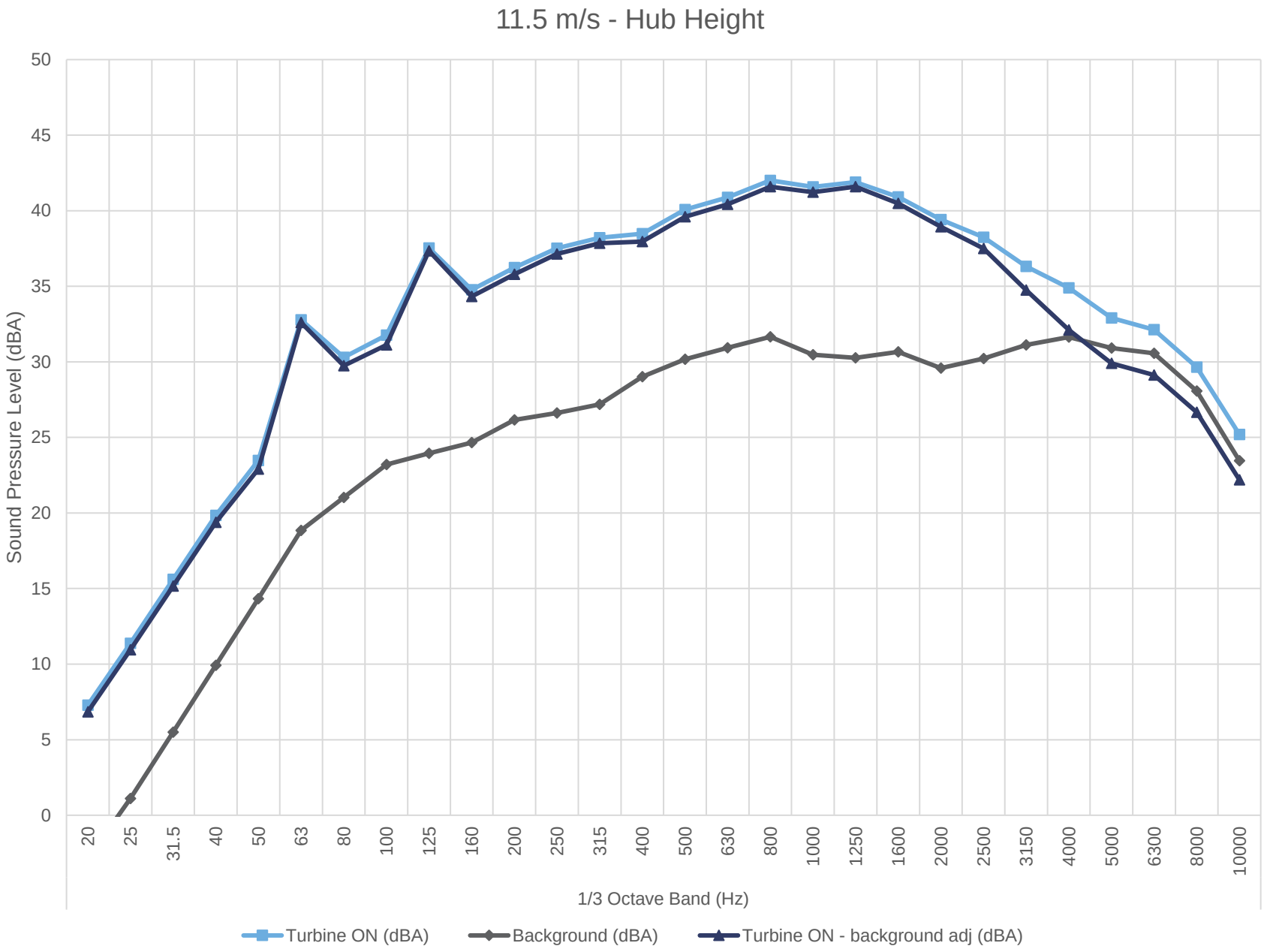
Figure C.11



aercoustics

17283.03.T4.RP3	**Project Name**
Scale: NTS Drawn by: CB Reviewed by: AM Date: Jan 2021 Revision: 3	North Kent Wind Farm - IEC 61400- 11 Edition 3.0 - Turbine T4
	Figure Title
	Plot of sound pressure spectrum at 1/3 Octave at 11.0 m/s

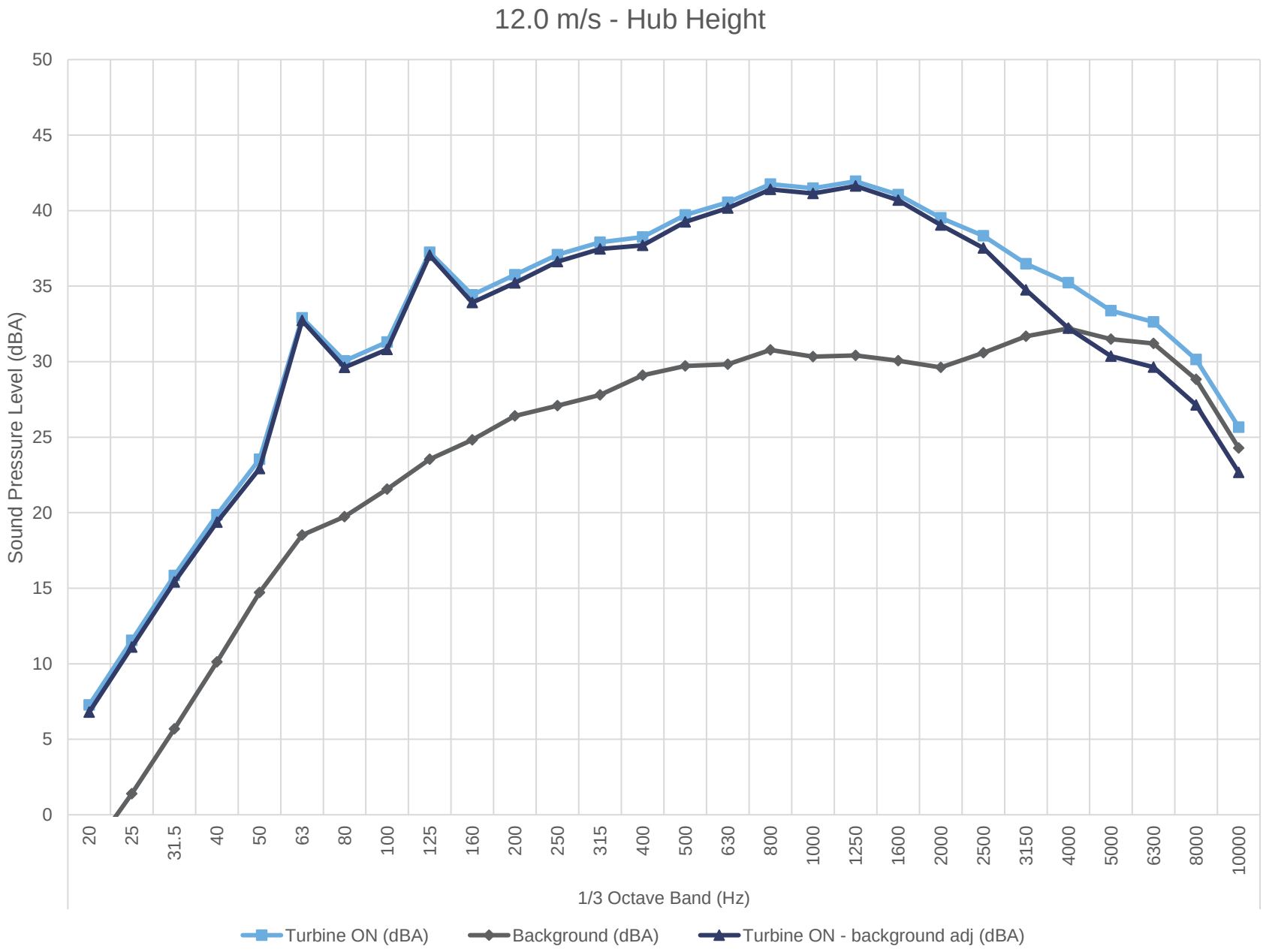
Figure C.12



aercoustics

17283.03.T4.RP3	**Project Name**
Scale: NTS Drawn by: CB Reviewed by: AM Date: Jan 2021 Revision: 3	North Kent Wind Farm - IEC 61400- 11 Edition 3.0 - Turbine T4
	Figure Title Plot of sound pressure spectrum at 1/3 Octave at 11.5 m/s

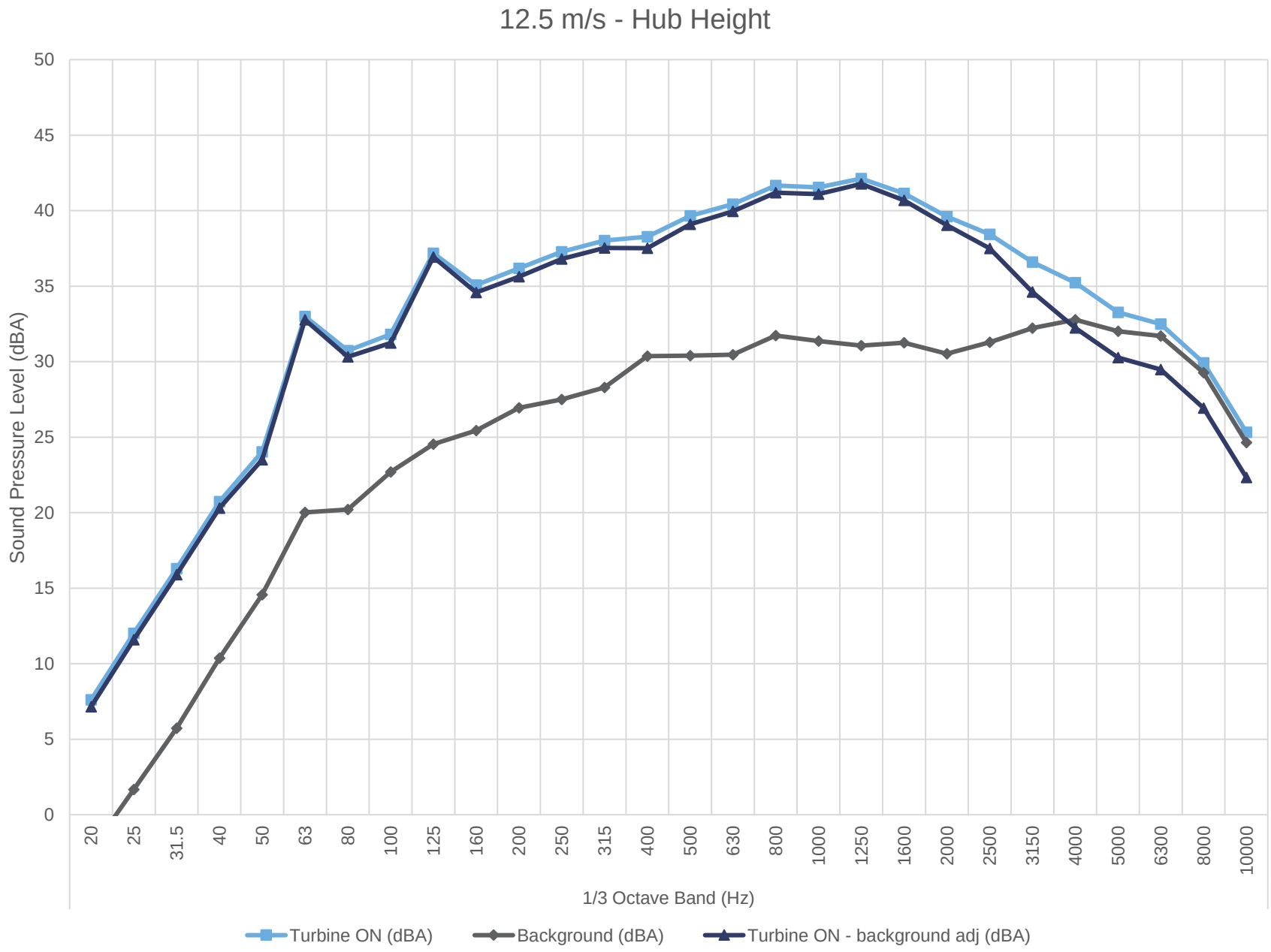
Figure C.13



aercoustics

17283.03.T4.RP3	**Project Name**
Scale: NTS Drawn by: CB Reviewed by: AM Date: Jan 2021 Revision: 3	North Kent Wind Farm - IEC 61400- 11 Edition 3.0 - Turbine T4
	Figure Title Plot of sound pressure spectrum at 1/3 Octave at 12.0 m/s

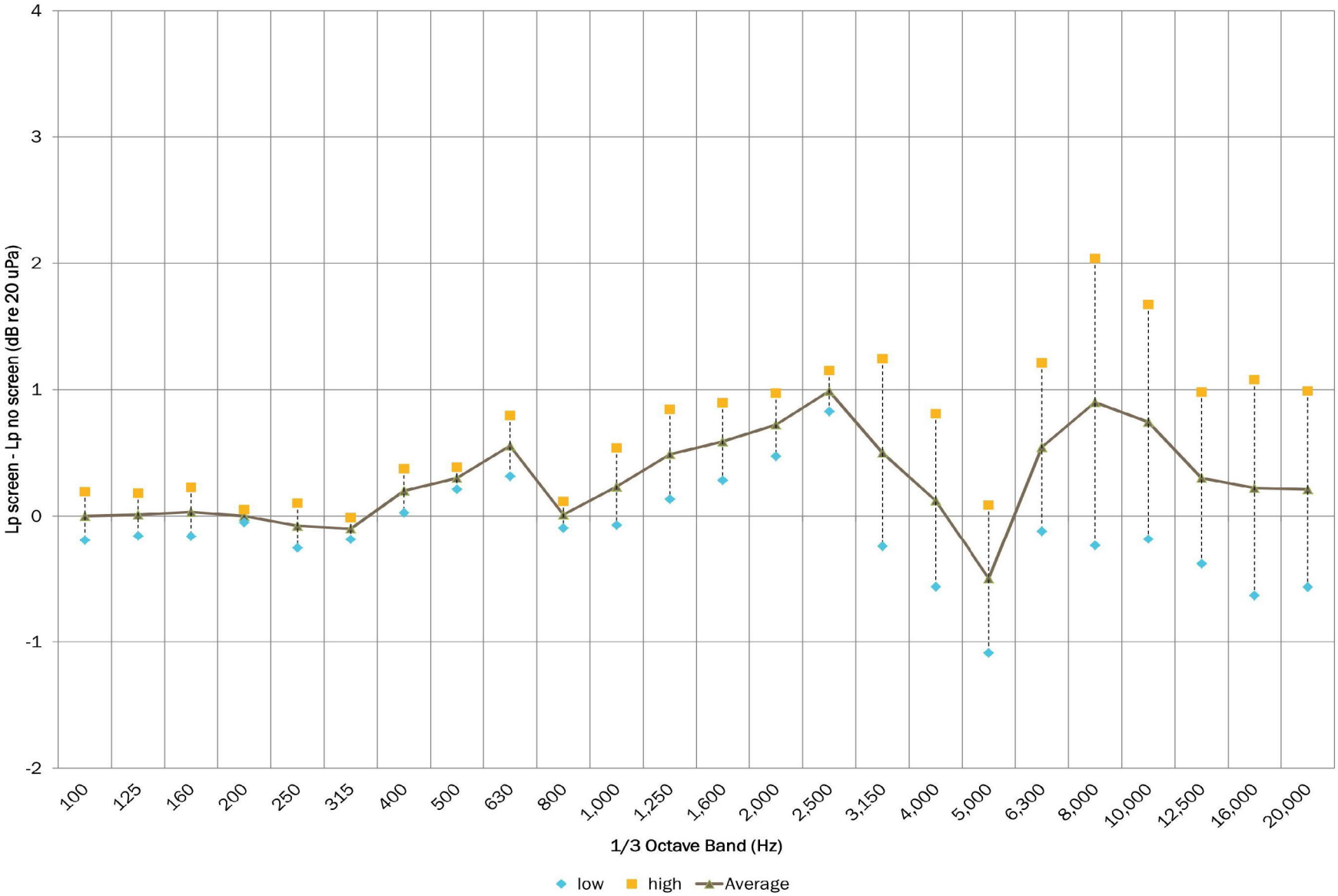
Figure C.14



aercoustics

17283.03.T4.RP3	**Project Name**
Scale: NTS Drawn by: CB Reviewed by: AM Date: Jan 2021 Revision: 3	North Kent Wind Farm - IEC 61400- 11 Edition 3.0 - Turbine T4
	Figure Title Plot of sound pressure spectrum at 1/3 Octave at 12.5 m/s

Figure C.15



aercoustics	17283.03.T4.RP3 Scale: NTS Drawn by: AM Reviewed by: CB Date: Jan 2021 Revision: 1	**Project Name** North Kent Wind Farm - IEC 61400-11 Edition 3.0 - Turbine T4 **Figure Title** Plot of secondary windscreen influence

Figure C.16

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

Project: North Kent Wind Farm - IEC 61400- 11 Edition 3.0 - Turbine T4

Report ID: 17283.03.T4.RP3

Created on: 1/28/2021

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

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

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)	6.6	10.7	15.5	19.4	23.0	33.2	29.3	31.5	35.9	35.1	36.8	38.4	38.8	38.9	40.0	40.2	40.9	40.3	40.4	39.4	37.9	36.6	33.4	30.5	26.7	24.5	21.6	17.1	50.7
	Background (dBA)	-6.0	1.0	4.2	9.4	16.0	19.3	19.6	19.5	20.4	21.0	21.9	23.2	22.9	23.7	24.9	24.7	26.2	24.8	24.4	23.9	23.5	24.2	24.9	25.4	24.7	24.3	21.8	17.2	37.1
	Turbine ON - background adj (dBA)	6.3	10.2	15.2	18.9	22.1	33.0	28.9	31.2	35.7	35.0	36.7	38.3	38.7	38.8	39.9	40.1	40.8	40.2	40.3	39.2	37.8	36.3	32.8	28.9	[23.7]	[21.5]	[18.6]	[14.1]	50.5
	Signal to noise (dB)	12.6	9.7	11.4	10.0	7.0	13.9	9.7	12.0	15.5	14.2	15.0	15.2	15.9	15.3	15.1	15.5	14.7	15.5	16.0	15.5	14.4	12.4	8.5	5.1	2.0	0.2	-0.2	-0.1	13.6
	Uncertainty (dB)	1.9	1.7	1.1	1.6	1.3	0.9	0.9	0.9	0.8	0.8	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.8	0.7	0.7	0.8	1.2	1.6	2.7	3.1	3.6	4.2	0.8
	PWL (dBA)	56.9	60.8	65.7	69.5	72.6	83.6	79.4	81.7	86.3	85.5	87.2	88.8	89.2	89.4	90.5	90.7	91.4	90.7	90.9	89.8	88.3	86.9	83.3	79.5	[74.2]	[72.1]	[69.1]	[64.6]	101.1
8.0	Turbine ON (dBA)	7.1	11.8	16.2	20.2	24.3	33.6	31.1	32.7	37.9	36.3	37.6	39.2	39.6	39.8	41.1	41.3	42.0	41.3	41.3	40.2	38.8	37.4	34.3	31.3	27.3	25.1	22.1	17.7	51.7
	Background (dBA)	-3.9	1.3	4.4	9.1	14.6	17.9	18.7	20.7	22.9	23.2	24.2	25.1	25.3	26.4	26.8	26.8	29.3	28.9	27.8	27.8	26.9	27.4	28.1	28.5	27.8	27.6	25.2	21.0	39.9
	Turbine ON - background adj (dBA)	6.8	11.3	15.9	19.9	23.8	33.5	30.8	32.5	37.8	36.1	37.4	39.0	39.4	39.6	40.9	41.1	41.7	41.0	41.1	39.9	38.5	37.0	33.0	[28.3]	[24.3]	[22.1]	[19.1]	[14.7]	51.4
	Signal to noise (dB)	11.0	10.5	11.8	11.1	9.6	15.7	12.4	12.1	15.1	13.1	13.4	14.1	14.3	13.4	14.3	14.5	12.7	12.4	13.5	12.4	11.9	10.0	6.1	2.8	-0.5	-2.4	-3.1	-3.3	11.7
	Uncertainty (dB)	2.0	1.7	1.1	1.6	1.2	0.9	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	0.9	1.4	2.7	2.7	2.9	3.5	4.2	0.8
	PWL (dBA)	57.3	61.9	66.4	70.4	74.3	84.1	81.4	83.0	88.3	86.6	87.9	89.6	90.0	90.2	91.5	91.7	92.3	91.5	91.7	90.5	89.0	87.5	83.6	[78.8]	[74.9]	[72.7]	[69.7]	[65.2]	102.0
8.5	Turbine ON (dBA)	7.0	11.5	15.8	20.1	23.7	33.7	31.0	32.4	37.7	36.7	37.6	39.2	39.6	39.7	40.9	41.1	42.0	41.3	41.3	40.2	38.8	37.5	34.6	32.0	28.8	27.2	24.4	19.9	51.7
	Background (dBA)	-3.3	1.3	5.2	9.3	13.9	18.0	19.0	21.2	22.8	23.8	24.7	25.9	26.6	27.8	28.6	28.9	30.0	29.7	29.6	30.1	29.1	29.8	30.8	31.4	30.7	30.4	28.0	23.5	41.9
	Turbine ON - background adj (dBA)	6.5	11.1	15.5	19.7	23.3	33.6	30.7	32.1	37.5	36.5	37.4	39.0	39.4	39.5	40.6	40.9	41.7	40.9	41.0	39.8	38.3	36.6	32.2	[29]	[25.8]	[24.2]	[21.4]	[16.9]	51.3
	Signal to noise (dB)	10.2	10.2	10.7	10.8	9.8	15.7	12.0	11.2	14.9	12.9	12.9	13.3	13.0	11.9	12.3	12.3	12.0	11.5	11.6	10.1	9.7	7.6	3.8	0.6	-1.9	-3.2	-3.6	-3.5	9.8
	Uncertainty (dB)	2.2	1.8	1.2	1.7	1.2	1.0	0.9	0.9	0.9	0.9	0.7	0.8	0.7	0.8	0.7	0.8	0.8	0.8	0.9	0.8	0.8	1.0	2.2	2.7	2.7	2.9	3.5	4.2	0.9
	PWL (dBA)	57.1	61.6	66.0	70.3	73.8	84.2	81.3	82.6	88.1	87.0	88.0	89.5	89.9	90.0	91.1	91.4	92.2	91.5	91.5	90.3	88.8	87.2	82.8	[79.6]	[76.4]	[74.7]	[71.9]	[67.5]	101.8
9.0	Turbine ON (dBA)	7.0	11.3	15.7	19.9	23.7	33.5	30.6	32.6	38.4	36.3	37.7	39.2	39.6	39.6	40.7	40.8	41.7	41.1	41.1	40.1	38.7	37.6	34.8	32.3	29.0	27.3	24.4	19.9	51.6
	Background (dBA)	-2.8	1.1	5.2	10.6	14.7	20.1	20.3	21.6	23.3	24.3	25.4	26.5	27.2	29.3	30.9	30.5	31.5	31.0	30.3	30.9	30.2	30.8	31.5	32.0	31.3	31.0	28.6	24.0	42.8
	Turbine ON - background adj (dBA)	6.5	10.8	15.3	19.4	23.1	33.2	30.2	32.2	38.2	36.0	37.5	39.0	39.3	39.2	40.2	40.4	41.3	40.6	40.7	39.6	38.1	36.6	32.1	[29.3]	[26]	[24.3]	[21.4]	[16.9]	51.1
	Signal to noise (dB)	9.8	10.1	10.5	9.3	9.0	13.3	10.3	11.0	15.1	12.0	12.4	12.7	12.4	10.3	9.8	10.3	10.2	10.0	10.7	9.3	8.6	6.8	3.3	0.2	-2.4	-3.7	-4.2	-4.1	8.7
	Uncertainty (dB)	2.2	1.8	1.2	1.7	1.2	1.0	0.9	0.9	0.8	0.9	0.7	0.7	0.7	0.8	0.8	0.8	0.8	0.8	0.9	0.9	0.8	1.1	2.3	2.5	2.4	2.7	3.3	4.0	0.9
	PWL (dBA)	57.1	61.4	65.8	69.9	73.6	83.8	80.8	82.8	88.8	86.6	88.0	89.5	89.9	89.7	90.8	91.0	91.8	91.2	91.2	90.1	88.6	87.1	82.6	[79.8]	[76.5]	[74.8]	[72]	[67.5]	101.6
9.5	Turbine ON (dBA)	6.4	10.5	14.7	19.2	23.3	33.8	30.0	32.2	38.2	36.1	37.7	39.1	39.4	39.4	40.4	40.8	41.6	41.1	41.0	40.0	38.6	37.6	35.0	32.6	29.5	27.9	25.1	20.6	51.5
	Background (dBA)	-3.6	0.7	5.3	14.2	15.0	18.4	20.8	22.9	24.7	25.7	25.7	26.4	25.6	26.6	28.1	29.1	30.2	29.1	28.7	28.2	27.7	28.8	29.9	30.5	29.8	29.4	26.9	22.4	41.3
	Turbine ON - background adj (dBA)	5.9	10.0	14.2	17.5	22.6	33.7	29.5	31.7	38.0	35.7	37.4	38.9	39.2	39.1	40.2	40.5	41.3	40.8	40.8	39.7	38.2	37.0	33.4	[29.6]	[26.5]	[24.9]	[22.1]	[17.6]	51.1
	Signal to noise (dB)	10.0	9.8	9.4	4.9	8.3	15.4	9.2	9.3	13.5	10.4	12.0	12.8	13.8	12.8	12.3	11.7	11.4	11.9	12.3	11.8	10.9	8.8	5.1	2.1	-0.3	-1.5	-1.8	-1.8	10.2
	Uncertainty (dB)	2.1	1.8	1.2	2.4	1.2	0.9	0.9	0.9	0.8	0.9	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.8	0.8	0.8	0.8	0.9	1.6	2.5	2.4	2.6	3.2	3.9	0.8
	PWL (dBA)	56.5	60.6	64.8	68.1	73.1	84.3	80.0	82.2	88.6	86.3	88.0	89.5	89.8	89.7	90.7	91.0	91.9	91.3	91.3	90.3	88.8	87.5	84.0	[80.1]	[77.1]	[75.4]	[72.6]	[68.1]	101.7

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

Project: North Kent Wind Farm - IEC 61400- 11 Edition 3.0 - Turbine T4

Report ID: 17283.03.T4.RP3

Created on: 1/28/2021

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

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

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	
10.0	Turbine ON (dBA)	7.2	11.4	15.6	19.9	24.0	33.9	30.4	32.7	37.9	36.1	37.7	38.9	39.1	39.1	40.2	40.5	41.3	40.8	41.0	40.1	38.7	37.8	35.6	33.8	31.5	30.4	27.9	23.4	51.4
	Background (dBA)	-3.0	0.9	4.7	9.1	13.3	18.2	19.0	20.5	22.4	23.4	24.9	25.9	26.2	27.3	27.8	28.1	29.0	28.8	29.0	29.0	28.7	29.6	30.5	31.0	30.4	30.0	27.7	23.2	41.3
	Turbine ON - background adj (dBA)	6.8	10.9	15.2	19.5	23.6	33.8	30.1	32.4	37.8	35.9	37.4	38.7	38.9	38.8	39.9	40.3	41.1	40.6	40.7	39.7	38.2	37.1	34.0	[30.8]	[28.5]	[27.4]	[24.9]	[20.4]	51.0
	Signal to noise (dB)	10.2	10.4	10.9	10.8	10.7	15.7	11.4	12.2	15.5	12.7	12.8	13.0	13.0	11.8	12.3	12.4	12.4	12.1	12.0	11.1	10.0	8.2	5.1	2.8	1.1	0.4	0.2	0.2	10.1
	Uncertainty (dB)	2.0	1.7	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	0.7	0.8	0.8	0.7	0.9	1.5	2.4	2.3	2.5	3.1	3.8	0.8
	PWL (dBA)	57.3	61.5	65.8	70.0	74.2	84.3	80.6	83.0	88.4	86.5	88.0	89.3	89.5	89.3	90.5	90.8	91.6	91.1	91.2	90.3	88.8	87.6	84.6	[81.4]	[79]	[78]	[75.4]	[71]	101.6
10.5	Turbine ON (dBA)	7.4	11.6	15.8	19.9	23.5	32.9	30.2	32.3	37.9	35.5	37.1	38.3	38.7	38.7	40.1	40.5	41.5	41.1	41.2	40.4	39.0	37.9	35.8	34.1	31.7	30.6	28.0	23.5	51.4
	Background (dBA)	-1.6	2.3	6.4	10.7	15.3	19.8	21.5	22.8	25.0	25.6	26.7	27.7	28.0	29.0	30.3	30.9	32.3	31.7	31.7	31.2	30.8	31.6	32.5	33.0	32.4	32.1	29.7	25.3	43.6
	Turbine ON - background adj (dBA)	6.8	11.0	15.2	19.3	22.8	32.7	29.6	31.8	37.6	35.1	36.6	37.9	38.3	38.3	39.6	40.0	40.9	40.6	40.7	39.8	38.2	36.8	33.1	[31.1]	[28.7]	[27.6]	[25]	[20.5]	50.7
	Signal to noise (dB)	9.0	9.3	9.3	9.2	8.3	13.1	8.7	9.5	12.9	9.9	10.4	10.6	10.7	9.7	9.8	9.7	9.2	9.4	9.5	9.1	8.2	6.3	3.3	1.1	-0.7	-1.5	-1.7	-1.8	7.8
	Uncertainty (dB)	2.3	1.9	1.3	1.8	1.3	1.0	1.0	1.0	0.9	0.9	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.9	0.9	0.9	0.9	1.1	2.3	2.5	2.4	2.7	3.3	4.0	0.9
	PWL (dBA)	57.3	61.6	65.8	69.9	73.4	83.3	80.2	82.4	88.2	85.6	87.2	88.5	88.9	88.8	90.2	90.6	91.5	91.1	91.3	90.4	88.8	87.3	83.6	[81.6]	[79.2]	[78.2]	[75.5]	[71]	101.3
11.0	Turbine ON (dBA)	7.3	11.5	15.8	20.0	23.5	33.0	30.3	32.1	37.7	35.5	37.0	38.1	38.7	38.8	40.1	40.6	41.7	41.2	41.4	40.5	39.1	38.0	35.9	34.4	32.2	31.3	28.7	24.2	51.5
	Background (dBA)	-3.0	1.2	5.4	11.0	15.4	19.5	21.0	23.6	24.9	26.8	26.4	26.9	27.4	28.7	29.7	30.4	31.9	30.8	30.7	30.1	29.6	30.7	31.2	31.6	30.8	30.5	28.1	23.5	42.7
	Turbine ON - background adj (dBA)	6.8	11.1	15.4	19.4	22.7	32.9	29.8	31.4	37.4	34.9	36.6	37.8	38.4	38.4	39.6	40.2	41.2	40.8	41.0	40.1	38.5	37.1	34.2	[31.4]	[29.2]	[28.3]	[25.7]	[21.2]	50.9
	Signal to noise (dB)	10.2	10.3	10.4	9.0	8.0	13.6	9.3	8.5	12.8	8.7	10.6	11.3	11.4	10.1	10.3	10.2	9.8	10.4	10.7	10.4	9.5	7.3	4.8	2.8	1.4	0.8	0.6	0.7	8.8
	Uncertainty (dB)	2.2	1.8	1.2	1.7	1.3	1.0	1.0	1.0	0.9	1.0	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.9	0.8	0.8	1.0	1.7	2.5	2.4	2.6	3.3	4.0	0.9
	PWL (dBA)	57.4	61.6	66.0	70.0	73.3	83.4	80.4	82.0	88.0	85.5	87.1	88.4	89.0	88.9	90.2	90.7	91.7	91.4	91.6	90.7	89.1	87.6	84.7	[81.9]	[79.8]	[78.8]	[76.3]	[71.8]	101.5
11.5	Turbine ON (dBA)	7.3	11.4	15.6	19.8	23.5	32.8	30.3	31.8	37.5	34.8	36.2	37.5	38.2	38.5	40.1	40.9	42.0	41.6	41.9	40.9	39.4	38.2	36.3	34.9	32.9	32.1	29.7	25.2	51.6
	Background (dBA)	-2.9	1.1	5.5	9.9	14.3	18.9	21.0	23.2	23.9	24.7	26.2	26.6	27.2	29.0	30.2	30.9	31.7	30.5	30.3	30.7	29.6	30.2	31.1	31.6	30.9	30.6	28.1	23.5	42.6
	Turbine ON - background adj (dBA)	6.8	11.0	15.2	19.4	22.9	32.6	29.7	31.1	37.3	34.3	35.8	37.1	37.9	38.0	39.6	40.4	41.6	41.2	41.6	40.5	38.9	37.5	34.8	32.1	[29.9]	[29.1]	[26.7]	[22.2]	51.1
	Signal to noise (dB)	10.2	10.3	10.1	9.9	9.2	13.9	9.3	8.6	13.6	10.1	10.1	10.9	11.0	9.5	9.9	10.0	10.4	11.1	11.6	10.2	9.8	8.0	5.2	3.3	2.0	1.6	1.6	1.7	9.0
	Uncertainty (dB)	2.2	1.8	1.2	1.7	1.2	1.0	1.0	1.0	0.9	0.9	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.9	0.8	0.8	1.0	1.6	2.3	2.4	2.5	3.2	3.9	0.9
	PWL (dBA)	57.4	61.5	65.7	69.9	73.5	83.2	80.3	81.7	87.9	84.9	86.3	87.7	88.4	88.5	90.2	91.0	92.1	91.8	92.1	91.0	89.5	88.0	85.3	82.7	[80.5]	[79.7]	[77.2]	[72.7]	101.6
12.0	Turbine ON (dBA)	7.3	11.5	15.8	19.9	23.5	32.9	30.0	31.3	37.2	34.4	35.8	37.1	37.9	38.3	39.7	40.5	41.8	41.5	41.9	41.1	39.5	38.3	36.5	35.2	33.4	32.6	30.1	25.7	51.5
	Background (dBA)	-2.6	1.4	5.7	10.1	14.7	18.5	19.7	21.5	23.5	24.8	26.4	27.1	27.8	29.1	29.7	29.8	30.8	30.3	30.4	30.1	29.6	30.6	31.7	32.2	31.5	31.2	28.8	24.3	42.7
	Turbine ON - background adj (dBA)	6.8	11.1	15.4	19.4	22.9	32.7	29.6	30.8	37.1	33.9	35.2	36.6	37.5	37.7	39.3	40.2	41.4	41.1	41.6	40.7	39.0	37.5	34.7	32.2	[30.4]	[29.6]	[27.1]	[22.7]	50.9
	Signal to noise (dB)	9.8	10.1	10.2	9.7	8.8	14.4	10.3	9.8	13.7	9.6	9.4	10.0	10.1	9.2	10.0	10.7	11.0	11.1	11.5	11.0	9.9	7.7	4.8	3.0	1.9	1.4	1.3	1.4	8.8
	Uncertainty (dB)	2.2	1.8	1.2	1.7	1.2	1.0	0.9	0.9	0.9	0.9	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.9	0.8	0.8	1.0	1.7	2.4	2.3	2.5	3.1	3.8	0.9
	PWL (dBA)	57.3	61.6	66.0	69.9	73.5	83.3	80.2	81.4	87.6	84.5	85.8	87.2	88.0	88.3	89.8	90.7	92.0	91.7	92.2	91.3	89.6	88.1	85.3	82.8	[80.9]	[80.2]	[77.7]	[73.2]	101.5
12.5	Turbine ON (dBA)	7.6	12.0	16.3	20.7	24.0	33.0	30.7	31.8	37.2	35.1	36.2	37.3	38.0	38.3	39.7	40.4	41.7	41.5	42.1	41.1	39.6	38.4	36.6	35.2	33.3	32.5	29.9	25.3	51.6
	Background (dBA)	-2.4	1.7	5.7	10.4	14.6	20.0	20.2	22.7	24.5	25.4	26.9	27.5	28.3	30.4	30.4	30.5	31.7	31.4	31.1	31.3	30.5	31.3	32.2	32.8	32.0	31.7	29.3	24.6	43.4
	Turbine ON - background adj (dBA)	7.1	11.6	15.9	20.3	23.5	32.8	30.3	31.2	36.9	34.6	35.6	36.8	37.5	37.5	39.1	40.0	41.2	41.1	41.8	40.7	39.0	37.5	34.6	[32.2]	[30.3]	[29.5]	[26.9]	[22.3]	50.9
	Signal to noise (dB)	10.0	10.3	10.6	10.4	9.5	13.0	10.5	9.1	12.6	9.6	9.2	9.8	9.7	7.9	9.3	10.0	9.9	10.2	11.1	9.9	9.1	7.1	4.4	2.5	1.2	0.8	0.6	0.7	8.2
	Uncertainty (dB)	2.2	1.8	1.2	1.7	1.2	1.0	0.9	0.9	0.9	0.9	0.8	0.8	0.8	0.9	0.8	0.8	0.8	0.8	0.9	0.8	0.8	1.0	1.8	2.4	2.3	2.5	3.1	3.9	0.9
	PWL (dBA)	57.7	62.1	66.5	70.9	74.1	83.3	80.9	81.8	87.5	85.1	86.2	87.3	88.1	88.1	89.7	90.5	91.7	91.6	92.3	91.2	89.6	88.1	85.2	[82.8]	[80.8]	[80]	[77.5]	[72.9]	101.5

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

Project: North Kent Wind Farm - IEC 61400- 11 Edition 3.0 - Turbine T4

Report ID: 17283.03.T4.RP3

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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	
6.0	Turbine ON (dBA)	7.0	11.4	15.8	20.0	23.8	33.6	30.8	32.5	38.0	36.4	37.6	39.1	39.5	39.6	40.8	41.0	41.8	41.1	41.1	40.1	38.7	37.5	34.6	31.9	28.6	26.8	23.9	19.5	51.6
	Background (dBA)	-3.3	0.9	4.9	9.8	14.4	18.9	19.5	21.1	22.8	23.7	24.8	26.0	26.6	28.3	29.6	29.4	30.5	30.1	29.6	30.1	29.2	29.9	30.7	31.2	30.6	30.2	27.8	23.3	42.0
	Turbine ON - background adj (dBA)	6.5	11.0	15.4	19.5	23.2	33.4	30.4	32.2	37.8	36.1	37.4	38.9	39.3	39.3	40.4	40.7	41.5	40.8	40.8	39.7	38.2	36.6	32.3	[28.9]	[25.6]	[23.8]	[20.9]	[16.5]	51.1
	Signal to noise (dB)	10.2	10.5	10.9	10.1	9.4	14.7	11.3	11.4	15.2	12.6	12.8	13.2	12.9	11.3	11.2	11.6	11.3	11.0	11.5	10.0	9.5	7.6	3.9	0.7	-2.0	-3.4	-3.9	-3.8	9.6
	Uncertainty (dB)	2.0	1.7	1.1	1.6	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	0.9	1.7	2.3	2.2	2.4	3.0	3.6	0.8
	PWL (dBA)	57.1	61.5	66.0	70.1	73.8	84.0	81.0	82.7	88.4	86.7	87.9	89.5	89.9	89.9	91.0	91.2	92.0	91.3	91.4	90.2	88.7	87.2	82.8	[79.5]	[76.1]	[74.3]	[71.5]	[67]	101.7
7.0	Turbine ON (dBA)	6.9	11.1	15.3	19.6	23.6	33.6	30.2	32.4	38.0	35.9	37.5	38.8	39.1	39.1	40.2	40.6	41.5	41.0	41.1	40.2	38.8	37.8	35.5	33.5	31.0	29.8	27.2	22.7	51.4
	Background (dBA)	-2.4	1.6	5.7	11.7	14.7	19.1	20.7	22.3	24.3	25.1	26.0	26.9	27.0	28.0	29.2	29.8	31.0	30.4	30.4	30.0	29.6	30.5	31.4	32.0	31.3	31.0	28.6	24.1	42.5
	Turbine ON - background adj (dBA)	6.4	10.6	14.8	18.8	23.0	33.5	29.7	31.9	37.8	35.5	37.2	38.5	38.8	38.7	39.9	40.3	41.1	40.6	40.7	39.7	38.2	36.9	33.3	[30.5]	[28]	[26.8]	[24.2]	[19.7]	50.9
	Signal to noise (dB)	9.4	9.5	9.6	7.9	8.9	14.6	9.5	10.1	13.7	10.8	11.5	11.9	12.1	11.0	11.0	10.9	10.5	10.6	10.7	10.1	9.1	7.3	4.1	1.6	-0.3	-1.2	-1.4	-1.5	8.9
	Uncertainty (dB)	2.1	1.7	1.1	1.7	1.2	0.9	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	0.8	1.0	1.8	2.3	2.2	2.3	2.9	3.6	0.8
	PWL (dBA)	56.9	61.1	65.4	69.4	73.6	84.0	80.2	82.5	88.4	86.1	87.7	89.1	89.4	89.3	90.4	90.8	91.7	91.2	91.3	90.3	88.7	87.4	83.9	[81.1]	[78.5]	[77.4]	[74.7]	[70.2]	101.5
8.0	Turbine ON (dBA)	7.3	11.5	15.7	19.9	23.5	32.9	30.2	31.7	37.5	34.9	36.3	37.6	38.3	38.5	40.0	40.7	41.8	41.4	41.7	40.8	39.3	38.2	36.2	34.8	32.8	32.0	29.5	25.1	51.5
	Background (dBA)	-2.8	1.3	5.5	10.4	14.8	19.0	20.7	22.9	24.2	25.6	26.4	26.9	27.5	29.0	29.9	30.5	31.5	30.6	30.5	30.4	29.7	30.6	31.4	31.9	31.2	30.8	28.4	23.8	42.7
	Turbine ON - background adj (dBA)	6.8	11.0	15.3	19.4	22.8	32.7	29.7	31.1	37.3	34.4	35.9	37.2	37.9	38.0	39.5	40.3	41.4	41.0	41.4	40.4	38.8	37.3	34.5	[31.8]	[29.8]	[29]	[26.5]	[22.1]	51.0
	Signal to noise (dB)	10.0	10.2	10.2	9.5	8.6	13.9	9.6	8.8	13.3	9.3	10.0	10.7	10.8	9.6	10.0	10.2	10.3	10.8	11.3	10.5	9.6	7.6	4.8	3.0	1.7	1.2	1.1	1.2	8.8
	Uncertainty (dB)	2.2	1.8	1.2	1.7	1.2	1.0	0.9	1.0	0.9	0.9	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.9	0.8	0.8	1.0	1.7	2.4	2.3	2.4	3.1	3.8	0.9
	PWL (dBA)	57.3	61.6	65.9	69.9	73.4	83.3	80.3	81.7	87.8	84.9	86.4	87.8	88.5	88.6	90.1	90.8	91.9	91.6	92.0	91.0	89.4	87.9	85.1	[82.4]	[80.4]	[79.6]	[77.1]	[72.6]	101.5
9.0	Turbine ON (dBA)	7.9	12.3	16.5	20.8	24.2	33.2	30.8	32.0	37.3	34.9	36.2	37.3	38.0	38.3	39.7	40.6	41.8	41.6	42.2	41.3	39.8	38.7	36.9	35.7	33.8	33.1	30.6	26.1	51.7
	Background (dBA)	-2.4	1.9	5.8	10.3	14.8	19.4	20.7	22.6	25.1	25.9	27.0	27.5	28.2	29.8	30.4	31.0	32.1	31.1	30.8	30.5	29.9	30.8	31.7	32.2	31.5	31.2	28.7	24.1	43.1
	Turbine ON - background adj (dBA)	7.5	11.8	16.1	20.4	23.7	33.1	30.3	31.5	37.0	34.4	35.6	36.8	37.5	37.6	39.2	40.1	41.2	41.2	41.9	41.0	39.4	37.9	35.4	33.1	[30.8]	[30.1]	[27.6]	[23.1]	51.1
	Signal to noise (dB)	10.3	10.4	10.7	10.5	9.5	13.9	10.0	9.4	12.2	9.1	9.2	9.8	9.8	8.4	9.3	9.6	9.6	10.6	11.5	10.8	9.9	7.9	5.2	3.5	2.3	1.9	1.8	2.0	8.6
	Uncertainty (dB)	2.0	1.7	1.1	1.5	1.1	0.9	0.8	0.9	0.8	0.9	0.7	0.7	0.7	0.8	0.7	0.7	0.7	0.8	0.8	0.7	0.7	0.9	1.5	2.0	2.1	2.3	2.9	3.6	0.8
	PWL (dBA)	58.1	62.4	66.7	70.9	74.3	83.6	80.9	82.0	87.6	84.9	86.2	87.4	88.1	88.1	89.7	90.6	91.8	91.8	92.5	91.5	89.9	88.5	85.9	83.7	[81.4]	[80.6]	[78.1]	[73.6]	101.7

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: North Kent Wind Farm - IEC 61400- 11 Edition 3.0 - Turbine T4

Report ID: 17283.03.T4.RP3

Created on: 1/28/2021

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	
7.5	Turbine ON	7.55	14.00	Average (dBA)	6.7	10.7	15.5	19.5	23.0	33.1	29.5	31.6	36.1	35.3	36.9	38.5	38.9	39.1	40.2	40.4	41.1	40.5	40.6	39.5	38.1	36.7	33.6	30.6	26.7	24.4	21.4	16.9	50.8
				Uncertainty A (dB)	0.4	0.4	0.4	0.3	0.3	0.2	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.4	0.7	0.8	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	1.6	1.1	1.0	0.9	0.9	0.9	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	7.51	18.00	Average (dBA)	-6.0	1.0	4.2	9.4	16.0	19.3	19.6	19.5	20.3	20.9	21.8	23.2	22.9	23.7	24.9	24.7	26.2	24.8	24.4	23.9	23.5	24.2	24.9	25.4	24.7	24.3	21.8	17.2	37.1
				Uncertainty A (dB)	0.4	0.8	0.6	0.5	1.2	0.8	0.9	0.9	0.7	0.8	0.8	0.8	0.9	0.9	0.9	1.1	1.5	1.5	1.5	1.6	1.6	1.5	1.5	1.6	1.6	1.6	1.6	1.5	
				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	1.8	1.2	1.6	1.6	1.2	1.2	1.2	1.1	1.2	1.1	1.1	1.1	1.2	1.1	1.3	1.6	1.7	1.7	1.7	1.7	1.7	1.9	1.9	1.9	1.9	2.1	2.3	
8.0	Turbine ON	8.03	26.00	Average (dBA)	7.2	11.8	16.2	20.3	24.3	33.7	31.2	32.8	38.0	36.4	37.6	39.2	39.7	39.9	41.1	41.3	42.0	41.3	41.4	40.2	38.8	37.5	34.3	31.3	27.4	25.2	22.2	17.7	51.7
				Uncertainty A (dB)	0.3	0.4	0.3	0.3	0.4	0.2	0.3	0.3	0.3	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.3	0.5	0.6	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	1.6	1.1	1.0	0.9	0.9	0.9	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	1.2	1.5	1.8	
	Background	8.00	17.00	Average (dBA)	-3.9	1.3	4.4	9.1	14.6	17.9	18.7	20.7	22.9	23.2	24.2	25.1	25.3	26.4	26.8	26.8	29.3	28.9	27.8	27.9	26.9	27.5	28.1	28.5	27.9	27.6	25.2	21.0	40.0
				Uncertainty A (dB)	0.8	0.9	0.7	0.4	1.1	0.6	0.6	1.1	1.1	1.3	1.3	1.2	1.2	1.3	1.3	1.4	1.9	1.8	1.6	1.7	1.6	1.5	1.5	1.5	1.5	1.6	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)	2.1	1.9	1.3	1.6	1.5	1.1	1.0	1.4	1.4	1.5	1.5	1.4	1.4	1.5	1.5	1.6	2.0	2.0	1.8	1.9	1.7	1.7	1.8	1.8	1.8	1.9	2.1	2.4	
8.5	Turbine ON	8.50	46	Average (dBA)	7.0	11.5	15.8	20.1	23.7	33.7	31.0	32.4	37.6	36.7	37.6	39.2	39.6	39.7	40.9	41.1	42.0	41.3	41.3	40.2	38.8	37.5	34.6	32.0	28.8	27.2	24.4	19.9	51.7
				Uncertainty A (dB)	0.2	0.3	0.2	0.2	0.2	0.1	0.2	0.1	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.3	0.5	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	0.9	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	1.2	1.5	1.8	
	Background	8.50	18	Average (dBA)	-3.3	1.3	5.2	9.3	13.9	18.0	19.0	21.2	22.8	23.8	24.8	25.9	26.6	27.8	28.6	28.9	30.0	29.7	29.6	30.1	29.1	29.8	30.9	31.4	30.7	30.4	28.0	23.5	41.9
				Uncertainty A (dB)	0.7	0.6	0.5	0.5	0.7	0.6	0.7	0.9	0.8	0.9	1.0	1.0	1.0	1.1	1.1	1.1	1.3	1.3	1.2	1.3	1.2	1.3	1.3	1.3	1.3	1.3	1.4	1.4	
				Uncertainty B (dB)	2.0	1.6	1.1	1.5	1.1	0.9	0.8	0.8	0.8	0.8	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	1.8	1.2	1.6	1.3	1.1	1.1	1.2	1.2	1.2	1.2	1.2	1.2	1.3	1.3	1.3	1.5	1.5	1.4	1.5	1.4	1.5	1.7	1.7	1.7	1.7	1.9	2.2	
9.0	Turbine ON	9.01	61	Average (dBA)	7.0	11.3	15.7	19.9	23.7	33.4	30.6	32.6	38.4	36.3	37.7	39.2	39.6	39.6	40.7	40.8	41.7	41.1	41.1	40.1	38.7	37.6	34.8	32.3	29.0	27.3	24.4	19.9	51.6
				Uncertainty A (dB)	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.2	0.3	0.5	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	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	1.2	1.5	1.8	
	Background	9.03	28	Average (dBA)	-2.8	1.1	5.2	10.7	14.7	20.2	20.4	21.6	23.3	24.3	25.4	26.5	27.2	29.4	31.0	30.6	31.6	31.1	30.4	30.9	30.2	30.8	31.6	32.1	31.4	31.0	28.6	24.0	42.9
				Uncertainty A (dB)	0.5	0.4	0.4	0.6	0.6	0.8	0.6	0.6	0.6	0.6	0.7	0.7	0.8	0.9	1.0	1.0	1.0	1.0	0.9	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
				Uncertainty B (dB)	2.0	1.6	1.1	1.5	1.1	0.9	0.8	0.8	0.8	0.8	0.7	0.7	0.7	0.7	0.7	0.7	0.7	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	1.2	1.2	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.2	1.2	1.2	1.2	1.3	1.2	1.3	1.2	1.3	1.4	1.4	1.4	1.4	1.7	2.0	
9.5	Turbine ON	9.52	75	Average (dBA)	6.3	10.4	14.7	19.1	23.3	33.9	30.0	32.2	38.2	36.1	37.7	39.1	39.4	39.3	40.4	40.8	41.6	41.1	41.0	40.0	38.6	37.6	35.0	32.6	29.5	27.9	25.1	20.6	51.5
				Uncertainty A (dB)	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.3	0.4	0.4	
				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	0.8	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	
	Background	9.50	30	Average (dBA)	-3.6	0.7	5.4	14.3	15.0	18.4	20.8	22.9	24.8	25.7	25.7	26.4	25.6	26.5	28.1	29.1	30.2	29.1	28.7	28.2	27.7	28.8	29.9	30.4	29.8	29.4	26.9	22.3	41.3
				Uncertainty A (dB)	0.5	0.5	0.5	1.3	0.8	0.7	0.9	1.0	1.0	1.0	0.9	0.8	0.7	0.9	0.9	1.0	1.1	1.1	1.0	1.0	1.0	1.0	1.0	1.1	1.1	1.1	1.1	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	1.2	2.0	1.3	1.2	1.2	1.3	1.3	1.3	1.2	1.1	1.0	1.1	1.1	1.3	1.3	1.3	1.3	1.3	1.2	1.3	1.5	1.5	1.5	1.5	1.7	2.0	
10.0	Turbine ON	9.95	59	Average (dBA)	7.2	11.3	15.6	19.9	24.0	34.0	30.4	32.7	37.9	36.2	37.7	39.0	39.2	39.1	40.2	40.5	41.3	40.8	40.9	40.0	38.7	37.8	35.6	33.8	31.5	30.4	27.8	23.4	51.4
				Uncertainty A (dB)	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.4	0.5	0.5	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	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	1.1	1.2	1.5	1.8	
	Background	9.99	39	Average (dBA)	-3.1	0.9	4.7	9.0	13.2	18.2	19.0	20.5	22.4	23.4	24.8	25.9	26.1	27.3	27.8	28.1	28.9	28.7	29.0	28.9	28.6	29.6	30.4	31.0	30.3	30.0	27.6	23.2	41.3
				Uncertainty A (dB)	0.4	0.3	0.3	0.3	0.4	0.5	0.4	0.4	0.4	0.5	0.5	0.6	0.6	0.7	0.6	0.7	0.7	0.7	0.7	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.9	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	1.6	1.1	1.1	0.9	0.9	0.9	1.0	0.9	0.9	0.9	1.0	0.9	1.0	1.0	1.1	1.1	1.1	1.1	1.2	1.3	1.3	1.3	1.4	1.6	1.9	
10.5	Turbine ON	10.50	43	Average (dBA)	7.4	11.6	15.8	19.9	23.5	32.9	30.2	32.3	37.9	35.5	37.1	38.3	38.7	38.7	40.1	40.5	41.5	41.1	41.2	40.4	39.0	37.9	35.8	34.1	31.7	30.6	28.0	23.5	51.4
				Uncertainty A (dB)	0.3	0.3	0.3	0.3	0.3	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.4	0.5	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	1.6	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	10.50	50	Average (dBA)	-1.6	2.3	6.5	10.7	15.3	19.8	21.5	22.8	25.0	25.6	26.7	27.7	28.0	29.0	30.3	30.9	32.3	31.7	31.7	31.2	30.8	31.6	32.5	33.0	32.4	32.1	29.7	25.3	43.6
				Uncertainty A (dB)	0.4	0.3	0.3	0.3	0.4	0.5	0.4	0.4	0.5	0.4	0.4	0.4	0.5	0.5	0.5	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.7	0.7	0.7	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	1.6	1.1	1.1	0.9	0.9	0.9	0.9	0.8	0.8	0.8	0.9	0.9	0.9	0.9	0.9	1.0	0.9	0.9	1.0	1.2	1.2	1.2	1.3	1.5	1.9	

Table C.04 Detailed measurement uncertainty at hub height

Project: North Kent Wind Farm - IEC 61400- 11 Edition 3.0 - Turbine T4

Report ID: 17283.03.T4.RP3

Created on: 1/28/2021

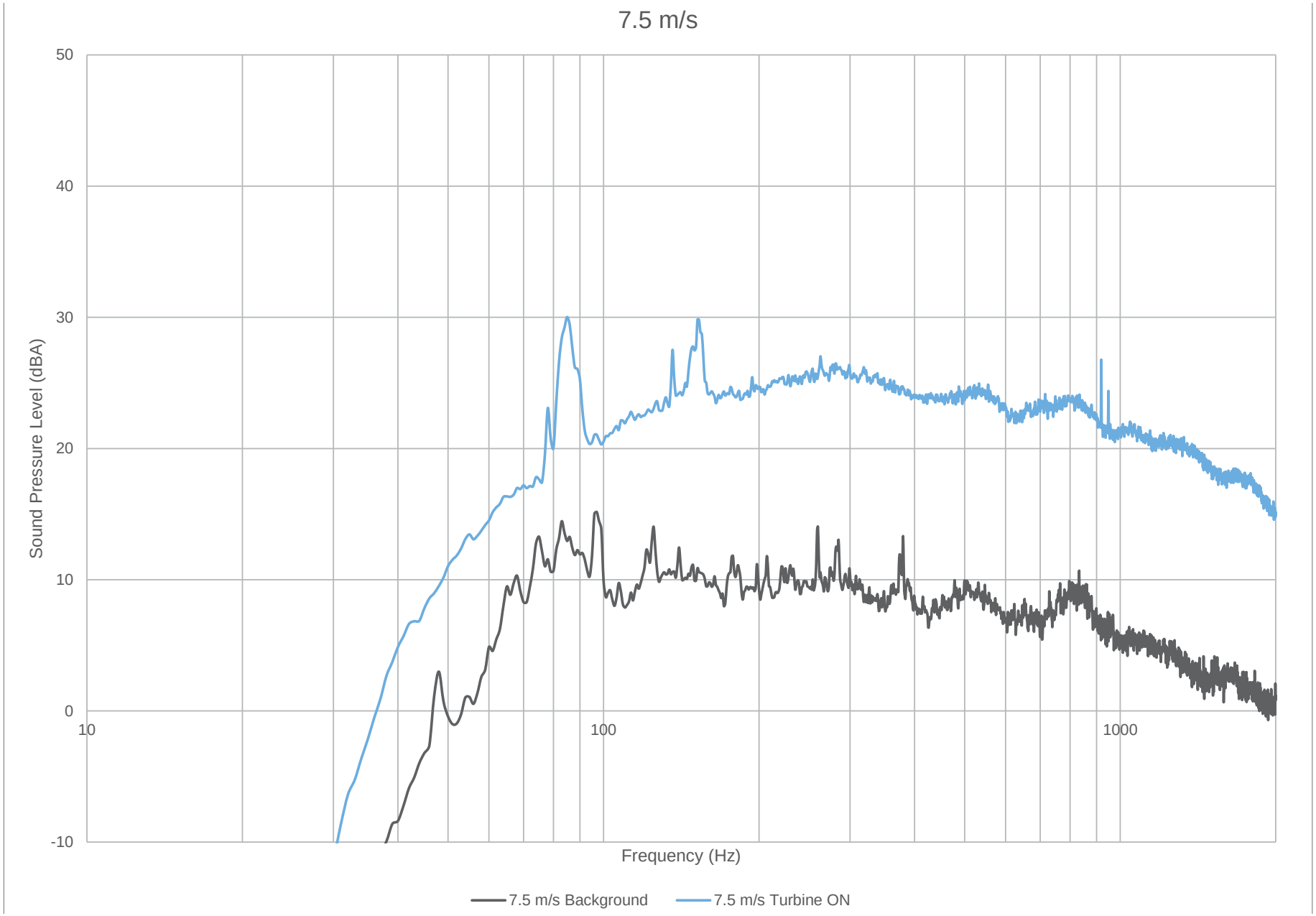
Wind Bin (m/s)	Parameter	Average Wind Speed (m/s)	# of data points	Parameter	1/3 Octave Band (Hz)																												Overall
					20	25	31.5	40	50	63	80	100	125	160	200	250	315	400	500	630	800	1000	1250	1600	2000	2500	3150	4000	5000	6300	8000	10000	
11.0	Turbine ON	10.99	45	Average (dBA)	7.3	11.5	15.8	20.0	23.5	33.1	30.3	32.1	37.7	35.6	37.0	38.2	38.8	38.8	40.1	40.6	41.6	41.2	41.4	40.5	39.1	38.0	35.9	34.4	32.2	31.3	28.7	24.2	51.5
				Uncertainty A (dB)	0.3	0.3	0.3	0.3	0.3	0.1	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.3	0.4	0.5	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	1.6	1.1	1.0	0.9	0.9	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	1.2	1.5	1.8	
	Background	10.99	46	Average (dBA)	-3.0	1.3	5.4	11.0	15.5	19.5	21.0	23.6	24.9	26.8	26.4	26.9	27.4	28.7	29.7	30.4	31.9	30.8	30.7	30.1	29.6	30.7	31.2	31.5	30.8	30.5	28.1	23.5	42.7
				Uncertainty A (dB)	0.3	0.2	0.2	0.3	0.4	0.4	0.3	0.5	0.5	0.6	0.5	0.4	0.3	0.4	0.4	0.4	0.5	0.5	0.5	0.5	0.5	0.6	0.6	0.6	0.6	0.6	0.6	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	1.6	1.1	1.0	0.9	1.0	0.9	1.0	0.8	0.8	0.8	0.8	0.8	0.8	0.9	0.9	0.9	0.9	0.9	1.0	1.2	1.2	1.2	1.2	1.5	1.8	
11.5	Turbine ON	11.49	53	Average (dBA)	7.3	11.4	15.6	19.8	23.5	32.8	30.3	31.8	37.5	34.8	36.3	37.5	38.2	38.5	40.1	40.9	42.0	41.6	41.9	40.9	39.4	38.2	36.3	34.9	32.9	32.1	29.6	25.2	51.6
				Uncertainty A (dB)	0.3	0.3	0.3	0.3	0.3	0.1	0.3	0.3	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.3	0.4	0.5	0.5	
				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	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	1.4	1.8	
	Background	11.51	51	Average (dBA)	-2.9	1.1	5.5	9.9	14.3	18.8	21.0	23.2	23.9	24.6	26.2	26.6	27.2	29.0	30.2	30.9	31.7	30.5	30.3	30.7	29.6	30.2	31.1	31.6	30.9	30.6	28.1	23.5	42.6
				Uncertainty A (dB)	0.3	0.2	0.2	0.2	0.3	0.4	0.4	0.5	0.3	0.3	0.3	0.3	0.3	0.4	0.5	0.5	0.5	0.5	0.5	0.6	0.5	0.5	0.5	0.5	0.5	0.5	0.5	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	0.9	1.0	0.9	0.9	0.8	0.8	0.8	0.8	0.8	0.9	0.9	0.9	0.9	1.0	0.9	1.0	1.2	1.2	1.1	1.2	1.5	1.8	
12.0	Turbine ON	11.99	51	Average (dBA)	7.3	11.5	15.8	19.8	23.5	32.9	30.0	31.3	37.2	34.4	35.7	37.1	37.9	38.3	39.7	40.6	41.8	41.5	41.9	41.1	39.5	38.3	36.5	35.2	33.4	32.6	30.1	25.7	51.5
				Uncertainty A (dB)	0.3	0.3	0.3	0.3	0.3	0.1	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.3	0.3	0.4	0.4	
				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	0.8	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	
	Background	12.02	47	Average (dBA)	-2.6	1.4	5.7	10.1	14.7	18.5	19.7	21.5	23.5	24.8	26.4	27.1	27.8	29.1	29.7	29.8	30.7	30.3	30.4	30.0	29.6	30.6	31.7	32.2	31.5	31.2	28.9	24.3	42.7
				Uncertainty A (dB)	0.4	0.3	0.2	0.2	0.3	0.3	0.2	0.3	0.3	0.4	0.4	0.4	0.4	0.5	0.4	0.4	0.4	0.4	0.5	0.5	0.5	0.6	0.6	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	0.9	0.9	0.9	0.9	0.8	0.8	0.8	0.9	0.8	0.8	0.8	0.9	0.9	0.9	0.9	1.0	1.2	1.2	1.2	1.2	1.5	1.8	
12.5	Turbine ON	12.48	46	Average (dBA)	7.6	12.0	16.3	20.7	24.0	33.0	30.7	31.8	37.2	35.1	36.2	37.3	38.0	38.3	39.6	40.4	41.7	41.5	42.1	41.1	39.6	38.4	36.6	35.2	33.2	32.5	29.9	25.3	51.6
				Uncertainty A (dB)	0.2	0.3	0.3	0.3	0.2	0.1	0.3	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.3	0.4	0.5	0.5	
				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	1.6	1.1	1.0	0.9	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	1.1	1.4	1.8	
	Background	12.48	29	Average (dBA)	-2.4	1.7	5.7	10.4	14.6	20.1	20.2	22.7	24.5	25.4	26.9	27.5	28.3	30.4	30.4	30.5	31.8	31.4	31.1	31.3	30.5	31.3	32.2	32.8	32.0	31.7	29.3	24.7	43.4
				Uncertainty A (dB)	0.4	0.3	0.3	0.2	0.3	0.6	0.3	0.4	0.4	0.3	0.4	0.4	0.4	0.6	0.4	0.4	0.5	0.5	0.5	0.6	0.5	0.5	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	1.1	0.9	0.9	0.9	0.9	0.8	0.8	0.8	0.9	0.8	0.8	0.9	0.9	0.9	1.0	0.9	1.0	1.2	1.2	1.2	1.2	1.5	1.8	

Table C.05 Secondary Windscreen Influence

1/3-Octave Band (Hz)	Parameter	
	Insertion Loss (dB)	Standard Deviation (dB)*
20	0.0	-
25	0.0	-
31.5	0.0	-
40	0.0	-
50	0.0	-
63	0.0	-
80	0.0	-
100	0.0	0.2
125	0.0	0.2
160	0.0	0.2
200	0.0	0.0
250	-0.1	0.2
315	-0.1	0.1
400	0.2	0.2
500	0.3	0.1
630	0.6	0.2
800	0.0	0.1
1000	0.2	0.3
1250	0.5	0.4
1600	0.6	0.3
2000	0.7	0.2
2500	1.0	0.2
3150	0.5	0.7
4000	0.1	0.7
5000	-0.5	0.6
6300	0.5	0.7
8000	0.9	1.1
10000	0.7	0.9

*Per IEC 61400-11 Edition 3.0 Annex E, the insertion loss below 100 Hz has been assumed as 0 dB

Appendix D
Tonality Assessment



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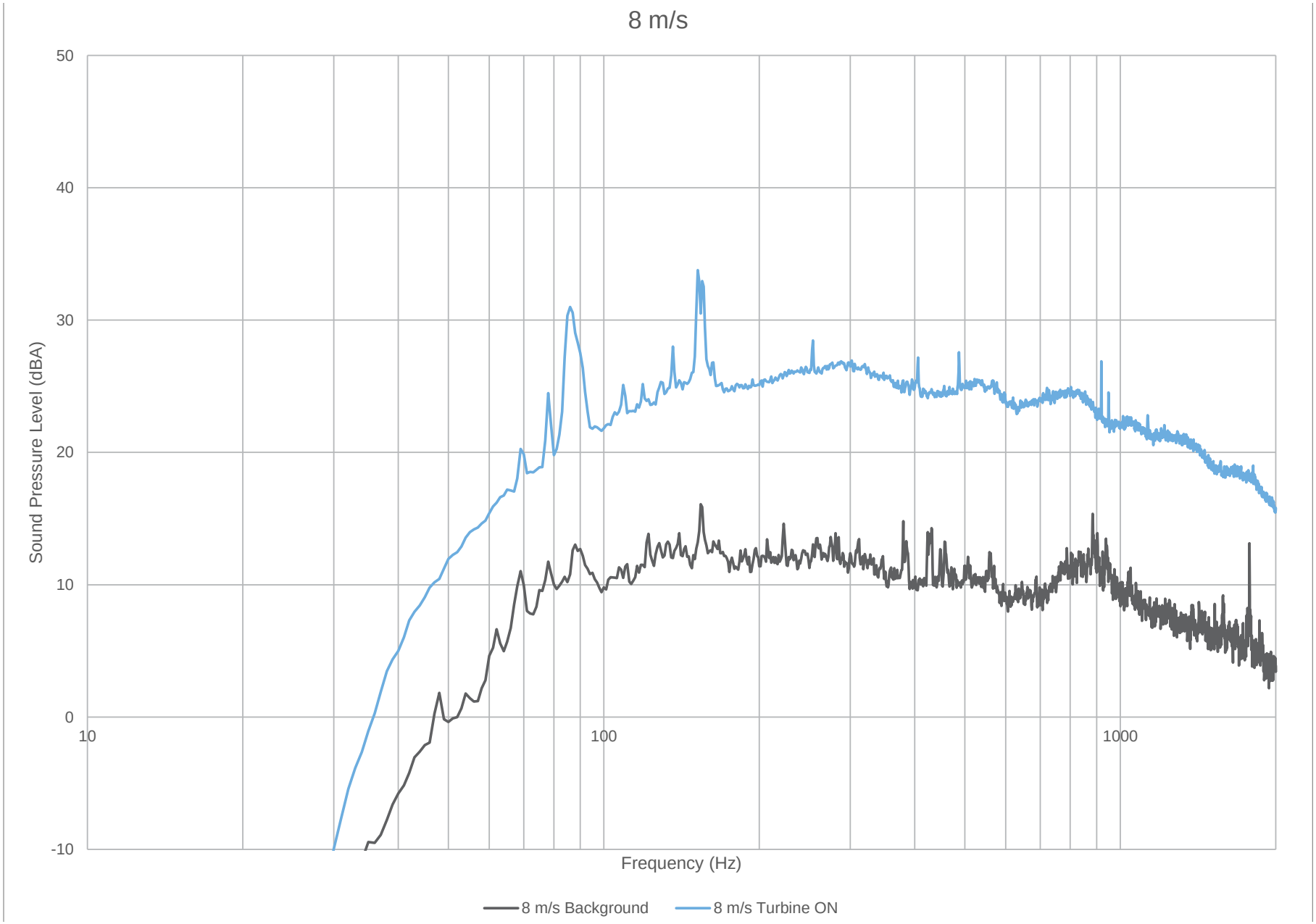
17283.03.T4.RP3	**Project Name**
Scale: NTS Drawn by: CB Reviewed by: AM Date: Jan 2021 Revision: 3	North Kent Wind Farm - IEC 61400- 11 Edition 3.0 - Turbine T4
	Figure Title Plot of narrow band spectra - Turbine ON vs. Background at 7.5 m/s

Figure D.01



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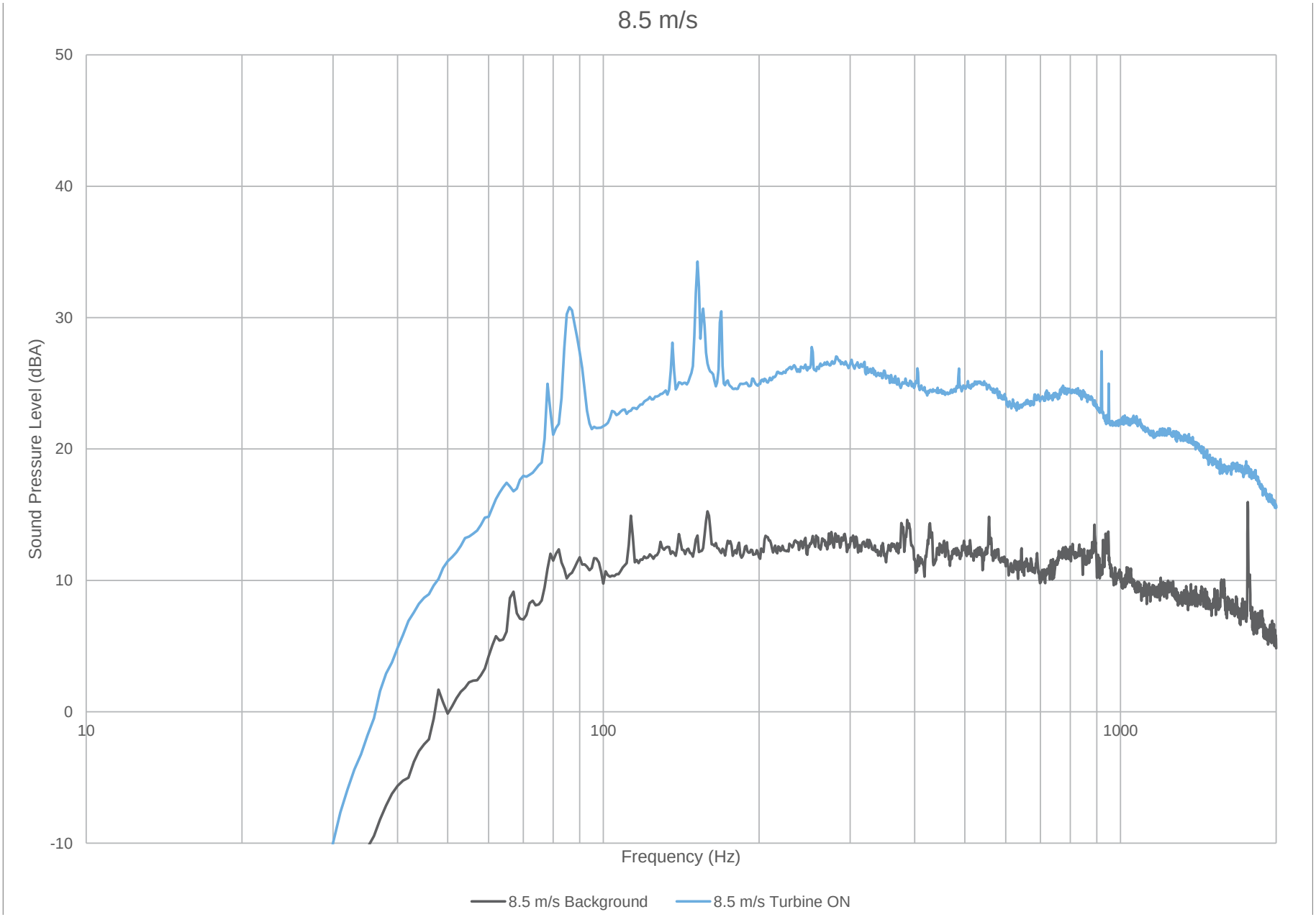
17283.03.T4.RP3	**Project Name**
Scale: NTS Drawn by: CB Reviewed by: AM Date: Jan 2021 Revision: 3	North Kent Wind Farm - IEC 61400- 11 Edition 3.0 - Turbine T4
	Figure Title Plot of narrow band spectra - Turbine ON vs. Background at 8.0 m/s

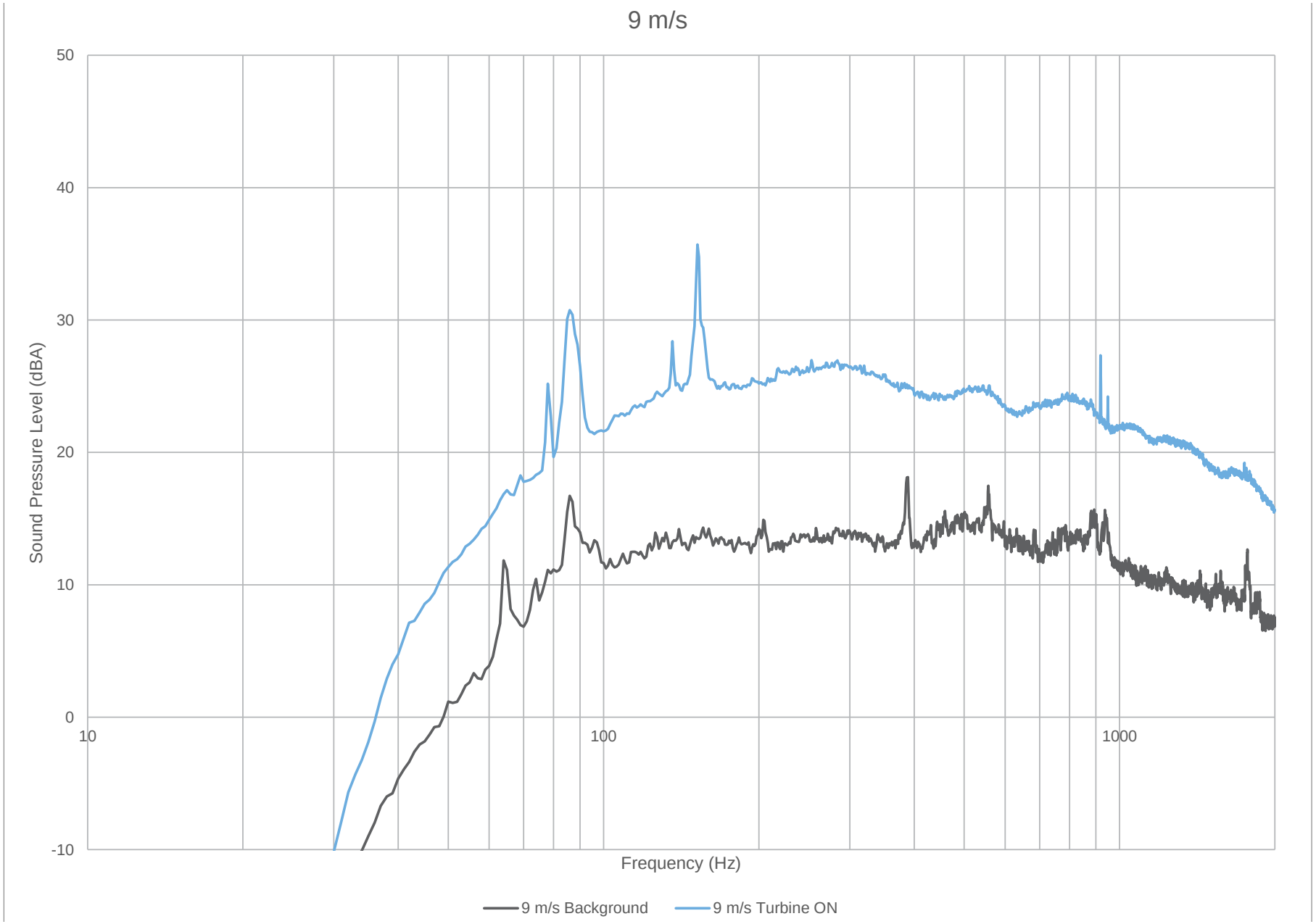
Figure D.02



aercoustics

17283.03.T4.RP3	**Project Name**
Scale: NTS Drawn by: CB Reviewed by: AM Date: Jan 2021 Revision: 3	North Kent Wind Farm - IEC 61400- 11 Edition 3.0 - Turbine T4
	Figure Title Plot of narrow band spectra - Turbine ON vs. Background at 8.5 m/s

Figure D.03



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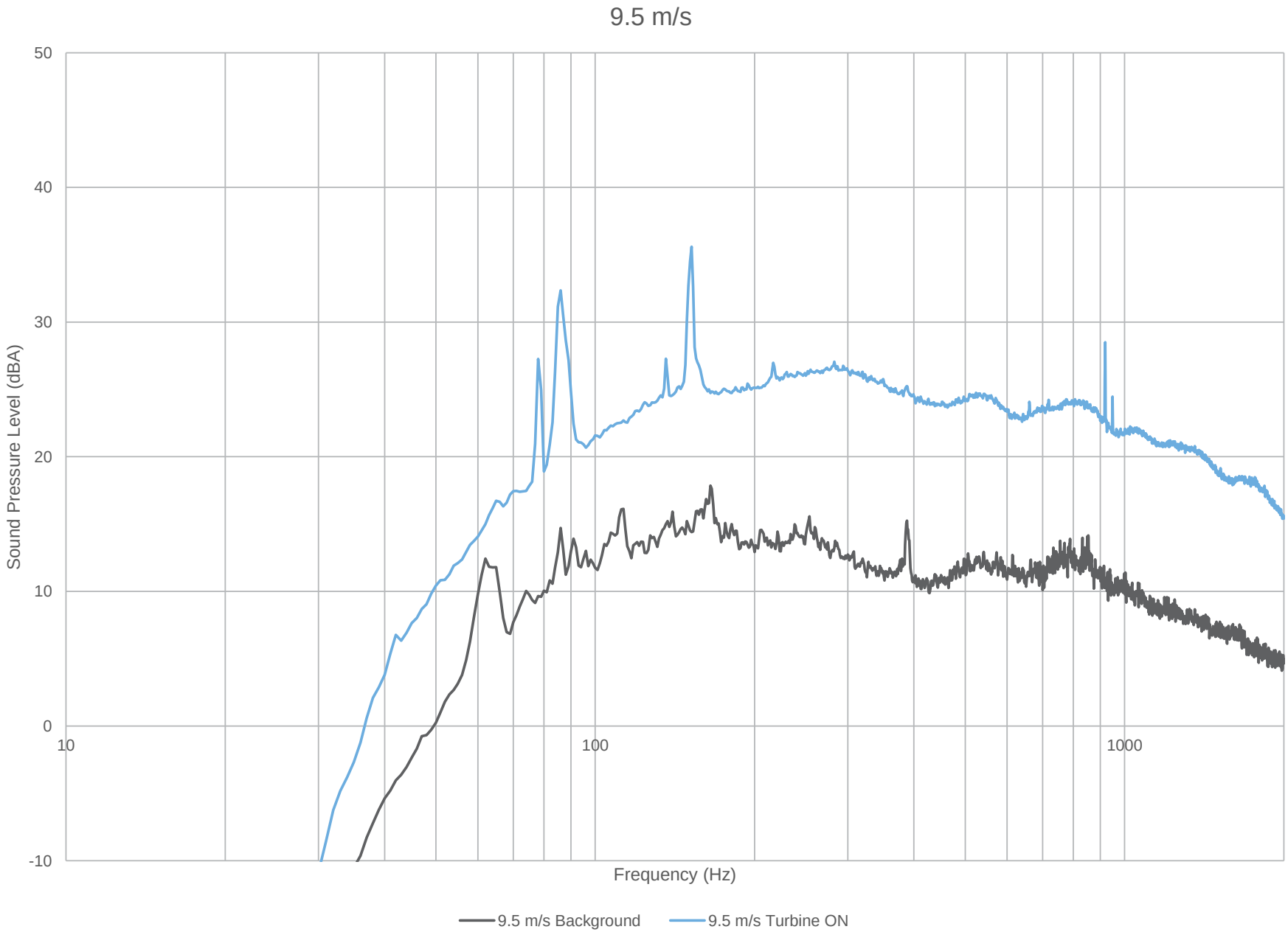
17283.03.T4.RP3	**Project Name**
Scale: NTS Drawn by: CB Reviewed by: AM Date: Jan 2021 Revision: 3	North Kent Wind Farm - IEC 61400- 11 Edition 3.0 - Turbine T4
	Figure Title
	Plot of narrow band spectra - Turbine ON vs. Background at 9.0 m/s

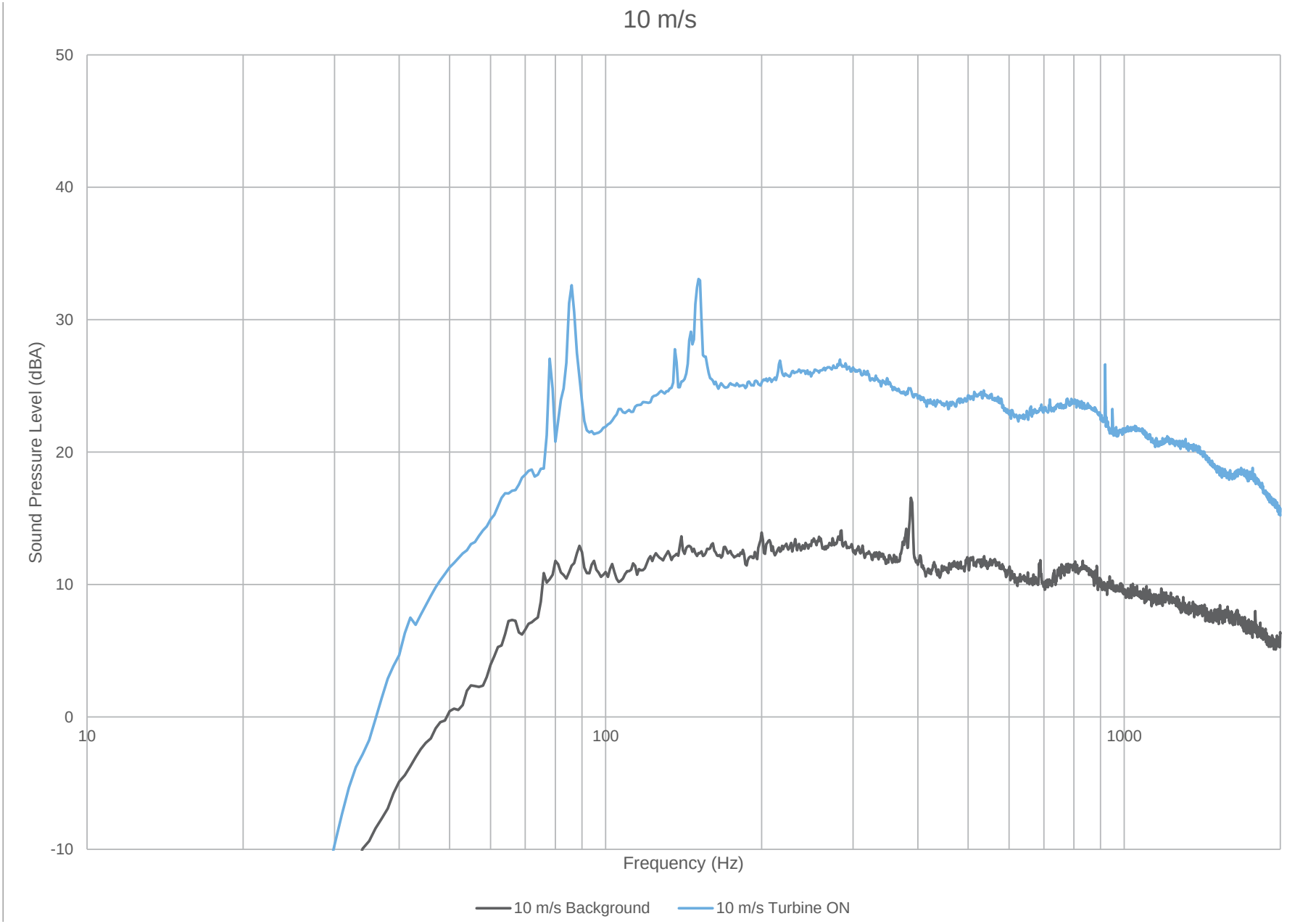
Figure D.04



aercoustics

17283.03.T4.RP3	**Project Name**
Scale: NTS Drawn by: CB Reviewed by: AM Date: Jan 2021 Revision: 3	North Kent Wind Farm - IEC 61400- 11 Edition 3.0 - Turbine T4
	Figure Title Plot of narrow band spectra - Turbine ON vs. Background at 9.5 m/s

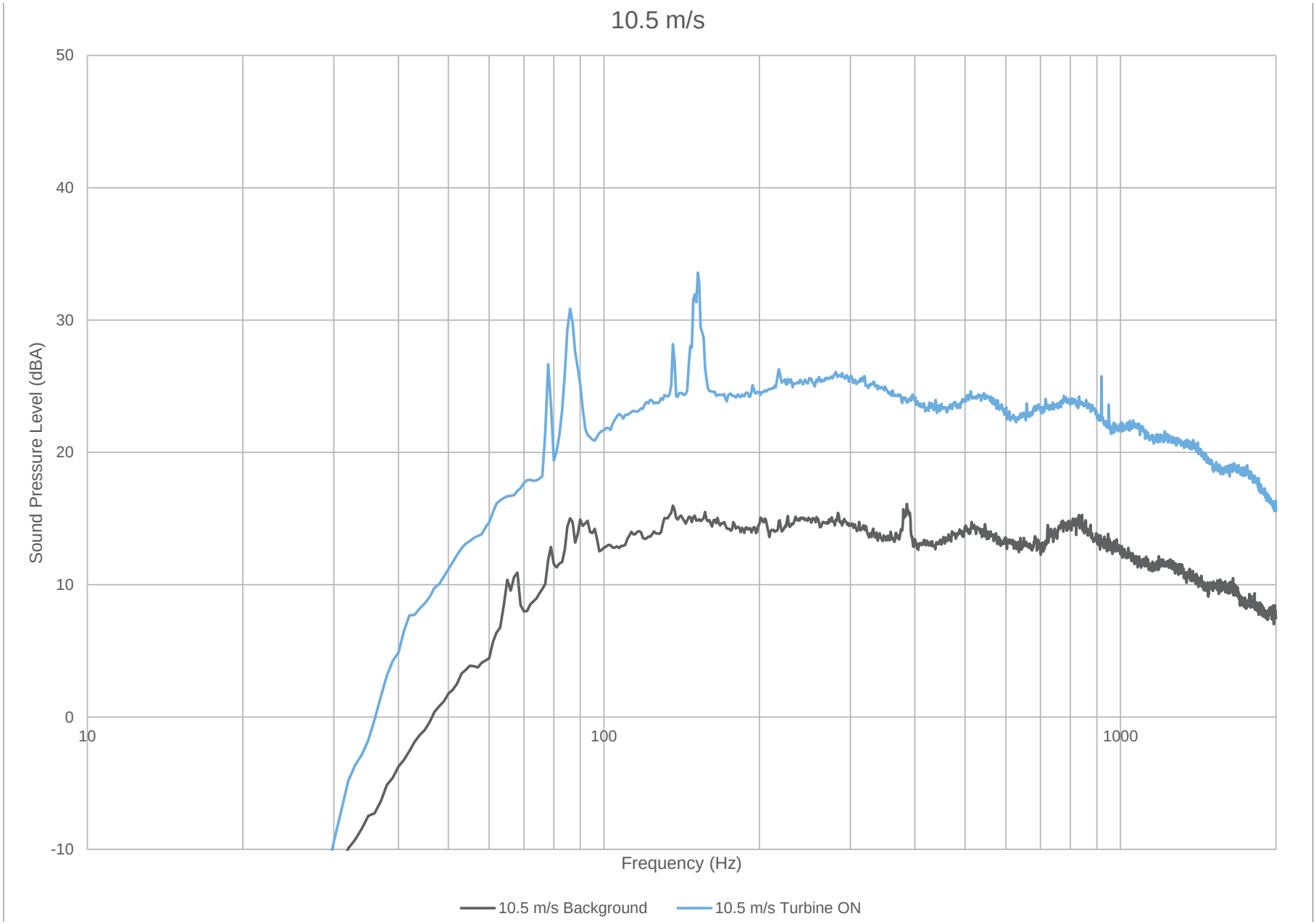
Figure D.05



aercoustics

17283.03.T4.RP3	**Project Name**
Scale: NTS Drawn by: CB Reviewed by: AM Date: Jan 2021 Revision: 3	North Kent Wind Farm - IEC 61400- 11 Edition 3.0 - Turbine T4
	Figure Title Plot of narrow band spectra - Turbine ON vs. Background at 10.0 m/s

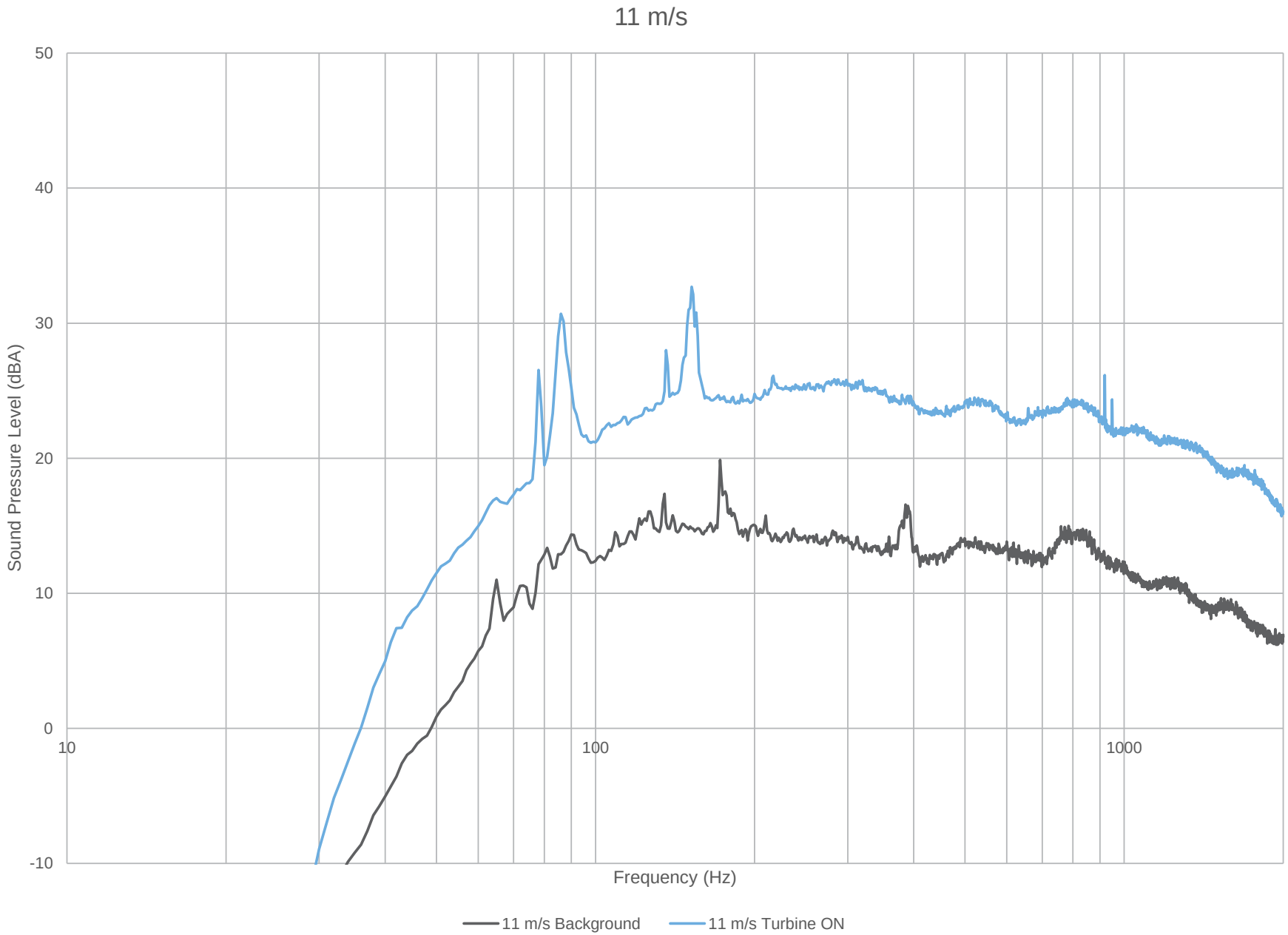
Figure D.06



aercoustics

17283.03.T4.RP3	**Project Name**
Scale: NTS Drawn by: CB Reviewed by: AM Date: Jan 2021 Revision: 3	North Kent Wind Farm - IEC 61400- 11 Edition 3.0 - Turbine T4
	Figure Title Plot of narrow band spectra - Turbine ON vs. Background at 10.5 m/s

Figure D.07



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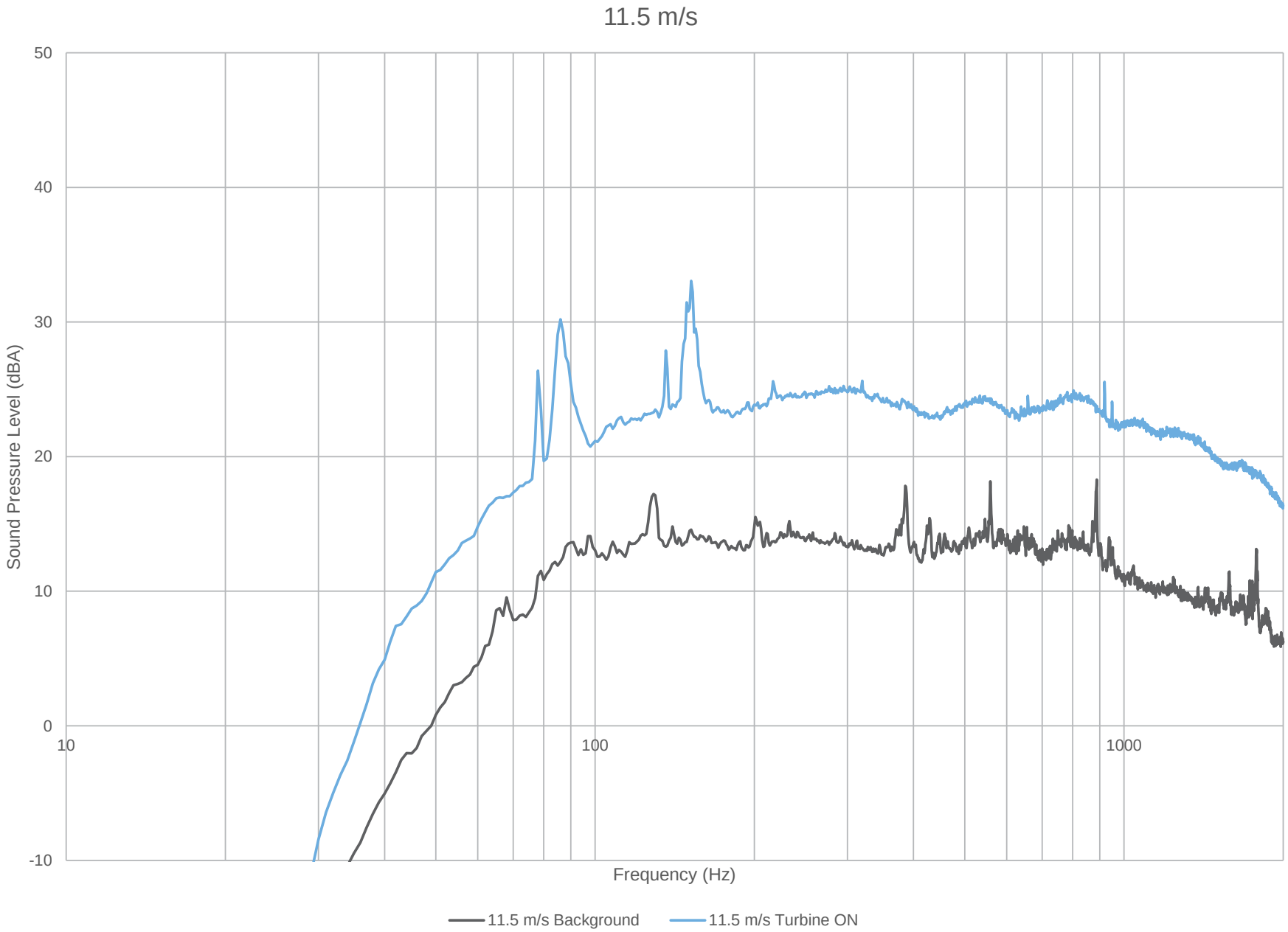
17283.03.T4.RP3	**Project Name**
Scale: NTS Drawn by: CB Reviewed by: AM Date: Jan 2021 Revision: 3	North Kent Wind Farm - IEC 61400- 11 Edition 3.0 - Turbine T4
	Figure Title Plot of narrow band spectra - Turbine ON vs. Background at 11.0 m/s

Figure D.08



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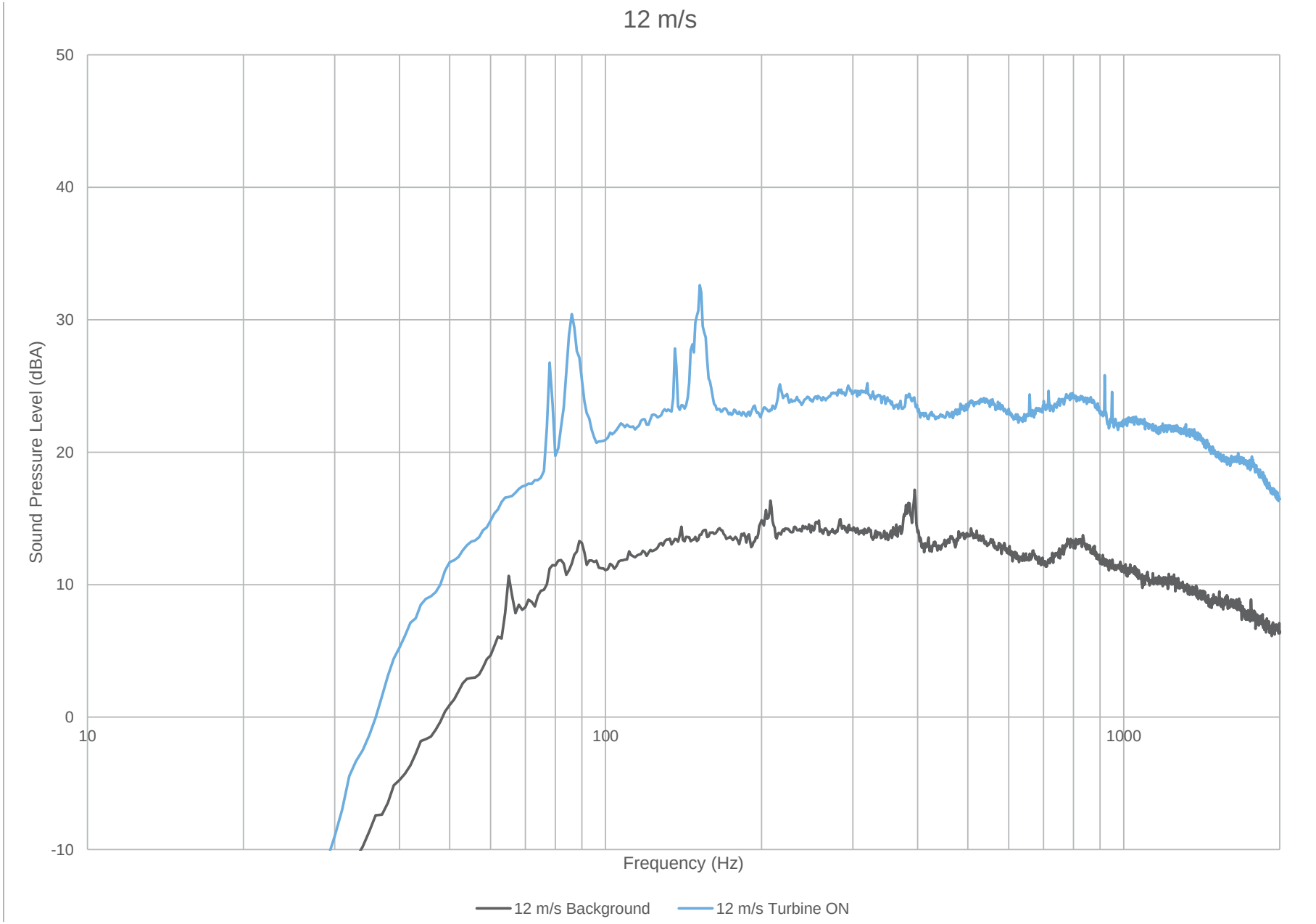
17283.03.T4.RP3	**Project Name**
Scale: NTS Drawn by: CB Reviewed by: AM Date: Jan 2021 Revision: 3	North Kent Wind Farm - IEC 61400- 11 Edition 3.0 - Turbine T4
	Figure Title Plot of narrow band spectra - Turbine ON vs. Background at 11.5 m/s

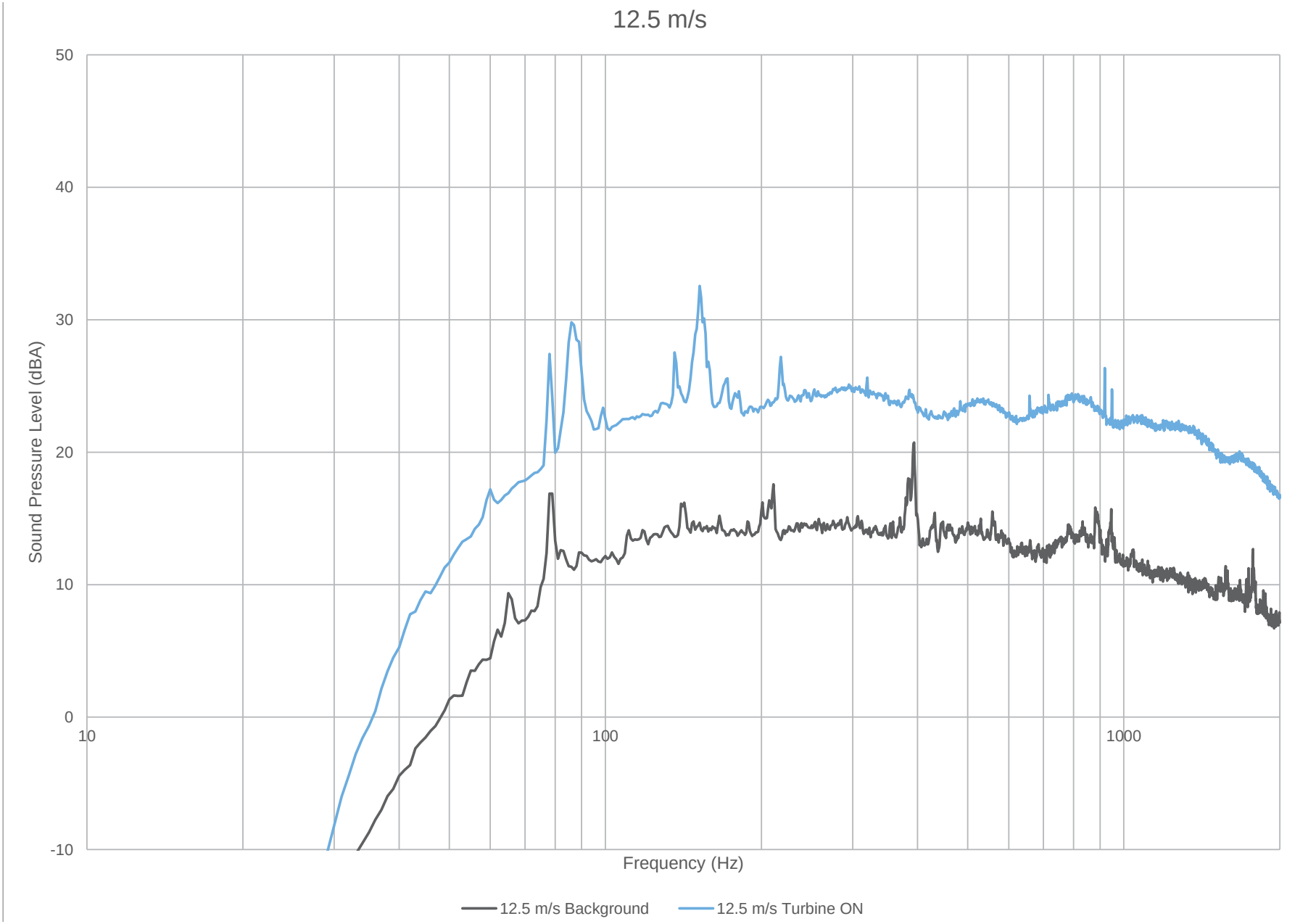
Figure D.09



aercoustics

17283.03.T4.RP3	**Project Name**
Scale: NTS Drawn by: CB Reviewed by: AM Date: Jan 2021 Revision: 3	North Kent Wind Farm - IEC 61400- 11 Edition 3.0 - Turbine T4
	Figure Title Plot of narrow band spectra - Turbine ON vs. Background at 12.0 m/s

Figure D.10



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17283.03.T4.RP3	**Project Name**
Scale: NTS Drawn by: CB Reviewed by: AM Date: Jan 2021 Revision: 3	North Kent Wind Farm - IEC 61400- 11 Edition 3.0 - Turbine T4
	Figure Title Plot of narrow band spectra - Turbine ON vs. Background at 12.5 m/s

Figure D.11

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

Created on: 1/28/2021

Project: North Kent Wind Farm - IEC 61400- 11 Edition 3.0 - Turbine T4

Report ID: 17283.03.T4.RP3

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)
604	62	20.5	38.7	36.5	-2.2	-2.0	-0.2
663	63	19.5	37.7	37.0	-0.7	-2.0	1.3
642	64	18.9	37.1	34.6	-2.6	-2.0	-0.6
641	64	18.8	37.1	36.3	-0.8	-2.0	1.3
649	64	21.4	39.6	35.4	-4.2	-2.0	-2.2
648	65	21.1	39.3	36.3	-3.1	-2.0	-1.1
643	65	19.3	37.6	35.2	-2.3	-2.0	-0.3
356	65	22.4	40.6	34.6	-6.0	-2.0	-4.0
357	65	21.5	39.7	36.1	-3.6	-2.0	-1.6
596	66	20.8	39.0	35.6	-3.5	-2.0	-1.4
603	66	20.0	38.3	36.5	-1.7	-2.0	0.3
662	66	20.8	39.0	32.1	-6.9	-2.0	-4.9
640	66	19.5	37.7	34.7	-3.0	-2.0	-1.0
644	66	19.1	37.3	35.9	-1.4	-2.0	0.6
Average	65				-2.7	-2.0	-0.7

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

Created on: 1/28/2021

Project: North Kent Wind Farm - IEC 61400- 11 Edition 3.0 - Turbine T4

Report ID: 17283.03.T4.RP3

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)
594	65	19.7	37.9	36.8	-1.1	-2.0	0.9
354	65	20.5	38.7	35.7	-3.1	-2.0	-1.1
595	65	19.1	37.3	35.9	-1.4	-2.0	0.6
353	65	20.2	38.4	35.7	-2.7	-2.0	-0.7
726	65	20.7	38.9	38.8	0.0	-2.0	2.0
355	65	21.3	39.5	34.8	-4.7	-2.0	-2.7
602	65	20.3	38.5	35.7	-2.8	-2.0	-0.8
393	65	20.9	39.2	34.6	-4.5	-2.0	-2.5
590	66	19.2	37.5	35.4	-2.0	-2.0	0.0
591	66	20.5	38.7	36.4	-2.3	-2.0	-0.3
661	66	20.9	39.1	35.4	-3.7	-2.0	-1.7
691	66	22.6	40.8	41.6	0.8	-2.0	2.8
394	66	21.0	39.2	34.1	-5.1	-2.0	-3.1
396	66	22.3	40.5	32.9	-7.6	-2.0	-5.6
655	66	22.8	41.1	34.4	-6.6	-2.0	-4.6
608	66	23.0	41.2	34.2	-7.1	-2.0	-5.1
667	66	20.0	38.3	34.8	-3.5	-2.0	-1.5
645	66	20.1	38.3	35.3	-3.1	-2.0	-1.1
395	66	20.8	39.0	37.2	-1.8	-2.0	0.2
597	66	23.5	41.7	36.4	-5.3	-2.0	-3.3
646	67	20.7	39.0	36.0	-3.0	-2.0	-1.0
658	67	22.2	40.5	36.0	-4.5	-2.0	-2.5
647	67	21.2	39.4	36.4	-3.0	-2.0	-1.0
656	67	22.5	40.7	37.0	-3.7	-2.0	-1.7
358	68	22.5	40.7	36.9	-3.8	-2.0	-1.8
617	89	25.2	43.4	41.0	-2.4	-2.0	-0.4
Average	67				-3.0	-2.0	-1.0

Table D.03 Tonality Assessment Table - 8.5 m/s

Created on: 1/28/2021

Project: North Kent Wind Farm - IEC 61400- 11 Edition 3.0 - Turbine T4

Report ID: 17283.03.T4.RP3

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)
352	65	21.1	39.4	35.0	-4.4	-2.0	-2.4
725	65	20.3	38.5	37.7	-0.9	-2.0	1.1
682	65	19.2	37.4	37.0	-0.4	-2.0	1.6
639	65	19.0	37.2	37.2	0.0	-2.0	2.0
728	65	21.0	39.2	37.9	-1.3	-2.0	0.7
689	65	22.5	40.7	34.1	-6.6	-2.0	-4.6
688	65	21.2	39.4	35.7	-3.7	-2.0	-1.7
382	65	20.9	39.1	35.6	-3.6	-2.0	-1.6
724	65	20.2	38.5	38.5	0.0	-2.0	2.0
410	65	21.1	39.4	36.0	-3.4	-2.0	-1.4
409	65	21.3	39.5	34.6	-4.9	-2.0	-2.9
384	65	20.8	39.0	36.0	-3.0	-2.0	-1.0
636	66	21.4	39.7	37.4	-2.3	-2.0	-0.3
397	66	22.8	41.1	33.0	-8.0	-2.0	-6.0
351	66	21.2	39.4	34.2	-5.2	-2.0	-3.2
635	66	21.3	39.5	35.5	-4.1	-2.0	-2.1
582	66	21.8	40.0	36.4	-3.6	-2.0	-1.6
637	66	19.9	38.1	37.8	-0.3	-2.0	1.7
683	66	19.6	37.9	36.1	-1.7	-2.0	0.3
574	66	21.3	39.6	37.5	-2.0	-2.0	0.0
616	66	21.2	39.4	36.2	-3.2	-2.0	-1.2
678	66	21.9	40.1	35.5	-4.7	-2.0	-2.6
381	66	20.9	39.1	34.4	-4.7	-2.0	-2.7
638	66	19.4	37.6	35.9	-1.7	-2.0	0.3
601	66	20.0	38.2	36.5	-1.7	-2.0	0.3
593	66	20.8	39.0	36.4	-2.6	-2.0	-0.6
618	66	22.2	40.4	37.7	-2.7	-2.0	-0.7
576	66	21.1	39.4	37.9	-1.5	-2.0	0.5
392	66	20.8	39.1	35.0	-4.1	-2.0	-2.1
592	66	20.8	39.0	35.9	-3.1	-2.0	-1.1
657	67	23.1	41.4	37.7	-3.6	-2.0	-1.6
679	67	20.0	38.2	36.1	-2.1	-2.0	-0.1
669	67	19.5	37.7	36.4	-1.3	-2.0	0.7
723	67	21.4	39.7	38.6	-1.0	-2.0	1.0
668	67	19.7	37.9	36.0	-2.0	-2.0	0.0
615	67	20.7	38.9	36.9	-2.0	-2.0	0.0
660	67	21.0	39.3	36.4	-2.9	-2.0	-0.9
619	67	21.1	39.4	35.3	-4.1	-2.0	-2.1
659	67	20.7	39.0	39.0	0.0	-2.0	2.0
598	68	22.2	40.4	37.4	-3.0	-2.0	-1.0
727	68	20.4	38.6	38.1	-0.5	-2.0	1.5
359	69	23.4	41.6	39.0	-2.6	-2.0	-0.6
606	70	21.7	39.9	37.2	-2.7	-2.0	-0.7
609	70	22.9	41.1	36.9	-4.3	-2.0	-2.2
607	70	23.0	41.2	35.1	-6.2	-2.0	-4.2
Average	66				-2.5	-2.0	-0.5

Table D.04 Tonality Assessment Table - 9 m/s

Created on: 1/28/2021

Project: North Kent Wind Farm - IEC 61400- 11 Edition 3.0 - Turbine T4

Report ID: 17283.03.T4.RP3

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)
419	129	26.3	44.6	38.7	-6.0	-2.0	-3.9
210	129	24.9	43.2	41.6	-1.6	-2.0	0.5
340	130	25.8	44.1	36.0	-8.0	-2.0	-6.0
580	130	24.6	42.9	36.6	-6.3	-2.0	-4.3
380	130	24.3	42.6	37.1	-5.5	-2.0	-3.5
631	130	24.7	43.0	35.4	-7.6	-2.0	-5.6
721	131	23.9	42.2	42.0	-0.2	-2.0	1.8
371	131	24.6	42.9	36.6	-6.3	-2.0	-4.2
376	131	25.2	43.4	38.8	-4.7	-2.0	-2.7
711	131	24.8	43.1	38.8	-4.3	-2.0	-2.3
589	131	24.0	42.3	34.7	-7.6	-2.0	-5.6
350	131	25.2	43.5	35.8	-7.7	-2.0	-5.6
408	131	25.4	43.7	38.1	-5.6	-2.0	-3.6
614	131	25.1	43.4	32.4	-11.0	-2.0	-9.0
624	132	24.9	43.2	40.0	-3.2	-2.0	-1.2
622	132	25.6	43.9	34.1	-9.9	-2.0	-7.8
687	132	25.3	43.6	32.9	-10.7	-2.0	-8.7
693	132	24.3	42.5	35.8	-6.7	-2.0	-4.7
341	132	25.8	44.1	39.7	-4.4	-2.0	-2.4
388	132	25.8	44.1	37.3	-6.8	-2.0	-4.8
383	132	24.8	43.1	41.2	-2.0	-2.0	0.1
391	132	25.3	43.5	38.7	-4.9	-2.0	-2.8
675	132	25.2	43.4	33.1	-10.4	-2.0	-8.4
674	132	25.2	43.5	35.7	-7.7	-2.0	-5.7
573	132	24.9	43.2	33.2	-10.0	-2.0	-8.0
588	132	24.2	42.5	36.2	-6.3	-2.0	-4.3
710	132	24.5	42.7	39.8	-2.9	-2.0	-0.9
634	132	25.9	44.2	32.0	-12.2	-2.0	-10.1
387	132	25.1	43.4	38.3	-5.1	-2.0	-3.1
715	132	23.6	41.9	40.6	-1.3	-2.0	0.7
585	132	25.5	43.8	38.6	-5.2	-2.0	-3.2
390	132	25.8	44.1	38.9	-5.3	-2.0	-3.3
681	132	24.3	42.6	35.8	-6.8	-2.0	-4.8
623	132	25.7	44.0	37.7	-6.2	-2.0	-4.2
676	132	25.0	43.3	37.6	-5.7	-2.0	-3.7
722	132	23.8	42.1	40.8	-1.3	-2.0	0.7
673	132	25.0	43.3	39.8	-3.5	-2.0	-1.5
712	132	24.5	42.8	38.2	-4.6	-2.0	-2.6
577	133	25.7	44.0	40.2	-3.7	-2.0	-1.7
584	133	25.4	43.7	39.6	-4.1	-2.0	-2.1
685	133	24.5	42.8	38.1	-4.7	-2.0	-2.7
412	133	26.1	44.4	39.5	-5.0	-2.0	-3.0
620	133	25.0	43.3	37.5	-5.7	-2.0	-3.7
583	133	25.4	43.7	38.8	-4.9	-2.0	-2.9
600	133	25.1	43.4	38.1	-5.3	-2.0	-3.3
684	133	23.8	42.0	37.8	-4.3	-2.0	-2.3
575	133	24.9	43.2	42.0	-1.2	-2.0	0.8
385	133	24.7	43.0	39.1	-3.9	-2.0	-1.9
389	133	25.9	44.2	39.4	-4.8	-2.0	-2.8
411	133	25.6	43.9	40.8	-3.1	-2.0	-1.1
680	133	24.4	42.7	39.4	-3.3	-2.0	-1.3
386	133	25.2	43.5	40.0	-3.4	-2.0	-1.4
672	134	24.5	42.8	35.9	-6.8	-2.0	-4.8
398	135	25.3	43.6	37.7	-5.9	-2.0	-3.8
610	135	24.8	43.1	33.7	-9.4	-2.0	-7.4
599	135	24.2	42.5	38.6	-4.0	-2.0	-2.0
692	135	24.7	43.0	35.1	-7.9	-2.0	-5.9
671	136	24.6	42.9	40.0	-2.8	-2.0	-0.8
670	137	24.6	42.9	37.4	-5.5	-2.0	-3.5
Average	132				-4.8	-2.0	-2.8

Table D.05 Tonality Assessment Table - 9 m/s (2)

Created on: 1/28/2021

Project: North Kent Wind Farm - IEC 61400- 11 Edition 3.0 - Turbine T4

Report ID: 17283.03.T4.RP3

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)
681	63	19.2	37.4	39.1	1.7	-2.0	3.7
391	65	21.6	39.9	35.9	-4.0	-2.0	-2.0
711	65	19.7	37.9	37.6	-0.4	-2.0	1.6
388	65	22.1	40.3	32.0	-8.3	-2.0	-6.3
385	65	21.2	39.5	35.3	-4.1	-2.0	-2.1
386	65	21.1	39.4	35.1	-4.3	-2.0	-2.3
721	65	19.5	37.7	37.4	-0.3	-2.0	1.7
684	65	19.3	37.5	36.1	-1.4	-2.0	0.6
387	65	21.7	40.0	34.2	-5.8	-2.0	-3.8
383	65	20.9	39.1	34.3	-4.9	-2.0	-2.8
623	65	22.2	40.5	35.7	-4.8	-2.0	-2.8
411	65	21.8	40.1	35.0	-5.1	-2.0	-3.1
672	65	20.4	38.6	34.8	-3.8	-2.0	-1.8
340	66	22.6	40.9	35.6	-5.3	-2.0	-3.3
715	66	18.4	36.6	38.5	1.8	-2.0	3.8
710	66	19.7	37.9	35.9	-2.0	-2.0	0.0
408	66	21.7	39.9	35.5	-4.4	-2.0	-2.4
376	66	21.6	39.8	34.0	-5.8	-2.0	-3.8
675	66	21.6	39.8	36.4	-3.4	-2.0	-1.4
722	66	20.6	38.8	37.8	-1.1	-2.0	0.9
631	66	20.9	39.1	35.3	-3.8	-2.0	-1.8
580	66	20.6	38.8	35.5	-3.4	-2.0	-1.4
575	66	21.1	39.3	37.8	-1.5	-2.0	0.5
614	66	21.2	39.4	36.5	-2.9	-2.0	-0.9
687	66	22.0	40.2	35.0	-5.2	-2.0	-3.2
620	66	21.5	39.8	35.7	-4.1	-2.0	-2.1
341	66	22.4	40.6	36.0	-4.7	-2.0	-2.7
371	66	20.9	39.2	35.0	-4.2	-2.0	-2.2
419	66	23.0	41.2	33.1	-8.2	-2.0	-6.2
677	66	21.3	39.5	36.4	-3.1	-2.0	-1.1
600	66	20.9	39.1	35.1	-4.0	-2.0	-2.0
380	66	20.7	39.0	35.1	-3.8	-2.0	-1.8
589	66	18.7	37.0	37.0	0.0	-2.0	2.0
692	66	21.0	39.3	37.6	-1.6	-2.0	0.4
577	66	22.2	40.4	35.1	-5.4	-2.0	-3.4
622	66	22.3	40.6	35.9	-4.7	-2.0	-2.7
685	67	20.5	38.7	35.7	-3.0	-2.0	-1.0
634	67	20.8	39.1	36.8	-2.3	-2.0	-0.3
674	67	21.7	39.9	37.4	-2.5	-2.0	-0.5
671	67	20.9	39.1	36.1	-3.0	-2.0	-1.0
673	67	21.0	39.2	36.2	-3.0	-2.0	-1.0
676	67	20.5	38.7	36.2	-2.5	-2.0	-0.5
624	67	21.0	39.3	35.1	-4.1	-2.0	-2.1
573	67	21.3	39.5	36.1	-3.4	-2.0	-1.4
588	67	20.0	38.2	35.9	-2.3	-2.0	-0.3
390	67	22.3	40.6	35.2	-5.3	-2.0	-3.3
350	67	21.3	39.6	35.0	-4.5	-2.0	-2.5
398	67	21.9	40.1	34.3	-5.8	-2.0	-3.8
693	67	20.1	38.3	37.0	-1.3	-2.0	0.7
583	67	21.0	39.3	37.0	-2.3	-2.0	-0.3
585	67	21.4	39.6	36.7	-2.9	-2.0	-0.9
613	67	20.9	39.1	36.2	-2.9	-2.0	-0.9
670	67	20.3	38.6	37.3	-1.3	-2.0	0.7
389	67	22.6	40.9	34.9	-6.0	-2.0	-4.0
584	68	22.0	40.2	35.9	-4.3	-2.0	-2.3
712	68	20.0	38.2	38.6	0.4	-2.0	2.4
610	68	21.1	39.3	37.3	-2.0	-2.0	0.0
680	69	20.1	38.3	37.7	-0.6	-2.0	1.4
599	70	20.0	38.2	37.7	-0.5	-2.0	1.5
Average	66				-2.7	-2.0	-0.7

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

Created on: 1/28/2021

Project: North Kent Wind Farm - IEC 61400- 11 Edition 3.0 - Turbine T4

Report ID: 17283.03.T4.RP3

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)
428	129	23.9	42.1	41.0	-1.2	-2.0	0.8
699	129	24.0	42.3	36.5	-5.8	-2.0	-3.8
700	129	23.9	42.2	35.0	-7.2	-2.0	-5.2
701	129	23.4	41.7	36.9	-4.8	-2.0	-2.8
703	129	25.5	43.8	37.1	-6.7	-2.0	-4.7
344	130	25.6	43.9	38.0	-6.0	-2.0	-4.0
348	130	26.6	44.9	37.0	-7.9	-2.0	-5.9
707	130	24.2	42.5	38.2	-4.4	-2.0	-2.4
570	130	25.2	43.4	38.7	-4.8	-2.0	-2.7
628	130	24.8	43.0	37.8	-5.2	-2.0	-3.2
327	130	24.2	42.5	38.4	-4.0	-2.0	-2.0
317	130	26.2	44.5	40.2	-4.3	-2.0	-2.3
65	130	25.5	43.8	41.7	-2.1	-2.0	-0.1
104	130	25.4	43.6	39.7	-4.0	-2.0	-2.0
403	131	25.3	43.6	31.3	-12.2	-2.0	-10.2
407	131	23.4	41.7	37.7	-4.0	-2.0	-2.0
744	131	24.3	42.6	36.4	-6.2	-2.0	-4.2
720	131	23.7	42.0	38.2	-3.7	-2.0	-1.7
328	131	24.8	43.1	37.2	-5.9	-2.0	-3.9
366	131	24.6	42.8	39.1	-3.8	-2.0	-1.7
746	131	24.7	43.0	38.1	-4.9	-2.0	-2.9
486	131	26.9	45.2	35.7	-9.5	-2.0	-7.5
339	131	25.0	43.3	35.8	-7.5	-2.0	-5.5
743	131	25.4	43.7	37.2	-6.5	-2.0	-4.5
734	131	23.6	41.9	37.3	-4.6	-2.0	-2.6
579	131	24.5	42.7	34.2	-8.5	-2.0	-6.5
349	131	25.1	43.4	34.3	-9.1	-2.0	-7.1
482	131	24.3	42.6	38.2	-4.3	-2.0	-2.3
331	131	25.2	43.5	36.0	-7.5	-2.0	-5.5
211	131	24.4	42.7	36.5	-6.2	-2.0	-4.2
368	131	25.0	43.3	39.9	-3.4	-2.0	-1.4
330	131	25.7	44.0	35.5	-8.5	-2.0	-6.5
113	131	26.2	44.5	41.4	-3.1	-2.0	-1.1
736	131	23.7	42.0	39.7	-2.3	-2.0	-0.3
374	131	24.3	42.6	38.5	-4.1	-2.0	-2.1
373	132	24.2	42.5	38.7	-3.7	-2.0	-1.7
716	132	23.8	42.0	39.3	-2.7	-2.0	-0.7
732	132	24.6	42.9	39.6	-3.3	-2.0	-1.2
717	132	23.6	41.9	40.8	-1.1	-2.0	0.9
572	132	25.2	43.4	35.2	-8.3	-2.0	-6.3
372	132	24.4	42.7	39.8	-2.9	-2.0	-0.9
629	132	25.7	44.0	33.5	-10.5	-2.0	-8.4
375	132	25.1	43.4	34.7	-8.7	-2.0	-6.7
708	132	24.1	42.4	41.4	-1.0	-2.0	1.0
587	132	24.7	43.0	39.7	-3.3	-2.0	-1.3
586	132	24.9	43.2	39.3	-3.9	-2.0	-1.8
630	132	24.6	42.9	34.3	-8.6	-2.0	-6.6
747	132	24.4	42.7	39.7	-3.0	-2.0	-0.9
738	132	24.2	42.5	39.6	-2.9	-2.0	-0.9
709	132	23.8	42.1	40.1	-2.0	-2.0	0.0
621	132	24.2	42.5	36.0	-6.6	-2.0	-4.5
730	132	24.2	42.5	39.0	-3.4	-2.0	-1.4
735	132	24.0	42.3	41.3	-1.0	-2.0	1.0
737	132	23.9	42.2	38.8	-3.4	-2.0	-1.4
633	132	24.5	42.8	35.1	-7.7	-2.0	-5.7
429	132	23.4	41.7	36.4	-5.3	-2.0	-3.3
718	132	23.6	41.9	40.4	-1.5	-2.0	0.5
370	132	24.8	43.1	38.4	-4.7	-2.0	-2.7
713	132	24.1	42.4	39.5	-2.8	-2.0	-0.8
731	132	24.3	42.6	40.5	-2.2	-2.0	-0.1
632	132	23.9	42.2	36.0	-6.2	-2.0	-4.2

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

Project: North Kent Wind Farm - IEC 61400- 11 Edition 3.0 - Turbine T4

Report ID: 17283.03.T4.RP3

Created on: 1/28/2021

377	132	24.9	43.2	40.6	-2.5	-2.0	-0.5
714	132	23.6	41.9	42.0	0.1	-2.0	2.2
369	132	25.1	43.4	33.4	-10.0	-2.0	-7.9
686	132	24.8	43.1	41.9	-1.1	-2.0	0.9
694	133	23.9	42.2	36.8	-5.4	-2.0	-3.4
578	133	25.4	43.7	39.4	-4.3	-2.0	-2.3
729	133	24.1	42.4	35.1	-7.3	-2.0	-5.3
625	133	24.5	42.8	37.0	-5.8	-2.0	-3.8
612	133	25.5	43.8	35.6	-8.1	-2.0	-6.1
611	135	24.6	42.9	38.4	-4.4	-2.0	-2.4
Average	131				-4.3	-2.0	-2.3

Table D.07 Tonality Assessment Table - 9.5 m/s (2)

Project: North Kent Wind Farm - IEC 61400- 11 Edition 3.0 - Turbine T4

Report ID: 17283.03.T4.RP3

Created on: 1/28/2021

Measurement #	Centre frequency (Hz)	Background adjusted criterion level (dB)	Masking level (dB)	Tone level (dB)	Determination of tonality (dB)	Frequency dependent audibility criterion (dB)	Tonal Audibility (dB)
700	58	18.9	37.2	34.4	-2.8	-2.0	-0.8
709	58	18.6	36.9	35.5	-1.4	-2.0	0.6
698	58	18.9	37.2	34.0	-3.2	-2.0	-1.2
708	58	19.0	37.2	36.6	-0.6	-2.0	1.4
372	65	20.1	38.4	36.1	-2.2	-2.0	-0.2
699	65	19.2	37.5	34.3	-3.2	-2.0	-1.2
348	65	22.7	41.0	35.1	-5.9	-2.0	-3.9
701	65	18.6	36.8	35.8	-1.0	-2.0	1.0
703	65	19.9	38.2	37.9	-0.2	-2.0	1.8
482	66	20.2	38.5	35.2	-3.3	-2.0	-1.3
718	66	18.2	36.5	38.7	2.2	-2.0	4.2
104	66	22.6	40.9	33.4	-7.5	-2.0	-5.5
429	66	18.9	37.2	35.9	-1.3	-2.0	0.7
713	66	20.3	38.5	37.2	-1.3	-2.0	0.7
736	66	19.4	37.6	40.1	2.4	-2.0	4.4
737	66	19.1	37.3	39.2	1.8	-2.0	3.8
570	66	21.5	39.7	33.0	-6.7	-2.0	-4.7
339	66	22.2	40.4	34.1	-6.3	-2.0	-4.3
331	66	21.4	39.7	36.4	-3.2	-2.0	-1.2
349	66	21.8	40.0	33.0	-7.0	-2.0	-5.0
730	66	20.1	38.4	37.3	-1.0	-2.0	1.0
368	66	20.7	39.0	36.2	-2.8	-2.0	-0.8
377	66	20.4	38.6	35.9	-2.7	-2.0	-0.7
369	66	21.6	39.8	35.5	-4.3	-2.0	-2.3
428	66	20.4	38.7	35.7	-3.0	-2.0	-1.0
696	66	21.1	39.3	32.8	-6.5	-2.0	-4.5
344	66	22.1	40.4	31.6	-8.8	-2.0	-6.8
327	66	20.4	38.6	35.5	-3.1	-2.0	-1.1
734	66	18.4	36.6	39.5	2.9	-2.0	4.9
65	66	22.8	41.1	34.3	-6.8	-2.0	-4.8
732	66	19.1	37.3	39.4	2.1	-2.0	4.1
373	66	19.5	37.7	36.9	-0.9	-2.0	1.1
329	66	20.6	38.9	34.9	-4.0	-2.0	-2.0
747	66	20.5	38.7	38.2	-0.5	-2.0	1.5
374	66	19.8	38.0	37.3	-0.7	-2.0	1.3
743	66	21.9	40.1	38.0	-2.1	-2.0	-0.1
746	66	20.8	39.0	38.1	-0.9	-2.0	1.1
328	66	20.5	38.7	35.1	-3.6	-2.0	-1.6
486	66	23.7	41.9	33.6	-8.3	-2.0	-6.3
735	66	19.3	37.5	38.6	1.1	-2.0	3.1
744	66	19.6	37.9	38.0	0.2	-2.0	2.2
370	66	20.3	38.5	36.2	-2.3	-2.0	-0.3
720	66	19.4	37.6	37.7	0.1	-2.0	2.1
113	66	23.8	42.1	34.6	-7.4	-2.0	-5.4
317	66	22.4	40.6	33.5	-7.1	-2.0	-5.1
578	66	22.4	40.6	35.6	-5.0	-2.0	-3.0
738	66	19.8	38.1	39.2	1.1	-2.0	3.1
731	66	19.4	37.6	38.2	0.6	-2.0	2.6
407	66	20.1	38.3	35.8	-2.4	-2.0	-0.4
330	66	22.0	40.2	34.6	-5.6	-2.0	-3.6
366	66	21.3	39.6	33.6	-6.0	-2.0	-4.0
707	66	19.7	38.0	35.1	-2.9	-2.0	-0.9
571	66	21.4	39.7	35.9	-3.8	-2.0	-1.8
714	66	19.4	37.7	37.8	0.1	-2.0	2.1
717	66	19.4	37.7	37.6	-0.1	-2.0	1.9
403	66	21.7	40.0	35.0	-5.0	-2.0	-3.0
211	66	20.8	39.1	36.9	-2.2	-2.0	-0.2
632	66	19.2	37.5	36.6	-0.9	-2.0	1.1
375	66	21.1	39.4	35.5	-3.9	-2.0	-1.9
572	66	21.5	39.7	35.2	-4.5	-2.0	-2.5
716	66	18.9	37.1	38.6	1.5	-2.0	3.5

Table D.07 Tonality Assessment Table - 9.5 m/s (2)

Project: North Kent Wind Farm - IEC 61400- 11 Edition 3.0 - Turbine T4

Report ID: 17283.03.T4.RP3

Created on: 1/28/2021

633	67	20.1	38.3	35.1	-3.2	-2.0	-1.2
630	67	20.0	38.3	35.9	-2.3	-2.0	-0.3
686	67	21.1	39.3	35.2	-4.1	-2.0	-2.1
621	67	20.9	39.2	34.9	-4.2	-2.0	-2.2
625	67	20.8	39.1	34.6	-4.5	-2.0	-2.5
694	67	20.1	38.3	35.1	-3.2	-2.0	-1.2
629	67	21.9	40.2	34.6	-5.6	-2.0	-3.6
586	67	20.8	39.1	36.3	-2.7	-2.0	-0.7
579	67	20.9	39.1	35.3	-3.8	-2.0	-1.8
587	67	20.8	39.1	35.8	-3.3	-2.0	-1.3
612	67	22.2	40.5	35.9	-4.6	-2.0	-2.6
729	67	20.9	39.2	37.6	-1.6	-2.0	0.4
611	69	21.4	39.7	35.3	-4.4	-2.0	-2.4
Average	66				-2.0	-2.0	0.0

Table D.08 Tonality Assessment Table - 10 m/s

Created on: 1/28/2021

Project: North Kent Wind Farm - IEC 61400- 11 Edition 3.0 - Turbine T4

Report ID: 17283.03.T4.RP3

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)
697	58	18.3	36.6	34.4	-2.2	-2.0	-0.2
115	62	21.1	39.3	33.7	-5.6	-2.0	-3.6
26	62	21.6	39.9	34.9	-5.0	-2.0	-3.0
472	63	17.9	36.2	33.7	-2.5	-2.0	-0.5
207	63	20.6	38.9	36.8	-2.1	-2.0	-0.1
188	63	22.4	40.6	35.0	-5.6	-2.0	-3.6
103	63	21.9	40.2	33.3	-6.9	-2.0	-4.9
741	65	20.3	38.5	40.2	1.6	-2.0	3.6
706	65	19.6	37.8	37.4	-0.4	-2.0	1.6
338	65	21.2	39.4	35.5	-3.9	-2.0	-1.9
402	65	21.7	39.9	34.6	-5.3	-2.0	-3.3
498	65	21.7	39.9	33.9	-6.0	-2.0	-4.0
365	65	20.9	39.1	35.6	-3.5	-2.0	-1.5
702	65	19.1	37.3	36.9	-0.4	-2.0	1.6
55	65	21.4	39.6	35.9	-3.8	-2.0	-1.8
704	66	20.7	39.0	36.4	-2.5	-2.0	-0.5
740	66	18.8	37.0	40.2	3.1	-2.0	5.2
567	66	20.9	39.2	35.1	-4.1	-2.0	-2.1
307	66	22.1	40.3	35.6	-4.7	-2.0	-2.7
483	66	20.6	38.8	34.8	-4.0	-2.0	-2.0
367	66	21.3	39.6	35.1	-4.5	-2.0	-2.5
326	66	20.3	38.5	34.4	-4.1	-2.0	-2.0
416	66	21.9	40.2	36.5	-3.7	-2.0	-1.7
316	66	22.0	40.3	34.0	-6.3	-2.0	-4.3
481	66	20.1	38.3	34.9	-3.5	-2.0	-1.5
111	66	23.4	41.6	36.0	-5.6	-2.0	-3.6
420	66	22.1	40.3	36.0	-4.3	-2.0	-2.3
285	66	23.1	41.4	34.3	-7.0	-2.0	-5.0
415	66	23.4	41.6	33.6	-8.0	-2.0	-6.0
379	66	21.3	39.5	34.4	-5.1	-2.0	-3.1
286	66	23.1	41.3	35.1	-6.2	-2.0	-4.2
320	66	21.8	40.0	36.6	-3.4	-2.0	-1.4
260	66	21.9	40.1	36.3	-3.8	-2.0	-1.8
378	66	19.3	37.6	36.8	-0.7	-2.0	1.3
66	66	23.7	42.0	32.0	-10.0	-2.0	-8.0
705	66	19.3	37.5	37.0	-0.6	-2.0	1.4
343	66	22.3	40.5	34.7	-5.9	-2.0	-3.9
401	66	21.9	40.2	34.6	-5.5	-2.0	-3.5
281	66	21.8	40.1	31.6	-8.5	-2.0	-6.5
739	66	19.3	37.5	39.4	1.9	-2.0	3.9
485	66	21.9	40.1	35.6	-4.5	-2.0	-2.5
733	66	20.3	38.5	39.8	1.3	-2.0	3.3
342	66	21.6	39.8	33.8	-6.0	-2.0	-4.0
719	66	18.9	37.1	37.5	0.4	-2.0	2.4
399	66	19.8	38.1	34.2	-3.9	-2.0	-1.9
745	66	19.8	38.0	39.0	1.0	-2.0	3.0
484	66	21.0	39.2	36.4	-2.9	-2.0	-0.9
742	66	21.0	39.3	39.1	-0.2	-2.0	1.9
414	66	22.2	40.4	33.3	-7.1	-2.0	-5.1
695	67	21.1	39.3	34.8	-4.5	-2.0	-2.5
360	67	20.1	38.3	35.8	-2.5	-2.0	-0.5
566	67	20.2	38.5	36.2	-2.3	-2.0	-0.3
318	67	21.5	39.8	35.3	-4.4	-2.0	-2.4
626	67	18.9	37.2	35.0	-2.2	-2.0	-0.2
137	67	24.9	43.1	41.2	-1.9	-2.0	0.1
332	67	21.2	39.4	35.6	-3.8	-2.0	-1.8
Average	65				-2.7	-2.0	-0.7

Table D.09 Tonality Assessment Table - 10.5 m/s

Created on: 1/28/2021

Project: North Kent Wind Farm - IEC 61400- 11 Edition 3.0 - Turbine T4

Report ID: 17283.03.T4.RP3

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)
305	127	24.9	43.2	40.4	-2.9	-2.0	-0.9
473	127	24.3	42.5	36.9	-5.6	-2.0	-3.6
102	127	22.6	40.9	36.1	-4.8	-2.0	-2.7
297	129	24.7	43.0	39.3	-3.7	-2.0	-1.7
427	129	24.0	42.3	38.7	-3.6	-2.0	-1.6
280	129	25.6	43.9	39.7	-4.2	-2.0	-2.2
437	129	22.4	40.7	35.2	-5.4	-2.0	-3.4
493	129	25.2	43.5	34.5	-8.9	-2.0	-6.9
304	129	23.6	41.9	38.6	-3.3	-2.0	-1.3
273	130	23.4	41.7	39.6	-2.0	-2.0	0.0
480	130	23.1	41.4	34.3	-7.1	-2.0	-5.1
271	130	23.2	41.5	34.3	-7.2	-2.0	-5.2
303	130	21.8	40.1	38.8	-1.3	-2.0	0.7
258	130	23.7	42.0	36.6	-5.3	-2.0	-3.3
518	130	25.8	44.1	35.2	-8.9	-2.0	-6.8
90	130	23.0	41.3	37.4	-3.8	-2.0	-1.8
569	130	24.2	42.5	40.5	-1.9	-2.0	0.1
109	131	25.4	43.7	39.4	-4.3	-2.0	-2.3
363	131	23.2	41.5	35.4	-6.1	-2.0	-4.1
64	131	25.1	43.3	40.8	-2.6	-2.0	-0.6
499	131	25.2	43.5	31.5	-12.0	-2.0	-10.0
112	132	25.3	43.6	39.9	-3.7	-2.0	-1.7
261	132	25.1	43.4	37.2	-6.2	-2.0	-4.2
477	132	22.0	40.3	42.6	2.3	-2.0	4.3
334	132	26.2	44.5	36.7	-7.8	-2.0	-5.8
106	132	24.5	42.8	33.8	-9.0	-2.0	-6.9
266	132	22.6	40.9	41.5	0.6	-2.0	2.6
406	132	23.8	42.1	31.3	-10.8	-2.0	-8.8
333	132	26.5	44.8	40.6	-4.2	-2.0	-2.1
262	133	24.9	43.2	38.6	-4.6	-2.0	-2.6
362	133	23.7	42.0	30.9	-11.1	-2.0	-9.1
61	133	24.7	43.0	34.8	-8.2	-2.0	-6.2
310	133	24.1	42.4	34.6	-7.8	-2.0	-5.8
568	133	25.4	43.7	39.3	-4.4	-2.0	-2.4
58	133	24.8	43.1	37.2	-5.9	-2.0	-3.9
268	133	21.4	39.7	39.3	-0.5	-2.0	1.5
413	133	24.9	43.2	32.8	-10.4	-2.0	-8.4
426	133	25.0	43.3	37.7	-5.6	-2.0	-3.6
433	134	22.3	40.6	37.7	-2.9	-2.0	-0.9
107	136	24.4	42.7	35.2	-7.5	-2.0	-5.5
492	136	25.1	43.4	39.7	-3.7	-2.0	-1.7
324	136	23.3	41.6	38.8	-2.8	-2.0	-0.8
422	136	24.2	42.5	34.4	-8.0	-2.0	-6.0
Average	131				-4.2	-2.0	-2.2

Table D.10 Tonality Assessment Table - 10.5 m/s (2)

Created on: 1/28/2021

Project: North Kent Wind Farm - IEC 61400- 11 Edition 3.0 - Turbine T4

Report ID: 17283.03.T4.RP3

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)
102	58	19.8	38.1	32.8	-5.3	-2.0	-3.3
305	64	20.5	38.8	32.6	-6.2	-2.0	-4.2
280	64	21.4	39.7	33.9	-5.8	-2.0	-3.8
518	65	22.6	40.8	35.1	-5.7	-2.0	-3.7
437	65	19.2	37.4	34.8	-2.6	-2.0	-0.6
304	65	19.1	37.4	35.0	-2.4	-2.0	-0.4
303	65	16.7	35.0	36.4	1.5	-2.0	3.5
426	66	22.6	40.8	34.2	-6.6	-2.0	-4.6
258	66	20.9	39.2	36.5	-2.7	-2.0	-0.7
333	66	23.3	41.5	34.4	-7.1	-2.0	-5.1
427	66	21.2	39.4	35.9	-3.5	-2.0	-1.5
58	66	22.1	40.4	33.4	-6.9	-2.0	-4.9
413	66	21.6	39.9	32.9	-7.0	-2.0	-5.0
569	66	20.4	38.6	34.7	-4.0	-2.0	-2.0
499	66	22.0	40.3	34.3	-6.0	-2.0	-4.0
90	66	19.4	37.7	36.2	-1.4	-2.0	0.6
273	66	20.0	38.2	35.1	-3.1	-2.0	-1.1
477	66	18.3	36.5	36.5	0.0	-2.0	2.0
363	66	19.6	37.8	36.2	-1.7	-2.0	0.3
480	66	18.9	37.1	36.4	-0.7	-2.0	1.3
271	66	20.0	38.3	35.6	-2.6	-2.0	-0.6
112	66	22.4	40.6	37.9	-2.8	-2.0	-0.8
109	66	22.7	40.9	37.2	-3.7	-2.0	-1.7
268	66	17.8	36.0	35.6	-0.4	-2.0	1.6
261	66	22.2	40.4	32.1	-8.3	-2.0	-6.3
568	66	21.3	39.5	34.4	-5.1	-2.0	-3.1
64	66	22.4	40.7	35.3	-5.4	-2.0	-3.3
310	66	18.9	37.1	36.6	-0.5	-2.0	1.5
362	67	19.8	38.1	35.6	-2.5	-2.0	-0.5
262	67	22.2	40.5	33.3	-7.2	-2.0	-5.2
433	67	18.9	37.1	35.7	-1.4	-2.0	0.6
334	67	23.2	41.5	31.6	-9.9	-2.0	-7.9
266	67	19.0	37.3	36.2	-1.0	-2.0	1.0
61	67	22.1	40.3	34.5	-5.9	-2.0	-3.9
422	67	20.3	38.5	33.5	-5.0	-2.0	-3.0
107	68	21.1	39.3	35.6	-3.7	-2.0	-1.7
106	68	21.9	40.2	35.6	-4.5	-2.0	-2.5
406	69	20.9	39.1	36.9	-2.2	-2.0	-0.2
324	69	19.9	38.2	35.3	-2.9	-2.0	-0.9
Average	66				-3.2	-2.0	-1.2

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

Project: North Kent Wind Farm - IEC 61400- 11 Edition 3.0 - Turbine T4

Report ID: 17283.03.T4.RP3

Created on: 1/28/2021

Measurement #	Centre frequency (Hz)	Background adjusted criterion level (dB)	Masking level (dB)	Tone level (dB)	Determination of tonality (dB)	Frequency dependent audibility criterion (dB)	Tonal Audibility (dB)
101	125	22.7	41.0	36.0	-4.9	-2.0	-2.9
79	126	23.4	41.7	33.5	-8.2	-2.0	-6.2
208	126	24.3	42.6	38.7	-3.8	-2.0	-1.8
54	127	22.4	40.7	35.9	-4.8	-2.0	-2.8
256	128	22.8	41.1	34.1	-7.0	-2.0	-5.0
284	129	25.5	43.8	38.9	-4.9	-2.0	-2.9
425	129	23.9	42.2	38.3	-3.8	-2.0	-1.8
270	129	23.1	41.4	37.2	-4.2	-2.0	-2.2
459	130	23.7	42.0	37.5	-4.5	-2.0	-2.5
448	130	21.5	39.8	36.2	-3.5	-2.0	-1.5
41	130	24.5	42.8	33.8	-8.9	-2.0	-6.9
314	130	24.9	43.2	37.1	-6.1	-2.0	-4.1
471	130	21.5	39.8	38.3	-1.5	-2.0	0.5
89	130	22.2	40.5	38.4	-2.1	-2.0	-0.1
315	130	25.6	43.9	37.0	-6.9	-2.0	-4.9
490	131	24.8	43.1	33.9	-9.2	-2.0	-7.2
59	131	25.4	43.7	39.8	-3.9	-2.0	-1.9
56	131	24.7	43.0	37.6	-5.4	-2.0	-3.3
496	131	26.4	44.7	34.7	-10.0	-2.0	-8.0
108	132	23.1	41.4	38.4	-3.0	-2.0	-1.0
60	132	25.7	43.9	37.2	-6.8	-2.0	-4.7
269	132	21.9	40.2	38.1	-2.2	-2.0	-0.2
319	132	26.5	44.8	37.1	-7.7	-2.0	-5.6
325	132	24.2	42.4	37.9	-4.5	-2.0	-2.5
272	132	23.8	42.1	39.1	-3.1	-2.0	-1.1
500	132	26.4	44.7	36.1	-8.5	-2.0	-6.5
487	132	26.9	45.2	33.0	-12.1	-2.0	-10.1
274	132	24.4	42.7	38.0	-4.6	-2.0	-2.6
278	132	23.4	41.7	38.2	-3.5	-2.0	-1.5
520	132	24.3	42.6	38.8	-3.8	-2.0	-1.8
88	132	22.4	40.7	37.7	-2.9	-2.0	-0.9
302	133	21.8	40.1	36.5	-3.6	-2.0	-1.6
431	133	23.9	42.2	37.7	-4.6	-2.0	-2.5
298	133	24.5	42.8	37.2	-5.5	-2.0	-3.5
311	133	24.0	42.3	36.3	-6.0	-2.0	-4.0
308	133	26.0	44.3	38.7	-5.5	-2.0	-3.5
282	133	27.3	45.6	37.6	-8.0	-2.0	-6.0
265	133	22.3	40.6	39.1	-1.5	-2.0	0.5
309	135	24.5	42.8	37.0	-5.7	-2.0	-3.7
435	135	21.7	40.0	42.3	2.3	-2.0	4.4
476	135	22.0	40.3	39.5	-0.8	-2.0	1.2
264	135	22.9	41.2	37.6	-3.5	-2.0	-1.5
475	135	22.6	40.9	37.0	-3.8	-2.0	-1.8
423	136	23.3	41.6	37.9	-3.7	-2.0	-1.7
Average	131				-4.1	-2.0	-2.1

Table D.12 Tonality Assessment Table - 11 m/s (2)

Created on: 1/28/2021

Project: North Kent Wind Farm - IEC 61400- 11 Edition 3.0 - Turbine T4

Report ID: 17283.03.T4.RP3

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)
41	58	21.8	40.0	33.6	-6.4	-2.0	-4.4
54	58	19.7	38.0	36.0	-2.0	-2.0	0.0
208	63	21.6	39.8	34.7	-5.1	-2.0	-3.1
256	64	19.2	37.5	34.5	-3.0	-2.0	-1.0
79	64	20.5	38.7	32.1	-6.6	-2.0	-4.6
270	65	19.4	37.6	34.7	-2.9	-2.0	-0.9
448	65	17.9	36.2	35.0	-1.2	-2.0	0.8
89	65	18.4	36.6	35.2	-1.4	-2.0	0.6
471	65	17.3	35.6	34.9	-0.6	-2.0	1.4
56	65	21.9	40.1	36.7	-3.4	-2.0	-1.4
60	66	23.4	41.6	34.5	-7.1	-2.0	-5.1
315	66	21.2	39.4	36.8	-2.6	-2.0	-0.6
319	66	21.9	40.1	36.0	-4.1	-2.0	-2.1
314	66	20.9	39.1	35.4	-3.7	-2.0	-1.7
325	66	20.7	39.0	36.9	-2.1	-2.0	-0.1
490	66	22.0	40.3	36.2	-4.1	-2.0	-2.1
101	66	20.2	38.4	36.1	-2.4	-2.0	-0.4
520	66	21.4	39.7	35.2	-4.5	-2.0	-2.5
496	66	23.7	41.9	34.0	-7.9	-2.0	-5.9
269	66	18.5	36.8	37.1	0.3	-2.0	2.3
459	66	20.8	39.1	35.9	-3.2	-2.0	-1.2
425	66	20.9	39.2	34.5	-4.7	-2.0	-2.7
272	66	20.9	39.1	36.1	-3.0	-2.0	-1.0
302	66	18.8	37.1	35.3	-1.8	-2.0	0.2
59	66	23.3	41.6	35.1	-6.5	-2.0	-4.5
284	66	22.6	40.8	34.3	-6.5	-2.0	-4.5
88	66	18.7	37.0	36.4	-0.5	-2.0	1.5
278	66	20.6	38.8	36.3	-2.5	-2.0	-0.5
500	67	22.8	41.1	35.4	-5.7	-2.0	-3.7
475	67	18.3	36.6	34.0	-2.5	-2.0	-0.5
431	67	19.4	37.7	36.3	-1.3	-2.0	0.7
311	67	19.5	37.7	36.6	-1.1	-2.0	0.9
274	67	21.2	39.5	37.8	-1.7	-2.0	0.3
476	67	17.9	36.2	33.7	-2.5	-2.0	-0.5
282	67	23.3	41.5	32.0	-9.5	-2.0	-7.5
298	67	20.1	38.3	36.4	-1.9	-2.0	0.1
265	67	19.0	37.2	36.3	-1.0	-2.0	1.0
308	67	21.4	39.7	34.7	-5.0	-2.0	-3.0
264	67	19.7	38.0	35.1	-2.9	-2.0	-0.9
108	67	20.2	38.5	35.8	-2.7	-2.0	-0.7
309	68	20.8	39.0	35.1	-4.0	-2.0	-2.0
487	69	23.4	41.6	34.5	-7.1	-2.0	-5.1
423	69	19.4	37.7	35.1	-2.6	-2.0	-0.6
287	72	22.6	40.9	39.1	-1.8	-2.0	0.2
Average	66				-3.0	-2.0	-1.0

Table D.13 Tonality Assessment Table - 11.5 m/s

Created on: 1/28/2021

Project: North Kent Wind Farm - IEC 61400- 11 Edition 3.0 - Turbine T4

Report ID: 17283.03.T4.RP3

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)
254	126	21.5	39.8	37.2	-2.7	-2.0	-0.7
98	127	23.0	41.3	34.7	-6.6	-2.0	-4.6
50	127	24.0	42.3	39.4	-2.9	-2.0	-0.9
1	127	22.7	41.0	38.9	-2.1	-2.0	-0.1
255	127	21.9	40.2	36.3	-3.8	-2.0	-1.8
452	127	22.0	40.3	39.7	-0.6	-2.0	1.4
48	127	22.3	40.6	38.1	-2.5	-2.0	-0.5
248	128	22.9	41.2	34.4	-6.9	-2.0	-4.8
49	129	23.3	41.6	37.1	-4.5	-2.0	-2.5
514	129	23.4	41.7	38.8	-2.9	-2.0	-0.8
515	129	25.7	43.9	40.1	-3.9	-2.0	-1.9
294	129	22.7	41.0	38.9	-2.1	-2.0	-0.1
458	129	22.2	40.5	36.2	-4.3	-2.0	-2.3
513	129	23.2	41.5	39.0	-2.5	-2.0	-0.5
453	130	21.7	40.0	39.0	-1.0	-2.0	1.0
495	130	25.7	44.0	34.2	-9.8	-2.0	-7.8
62	130	25.2	43.5	37.5	-6.0	-2.0	-4.0
27	130	24.1	42.4	36.6	-5.8	-2.0	-3.7
85	130	22.0	40.3	37.6	-2.6	-2.0	-0.6
464	130	21.9	40.1	36.3	-3.9	-2.0	-1.9
3	130	22.1	40.4	35.5	-5.0	-2.0	-3.0
83	130	22.1	40.4	36.3	-4.2	-2.0	-2.1
296	131	24.1	42.4	33.7	-8.7	-2.0	-6.7
51	131	24.1	42.3	37.3	-5.0	-2.0	-3.0
503	132	25.3	43.6	39.3	-4.3	-2.0	-2.3
470	132	21.1	39.4	41.3	1.9	-2.0	3.9
512	132	24.1	42.4	41.0	-1.4	-2.0	0.6
454	132	20.6	38.9	37.1	-1.9	-2.0	0.2
491	132	25.6	43.9	38.2	-5.7	-2.0	-3.7
467	132	22.5	40.8	41.2	0.4	-2.0	2.4
466	132	22.0	40.3	41.8	1.6	-2.0	3.6
47	132	23.0	41.3	39.7	-1.5	-2.0	0.5
455	132	20.7	39.0	38.2	-0.7	-2.0	1.3
277	133	22.3	40.6	39.0	-1.6	-2.0	0.5
516	133	26.1	44.3	37.6	-6.7	-2.0	-4.7
517	133	24.2	42.5	38.6	-3.9	-2.0	-1.9
301	133	21.9	40.2	40.7	0.5	-2.0	2.5
289	133	25.0	43.2	40.0	-3.3	-2.0	-1.3
249	133	23.3	41.6	39.9	-1.7	-2.0	0.3
521	133	23.7	42.0	39.5	-2.5	-2.0	-0.5
468	133	22.7	41.0	38.4	-2.6	-2.0	-0.6
28	135	24.5	42.8	34.4	-8.4	-2.0	-6.4
434	135	22.4	40.7	41.5	0.7	-2.0	2.8
283	135	25.7	44.0	40.4	-3.6	-2.0	-1.6
52	135	25.3	43.6	34.0	-9.6	-2.0	-7.6
436	135	21.3	39.6	38.2	-1.4	-2.0	0.6
439	136	23.0	41.3	38.1	-3.1	-2.0	-1.1
263	138	23.4	41.7	35.3	-6.4	-2.0	-4.3
275	138	23.3	41.6	37.7	-3.9	-2.0	-1.9
335	139	24.1	42.4	30.2	-12.3	-2.0	-10.3
488	143	24.8	43.1	32.8	-10.3	-2.0	-8.2
Average	132				-2.8	-2.0	-0.8

Table D.14 Tonality Assessment Table - 11.5 m/s (2)

Created on: 1/28/2021

Project: North Kent Wind Farm - IEC 61400- 11 Edition 3.0 - Turbine T4

Report ID: 17283.03.T4.RP3

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)
248	64	19.2	37.4	34.2	-3.2	-2.0	-1.2
85	65	18.6	36.8	36.1	-0.7	-2.0	1.3
62	65	22.6	40.8	35.0	-5.8	-2.0	-3.8
48	65	20.1	38.3	32.7	-5.7	-2.0	-3.7
453	65	17.8	36.0	35.2	-0.8	-2.0	1.2
50	65	21.8	40.0	31.6	-8.4	-2.0	-6.4
49	65	20.7	39.0	34.0	-4.9	-2.0	-2.9
294	65	19.2	37.4	34.8	-2.7	-2.0	-0.7
1	65	20.1	38.3	35.1	-3.2	-2.0	-1.2
27	65	21.8	40.1	36.2	-3.9	-2.0	-1.9
515	65	23.1	41.4	33.0	-8.4	-2.0	-6.4
98	65	20.7	38.9	33.8	-5.1	-2.0	-3.1
458	65	18.6	36.8	34.3	-2.5	-2.0	-0.5
254	65	18.7	37.0	34.7	-2.3	-2.0	-0.3
513	65	20.3	38.5	34.5	-4.0	-2.0	-2.0
83	65	19.4	37.6	34.3	-3.3	-2.0	-1.3
470	66	17.6	35.9	37.4	1.5	-2.0	3.5
514	66	20.1	38.3	35.9	-2.4	-2.0	-0.4
464	66	18.8	37.0	35.0	-2.0	-2.0	0.0
249	66	20.2	38.4	35.4	-3.0	-2.0	-1.0
3	66	18.7	37.0	36.6	-0.3	-2.0	1.7
495	66	21.9	40.2	33.6	-6.5	-2.0	-4.5
467	66	19.2	37.4	36.5	-0.9	-2.0	1.1
51	66	21.7	40.0	35.2	-4.8	-2.0	-2.8
296	66	19.8	38.1	35.8	-2.3	-2.0	-0.3
277	66	19.1	37.4	36.9	-0.5	-2.0	1.5
47	66	20.4	38.6	35.8	-2.8	-2.0	-0.8
466	66	18.6	36.9	38.9	2.0	-2.0	4.0
521	66	20.7	38.9	36.8	-2.1	-2.0	-0.1
455	66	16.3	34.5	35.6	1.1	-2.0	3.1
503	67	23.4	41.6	34.3	-7.3	-2.0	-5.3
454	67	17.1	35.3	34.8	-0.6	-2.0	1.4
516	67	23.0	41.3	35.1	-6.2	-2.0	-4.2
436	67	17.3	35.6	36.8	1.2	-2.0	3.2
491	67	22.5	40.7	35.4	-5.3	-2.0	-3.3
517	67	20.9	39.1	35.9	-3.3	-2.0	-1.3
468	67	19.2	37.4	35.5	-1.9	-2.0	0.1
301	67	17.1	35.4	36.8	1.4	-2.0	3.4
283	67	22.5	40.7	34.6	-6.1	-2.0	-4.1
28	67	22.2	40.5	33.5	-6.9	-2.0	-4.9
512	67	21.4	39.7	36.4	-3.2	-2.0	-1.2
439	67	19.9	38.2	35.8	-2.3	-2.0	-0.3
434	69	18.7	37.0	34.9	-2.1	-2.0	-0.1
263	69	20.3	38.5	36.2	-2.3	-2.0	-0.3
289	69	22.4	40.7	37.1	-3.6	-2.0	-1.6
52	69	22.9	41.1	33.4	-7.7	-2.0	-5.7
275	69	19.8	38.1	37.2	-0.8	-2.0	1.2
288	72	22.5	40.8	39.0	-1.8	-2.0	0.2
335	73	21.2	39.5	35.0	-4.5	-2.0	-2.5
488	74	22.7	41.0	36.3	-4.7	-2.0	-2.7
Average	67				-2.4	-2.0	-0.4

Table D.15 Tonality Assessment Table - 12 m/s

Created on: 1/28/2021

Project: North Kent Wind Farm - IEC 61400- 11 Edition 3.0 - Turbine T4

Report ID: 17283.03.T4.RP3

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)
25	126	23.4	41.7	40.6	-1.0	-2.0	1.0
2	126	22.4	40.7	38.9	-1.7	-2.0	0.3
156	127	23.6	41.8	39.8	-2.1	-2.0	-0.1
155	127	23.7	42.0	32.9	-9.1	-2.0	-7.1
21	127	23.5	41.8	40.0	-1.8	-2.0	0.2
509	127	23.2	41.5	35.5	-6.0	-2.0	-4.0
20	129	23.0	41.3	37.4	-3.9	-2.0	-1.9
510	129	24.4	42.7	39.5	-3.2	-2.0	-1.2
506	129	22.6	40.9	37.3	-3.6	-2.0	-1.5
457	129	21.6	39.9	38.8	-1.1	-2.0	0.9
159	129	24.1	42.4	38.0	-4.3	-2.0	-2.3
87	130	22.6	40.8	39.1	-1.7	-2.0	0.3
250	130	22.7	41.0	36.1	-4.9	-2.0	-2.9
96	130	21.9	40.2	36.1	-4.1	-2.0	-2.1
86	130	22.9	41.2	35.9	-5.3	-2.0	-3.3
293	130	22.6	40.9	35.2	-5.6	-2.0	-3.6
447	130	22.7	41.0	36.7	-4.3	-2.0	-2.3
4	131	22.7	41.0	36.3	-4.7	-2.0	-2.7
84	131	21.9	40.2	39.2	-1.0	-2.0	1.0
507	131	24.0	42.3	36.0	-6.3	-2.0	-4.3
99	131	23.0	41.3	37.6	-3.7	-2.0	-1.7
97	132	23.3	41.6	35.7	-5.9	-2.0	-3.9
93	132	21.8	40.1	38.9	-1.1	-2.0	0.9
10	132	23.3	41.6	37.9	-3.7	-2.0	-1.6
440	132	21.8	40.1	40.6	0.6	-2.0	2.6
29	132	24.5	42.8	38.7	-4.2	-2.0	-2.2
251	132	21.8	40.1	39.7	-0.4	-2.0	1.6
446	132	21.1	39.4	37.8	-1.6	-2.0	0.4
456	132	21.4	39.7	41.2	1.5	-2.0	3.5
42	132	24.4	42.7	33.0	-9.6	-2.0	-7.6
247	132	22.5	40.8	37.9	-2.9	-2.0	-0.8
444	132	22.4	40.6	38.3	-2.4	-2.0	-0.4
100	132	22.5	40.8	34.9	-6.0	-2.0	-3.9
469	133	21.9	40.2	39.2	-1.0	-2.0	1.1
190	133	24.9	43.2	33.5	-9.7	-2.0	-7.7
462	133	21.8	40.1	38.1	-2.0	-2.0	0.0
504	133	24.7	43.0	39.0	-4.0	-2.0	-1.9
445	133	23.4	41.6	33.7	-8.0	-2.0	-5.9
267	134	22.2	40.5	41.4	0.9	-2.0	2.9
276	135	22.4	40.7	39.3	-1.4	-2.0	0.6
460	135	23.4	41.7	38.0	-3.8	-2.0	-1.7
522	135	24.1	42.4	38.6	-3.8	-2.0	-1.8
519	135	23.7	42.0	35.7	-6.3	-2.0	-4.3
80	136	22.4	40.7	33.8	-6.9	-2.0	-4.9
449	136	21.4	39.7	38.5	-1.2	-2.0	0.8
450	136	22.5	40.8	40.4	-0.4	-2.0	1.6
299	137	23.4	41.6	35.5	-6.2	-2.0	-4.2
91	139	24.1	42.4	33.2	-9.1	-2.0	-7.1
461	139	23.0	41.3	36.2	-5.0	-2.0	-3.0
Average	132				-3.0	-2.0	-0.9

Table D.16 Tonality Assessment Table - 12 m/s (2)

Project: North Kent Wind Farm - IEC 61400- 11 Edition 3.0 - Turbine T4

Report ID: 17283.03.T4.RP3

Created on: 1/28/2021

Measurement #	Centre frequency (Hz)	Background adjusted criterion level (dB)	Masking level (dB)	Tone level (dB)	Determination of tonality (dB)	Frequency dependent audibility criterion (dB)	Tonal Audibility (dB)
20	58	20.2	38.5	35.6	-2.8	-2.0	-0.8
21	58	21.1	39.4	34.0	-5.4	-2.0	-3.4
25	63	21.4	39.7	36.4	-3.3	-2.0	-1.3
509	65	20.6	38.8	33.0	-5.8	-2.0	-3.8
155	65	20.8	39.0	32.7	-6.3	-2.0	-4.3
86	65	20.0	38.2	35.7	-2.5	-2.0	-0.5
159	65	21.5	39.7	34.3	-5.5	-2.0	-3.5
96	65	19.1	37.3	35.7	-1.6	-2.0	0.4
2	65	19.9	38.1	35.6	-2.6	-2.0	-0.6
444	66	19.0	37.3	38.1	0.9	-2.0	2.9
507	66	20.8	39.1	35.7	-3.4	-2.0	-1.4
447	66	19.6	37.9	34.8	-3.1	-2.0	-1.1
250	66	20.0	38.3	35.5	-2.8	-2.0	-0.8
97	66	20.6	38.8	35.7	-3.2	-2.0	-1.2
99	66	20.3	38.5	38.2	-0.4	-2.0	1.6
87	66	19.7	38.0	36.1	-1.8	-2.0	0.2
457	66	17.8	36.0	35.7	-0.3	-2.0	1.7
440	66	18.4	36.7	36.6	-0.1	-2.0	1.9
4	66	19.5	37.8	35.9	-1.8	-2.0	0.2
84	66	18.8	37.0	36.7	-0.3	-2.0	1.7
251	66	18.9	37.2	37.2	0.0	-2.0	2.0
293	66	18.4	36.6	36.7	0.1	-2.0	2.1
93	66	18.7	37.0	35.6	-1.4	-2.0	0.6
449	66	17.7	35.9	36.3	0.4	-2.0	2.4
10	66	21.3	39.5	34.0	-5.5	-2.0	-3.5
510	66	21.2	39.4	35.5	-3.9	-2.0	-1.9
247	66	19.5	37.8	36.5	-1.2	-2.0	0.8
506	66	19.7	37.9	34.7	-3.3	-2.0	-1.3
469	67	18.5	36.7	36.0	-0.7	-2.0	1.3
267	67	18.9	37.1	34.8	-2.3	-2.0	-0.3
276	67	19.2	37.5	34.5	-2.9	-2.0	-0.9
504	67	22.2	40.5	35.1	-5.4	-2.0	-3.4
100	67	19.3	37.6	37.6	0.1	-2.0	2.1
29	67	22.7	41.0	34.6	-6.4	-2.0	-4.4
445	67	19.8	38.0	35.5	-2.5	-2.0	-0.5
456	67	17.4	35.7	36.0	0.3	-2.0	2.3
80	68	19.0	37.2	34.0	-3.2	-2.0	-1.2
461	69	19.8	38.1	35.8	-2.3	-2.0	-0.3
91	69	21.8	40.0	35.3	-4.7	-2.0	-2.7
462	69	18.7	36.9	36.4	-0.5	-2.0	1.5
460	69	20.4	38.6	35.2	-3.5	-2.0	-1.5
299	69	19.9	38.1	35.1	-3.0	-2.0	-1.0
42	69	22.3	40.5	36.0	-4.5	-2.0	-2.5
519	69	21.4	39.6	33.1	-6.5	-2.0	-4.5
Average	66				-2.2	-2.0	-0.1

Table D.17 Tonality Assessment Table - 12.5 m/s

Created on: 1/28/2021

Project: North Kent Wind Farm - IEC 61400- 11 Edition 3.0 - Turbine T4

Report ID: 17283.03.T4.RP3

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)
129	127	22.3	40.6	35.3	-5.2	-2.0	-3.2
6	127	23.6	41.9	33.7	-8.2	-2.0	-6.2
77	128	24.0	42.3	37.3	-5.0	-2.0	-3.0
14	129	23.0	41.3	34.1	-7.3	-2.0	-5.3
182	129	23.3	41.6	37.5	-4.1	-2.0	-2.1
295	129	23.6	41.9	36.6	-5.3	-2.0	-3.3
186	129	22.5	40.8	38.8	-1.9	-2.0	0.1
205	130	23.4	41.7	36.8	-4.9	-2.0	-2.9
40	130	22.5	40.8	37.1	-3.7	-2.0	-1.7
78	130	22.6	40.9	36.2	-4.7	-2.0	-2.7
15	131	24.3	42.6	32.7	-10.0	-2.0	-8.0
508	131	23.1	41.4	36.2	-5.2	-2.0	-3.2
45	131	22.1	40.4	38.3	-2.1	-2.0	-0.1
13	131	22.7	41.0	37.8	-3.2	-2.0	-1.2
95	132	22.6	40.9	36.1	-4.7	-2.0	-2.7
206	132	23.4	41.7	38.7	-2.9	-2.0	-0.9
82	132	21.7	40.0	37.2	-2.8	-2.0	-0.8
290	132	24.7	43.0	39.4	-3.6	-2.0	-1.6
30	132	24.7	43.0	40.1	-2.8	-2.0	-0.8
451	132	22.3	40.6	39.8	-0.8	-2.0	1.2
116	132	23.1	41.4	37.1	-4.3	-2.0	-2.3
442	132	21.7	40.0	39.6	-0.4	-2.0	1.6
7	132	24.4	42.7	36.7	-5.9	-2.0	-3.9
123	133	25.5	43.8	33.7	-10.0	-2.0	-8.0
300	133	22.6	40.9	39.7	-1.2	-2.0	0.9
505	133	22.9	41.1	36.2	-4.9	-2.0	-2.9
31	133	24.7	43.0	37.7	-5.3	-2.0	-3.3
160	133	24.7	43.0	39.1	-3.9	-2.0	-1.9
292	133	22.2	40.5	39.1	-1.4	-2.0	0.7
443	133	22.6	40.9	39.7	-1.2	-2.0	0.8
253	134	21.5	39.8	39.1	-0.8	-2.0	1.2
69	134	23.6	41.9	32.8	-9.2	-2.0	-7.1
291	134	22.8	41.1	37.9	-3.2	-2.0	-1.2
53	134	23.7	42.0	35.3	-6.7	-2.0	-4.6
81	135	21.8	40.1	38.3	-1.8	-2.0	0.2
8	135	23.7	42.0	32.0	-10.0	-2.0	-7.9
17	135	24.1	42.4	35.5	-6.9	-2.0	-4.9
117	135	24.2	42.5	39.5	-3.0	-2.0	-1.0
438	136	23.4	41.7	36.3	-5.4	-2.0	-3.4
133	136	26.1	44.4	32.5	-11.9	-2.0	-9.8
511	138	24.7	43.0	37.6	-5.5	-2.0	-3.4
161	138	23.9	42.2	37.9	-4.2	-2.0	-2.2
92	139	22.8	41.1	31.6	-9.5	-2.0	-7.5
Average	132				-4.0	-2.0	-2.0

Table D.18 Tonality Assessment Table - 12.5 m/s (2)

Created on: 1/28/2021

Project: North Kent Wind Farm - IEC 61400- 11 Edition 3.0 - Turbine T4

Report ID: 17283.03.T4.RP3

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)
14	58	20.3	38.5	33.8	-4.7	-2.0	-2.7
15	58	22.0	40.2	33.5	-6.7	-2.0	-4.7
129	58	19.3	37.5	33.2	-4.3	-2.0	-2.3
17	58	21.7	39.9	33.4	-6.5	-2.0	-4.5
40	65	20.1	38.3	35.3	-3.1	-2.0	-1.1
77	65	20.7	38.9	37.0	-1.9	-2.0	0.1
295	65	20.0	38.2	35.0	-3.2	-2.0	-1.2
205	65	21.1	39.3	34.9	-4.4	-2.0	-2.4
78	65	19.6	37.8	36.1	-1.7	-2.0	0.3
6	66	21.2	39.4	34.5	-4.9	-2.0	-2.9
13	66	20.6	38.8	35.7	-3.1	-2.0	-1.1
182	66	20.2	38.4	35.8	-2.6	-2.0	-0.6
206	66	21.0	39.3	37.6	-1.7	-2.0	0.3
117	66	22.5	40.7	33.8	-7.0	-2.0	-5.0
451	66	19.1	37.4	35.9	-1.5	-2.0	0.5
45	66	19.5	37.8	35.8	-1.9	-2.0	0.1
508	66	19.8	38.0	36.1	-1.9	-2.0	0.1
116	66	20.9	39.2	35.5	-3.6	-2.0	-1.6
443	66	19.8	38.1	35.7	-2.4	-2.0	-0.4
290	67	22.2	40.4	35.0	-5.4	-2.0	-3.4
95	67	20.0	38.2	35.0	-3.3	-2.0	-1.3
300	67	18.9	37.1	36.3	-0.8	-2.0	1.2
30	67	22.6	40.9	36.1	-4.8	-2.0	-2.8
82	67	18.6	36.9	35.7	-1.1	-2.0	0.9
291	67	19.0	37.3	35.5	-1.8	-2.0	0.2
292	67	18.6	36.8	36.8	0.0	-2.0	2.0
69	67	21.2	39.5	34.6	-4.9	-2.0	-2.9
31	67	23.0	41.2	34.3	-7.0	-2.0	-5.0
7	67	21.6	39.9	34.3	-5.5	-2.0	-3.5
160	67	22.3	40.6	33.8	-6.8	-2.0	-4.8
253	67	18.1	36.4	36.4	0.0	-2.0	2.0
505	67	20.0	38.3	34.2	-4.1	-2.0	-2.1
8	67	21.1	39.4	34.6	-4.7	-2.0	-2.7
81	68	18.8	37.1	33.8	-3.2	-2.0	-1.2
92	69	20.2	38.5	36.8	-1.7	-2.0	0.3
511	69	21.9	40.1	36.1	-4.1	-2.0	-2.1
53	69	21.4	39.7	36.5	-3.2	-2.0	-1.2
43	69	21.8	40.1	34.7	-5.3	-2.0	-3.3
161	69	21.1	39.3	37.2	-2.2	-2.0	-0.2
501	73	24.5	42.7	34.3	-8.4	-2.0	-6.4
Average	66				-3.2	-2.0	-1.2

Appendix E
Measurement Data

Table E.01 Measurement data - Turbine ON

Project: North Kent Wind Farm - IEC 61400- 11 Edition 3.0 - Turbine T4

Report ID: 17283.03.T4.RP3

Created on: 1/28/2021

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

Data Point #	Standardized Wind Speed (m/s)	LAeq (as measured)	LAeq (adjusted for windscreen IL)	Turbine Power Output (kW)	Reference Yaw Angle (°)	Yaw Angle (°)	Pitch Angle (°)	Rotor RPM	Nacelle Anemometer Wind Speed (m/s)	10m Anemometer Wind Speed (m/s)	Air Temperature (-C)	Pressure (Pa)	Relative Humidity (%)
1	11.4	50.4	50.7	2534	335.0	333.7	9.8	11.9	11.9	9.2	0.6	100155.1	65
2	11.8	50.4	50.7	2546	335.0	333.7	8.9	12.0	12.3	8.9	0.6	100155.0	65
3	11.4	50.7	51.1	2581	335.0	333.7	8.6	12.0	12.0	7.9	0.6	100154.9	65
4	12.2	51.2	51.6	2606	335.0	333.7	8.4	12.1	12.8	9.5	0.6	100154.9	65
5	13.0	51.1	51.4	2648	335.0	333.6	9.0	12.3	13.6	9.2	0.6	100158.6	65
6	12.3	50.6	50.9	2544	335.0	333.6	7.5	11.9	12.8	9.5	0.6	100169.0	65
7	12.7	51.2	51.5	2627	335.0	333.6	7.7	12.2	13.3	9.6	0.6	100169.0	65
8	12.7	51.3	51.6	2691	335.0	333.6	8.8	12.5	13.3	12.2	0.6	100168.9	65
9	13.2	51.7	52.0	2724	335.0	333.7	10.0	12.7	13.9	11.6	0.6	100169.1	65
10	12.2	50.9	51.2	2639	335.0	333.7	9.8	12.3	12.8	12.3	0.6	100169.1	65
11	13.1	51.0	51.3	2682	335.0	333.6	10.7	12.5	13.8	12.0	0.6	100162.6	63
12	13.2	50.8	51.1	2659	335.0	333.5	11.0	12.4	13.9	12.5	0.6	100140.8	59
13	12.3	51.1	51.5	2608	335.0	333.6	10.6	12.2	12.9	11.0	0.6	100140.9	59
14	12.6	50.6	50.9	2530	335.0	333.6	9.2	11.9	13.2	9.7	0.6	100140.5	59
15	12.7	52.0	52.3	2634	335.0	333.6	9.6	12.3	13.3	10.5	0.6	100140.5	59
16	13.9	51.8	52.1	2733	335.0	333.6	11.5	12.7	14.6	11.3	0.6	100140.7	59
17	12.7	51.8	52.2	2672	335.0	333.7	11.9	12.5	13.3	11.9	0.6	100145.9	59
18	13.2	51.4	51.8	2666	335.0	333.6	12.1	12.4	13.8	10.8	0.6	100154.6	59
19	13.4	51.2	51.5	2584	335.0	333.7	11.5	12.1	14.1	10.1	0.6	100154.5	59
20	12.0	50.8	51.1	2532	335.0	333.7	10.2	11.9	12.6	12.1	0.6	100154.5	59
21	12.2	51.9	52.2	2582	335.0	333.7	9.9	12.1	12.8	11.9	0.6	100154.3	59
22	14.8	51.9	52.2	2727	335.0	333.7	12.1	12.7	15.6	12.3	0.6	100154.3	59
23	13.0	51.7	52.0	2614	335.0	333.7	11.4	12.2	13.6	11.7	0.6	100154.3	59
24	12.8	51.6	52.0	2576	335.0	333.7	10.6	12.0	13.4	9.2	0.6	100154.2	59
25	12.2	51.0	51.3	2482	335.0	333.7	8.7	11.7	12.8	8.6	0.6	100154.1	59
26	10.1	50.7	51.0	2462	335.0	333.6	6.3	11.6	11.6	11.2	0.6	100154.1	59
27	11.3	51.1	51.4	2591	335.0	333.7	6.6	12.1	11.9	11.2	0.6	100154.1	59
28	11.7	51.7	52.0	2683	335.0	333.7	7.6	12.4	12.3	11.2	0.6	100154.1	59
29	12.2	51.5	51.8	2664	335.0	333.7	7.8	12.3	12.8	10.1	0.6	100154.2	59
30	12.4	51.5	51.8	2634	335.0	333.7	7.5	12.2	13.0	10.7	0.6	100154.1	60
31	12.3	51.8	52.1	2671	335.0	333.7	8.1	12.4	12.9	13.1	0.6	100154.0	60
32	13.8	52.1	52.4	2777	335.0	333.7	10.4	12.9	14.5	13.3	0.6	100153.9	60
33	13.7	51.6	51.9	2728	335.0	333.7	11.5	12.7	14.4	12.1	0.6	100153.8	60
34	14.8	52.1	52.4	2771	335.0	333.7	13.2	12.9	15.5	10.9	0.6	100154.1	60
35	14.5	51.8	52.1	2715	335.0	333.7	13.9	12.6	15.2	9.7	0.6	100157.8	61
36	14.6	51.0	51.3	2560	335.0	333.7	12.6	12.0	15.3	10.7	0.6	100168.3	61
37	13.4	51.1	51.4	2525	335.0	333.7	11.5	11.9	14.1	10.0	0.6	100168.3	61
38	13.2	52.3	52.7	2565	335.0	333.7	11.1	12.0	13.8	9.4	0.6	100168.0	61
39	12.9	50.9	51.2	2507	335.0	333.6	9.8	11.8	13.5	9.8	0.6	100168.1	61
40	12.6	50.5	50.8	2564	335.0	333.6	9.4	12.0	13.2	10.4	0.6	100168.4	61
41	11.2	51.1	51.4	2550	335.0	333.6	6.9	11.9	11.8	10.1	0.6	100168.2	62
42	11.9	51.5	51.8	2727	335.0	333.6	8.8	12.6	12.5	11.0	0.6	100168.3	62
43	12.6	51.6	51.9	2728	335.0	333.6	10.2	12.7	13.2	10.3	0.6	100168.4	62
44	13.8	51.4	51.7	2727	335.0	333.6	11.3	12.7	14.5	10.7	0.6	100168.3	62
45	12.3	51.1	51.4	2621	335.0	333.7	10.7	12.2	12.9	11.0	0.6	100168.4	62
46	13.0	51.1	51.4	2615	335.0	333.7	10.4	12.2	13.6	11.1	0.6	100168.5	62
47	11.6	51.3	51.6	2576	335.0	333.7	9.7	12.0	12.1	11.8	0.6	100168.5	58
48	11.7	50.6	50.9	2524	335.0	333.7	8.2	11.8	12.3	11.7	0.7	100168.5	58
49	11.5	52.0	52.3	2538	335.0	333.7	7.2	11.9	12.0	10.4	0.7	100168.3	58
50	11.5	50.9	51.2	2537	335.0	333.7	5.9	11.9	12.0	9.9	0.7	100168.3	58
51	11.4	51.7	52.0	2637	335.0	333.7	6.3	12.2	11.9	10.2	0.7	100168.3	58
52	11.6	52.4	52.7	2726	335.0	333.7	7.9	12.6	12.2	9.5	0.7	100168.5	58
53	12.4	51.2	51.5	2701	335.0	333.7	8.6	12.5	13.0	9.6	0.6	100180.9	61
54	11.0	50.0	50.2	2525	335.0	333.7	6.3	11.8	11.5	8.7	0.6	100181.4	61
55	9.8	51.5	51.8	2346	335.0	331.7	4.2	11.8	12.0	8.1	0.6	100181.4	61
56	11.1	51.2	51.5	2580	335.0	330.2	4.1	12.0	11.6	10.9	0.6	100181.4	61
57				2597	335.0	330.2	3.4	12.1	9.8	10.5	0.6	100181.3	61
58	10.4	51.9	52.2	2660	335.0	330.2	4.1	12.3	10.9	9.1	0.6	100181.5	61
59	11.2	51.9	52.2	2629	335.0	330.1	3.7	12.2	11.7	9.5	0.6	100181.6	63
60	11.1	51.5	51.8	2655	335.0	330.1	4.0	12.3	11.6	10.0	0.6	100181.6	63
61	10.7	51.1	51.4	2656	335.0	330.2	4.5	12.3	11.2	11.2	0.6	100181.7	63
62	11.7	51.3	51.6	2577	335.0	330.2	3.0	12.0	12.3	10.3	0.6	100181.7	63
63				2492	335.0	330.2	1.9	12.0	10.4	11.7	0.6	100181.6	63
64	10.3	51.6	51.9	2578	335.0	330.2	1.9	12.1	10.8	11.9	0.6	100181.5	63
65	9.7	51.4	51.7	2295	335.0	330.2	0.6	12.1	10.4	12.1	0.6	100181.6	59
66	10.0	52.0	52.3	2447	335.0	330.2	0.7	12.2	10.5	12.8	0.6	100181.7	59
67				2694	335.0	330.2	2.5	12.5	10.7	13.0	0.6	100181.7	59
68				2708	335.0	329.7	3.7	12.6	10.6	12.5	0.6	100181.9	59
69	12.3	51.2	51.5	2678	335.0	330.7	8.3	12.4	12.9	10.8	0.4	100193.2	63
70	13.0	51.7	52.0	2720	335.0	330.7	9.4	12.6	13.6	9.4	0.4	100193.3	63
71	14.1	51.8	52.1	2751	335.0	330.6	11.0	12.8	14.8	11.1	0.4	100193.2	63
72	14.2	52.0	52.3	2732	335.0	330.7	12.1	12.7	14.9	12.7	0.4	100193.2	63
73	13.7	51.2	51.5	2554	335.0	330.7	10.6	12.0	14.4	11.5	0.4	100193.1	63
74	13.3	52.0	52.3	2657	335.0	330.7	11.5	12.4	13.9	13.2	0.4	100193.2	63
75				2645	335.0	330.7	11.5	12.3	13.6	11.9	0.4	100193.0	63
76	12.7	52.1	52.4	2573	335.0	330.7	10.7	12.0	13.3	10.0	0.4	100193.2	63
77	12.3	51.7	52.0	2561	335.0	330.7	9.9	12.0	12.9	9.8	0.4	100193.1	62
78	12.3	51.5	51.8	2579	335.0	330.7	9.5	12.0	12.9	12.3	0.4	100193.1	60
79	10.9	52.3	52.6	2493	335.0	330.7	7.6	11.8	11.4	12.6	0.4	100193.1	60
80	12.1	51.8	52.1	2701	335.0	330.7	9.5	12.6	12.7	12.1	0.4	100193.2	60
81	12.4	51.1	51.4	2705	335.0	330.7	10.4	12.5	13.0	12.2	0.4	100193.1	60
82	12.4	50.8	51.1	2646	335.0	330.7	10.3	12.3	12.9	11.8	0.4	100193.2	60
83	11.3	50.8	51.1	2544	335.0	330.7	8.8	11.9	11.8	11.9	0.4	100193.1	59
84	12.1	51.7	52.0	2601	335.0	330.7	8.6	12.1	12.7	11.2	0.4	100193.4	58
85	11.3	51.0	51.3	2571	335.0	330.7	7.9	12.0	11.8	11.1	0.4	100193.2	58
86	11.8	50.9	51.2	2561	335.0	330.7	6.9	12.0	12.3	10.9	0.4	100193.2	58
87	11.9	51.4	51.7	2607	335.0	330.7	6.7	12.1	12.5	10.7	0.4	100193.3	58
88	10.8	51.1	51.5	2626	335.0	330.7	6.6	12.2	11.3	11.2	0.4	100193.3	58

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

Data Point #	Standardized Wind Speed (m/s)	LAeq (as measured)	LAeq (adjusted for windscreen IL)	Turbine Power Output (kW)	Reference Yaw Angle (°)	Yaw Angle (°)	Pitch Angle (°)	Rotor RPM	Nacelle Anemometer Wind Speed (m/s)	10m Anemometer Wind Speed (m/s)	Air Temperature (-C)	Pressure (Pa)	Relative Humidity (%)
89	11.1	50.7	51.0	2586	335.0	330.7	5.6	12.0	11.6	10.7	0.4	100193.3	58
90	10.5	51.0	51.3	2606	335.0	330.7	5.2	12.1	11.0	10.7	0.4	100193.4	60
91	11.9	52.1	52.4	2754	335.0	330.7	7.8	12.8	12.5	11.9	0.4	100193.4	60
92	12.6	51.8	52.1	2765	335.0	330.7	9.5	12.8	13.2	11.3	0.4	100193.5	60
93	12.1	50.9	51.2	2651	335.0	330.7	9.1	12.3	12.7	11.4	0.4	100193.2	60
94	14.0	51.0	51.4	2686	335.0	330.7	9.8	12.5	14.7	10.4	0.4	100193.3	60
95	12.5	51.0	51.4	2654	335.0	330.7	9.9	12.3	13.1	9.6	0.4	100193.5	61
96	11.9	50.3	50.6	2557	335.0	330.7	8.6	12.0	12.5	9.2	0.4	100193.4	62
97	12.2	51.7	52.0	2594	335.0	328.2	8.7	12.1	12.8	10.4	0.4	100193.5	62
98	11.3	50.8	51.1	2538	335.0	327.2	7.1	11.9	11.9	10.2	0.4	100193.3	62
99	12.1	51.1	51.4	2628	335.0	327.2	7.5	12.2	12.7	11.2	0.4	100193.4	62
100	11.9	50.9	51.2	2670	335.0	327.1	8.2	12.4	12.5	10.1	0.4	100193.4	62
101	11.2	50.3	50.6	2515	335.0	327.2	5.9	11.8	11.8	10.4	0.4	100198.8	62
102	10.4	50.2	50.5	2492	335.0	327.2	3.7	11.7	10.9	10.2	0.4	100206.8	60
103	9.9	51.1	51.4	2397	335.0	327.2	2.0	11.8	10.2	10.9	0.4	100206.8	60
104	9.5	51.3	51.6	2249	335.0	327.2	1.5	12.1	9.8	10.9	0.4	100206.7	60
105				2520	335.0	327.2	2.4	12.4	10.3	11.2	0.4	100206.8	60
106	10.4	51.6	51.8	2695	335.0	327.2	3.8	12.5	10.9	9.9	0.4	100206.9	60
107	10.5	52.5	52.8	2704	335.0	327.2	4.7	12.5	11.0	10.0	0.4	100206.9	61
108	10.9	51.6	52.0	2684	335.0	327.2	5.1	12.4	11.5	9.5	0.4	100207.2	62
109	10.3	51.8	52.1	2606	335.0	327.2	3.4	12.1	10.8	9.5	0.4	100207.1	62
110				2614	335.0	327.2	3.0	12.1	10.7	8.7	0.4	100207.1	62
111	10.2	51.6	51.9	2480	335.0	327.2	1.8	12.0	11.3	8.8	0.4	100207.2	62
112	10.6	51.4	51.7	2605	335.0	327.2	2.2	12.2	11.2	8.6	0.4	100207.1	62
113	9.6	51.8	52.0	2283	335.0	327.2	0.6	12.0	10.7	11.3	0.4	100207.2	64
114	13.4	50.7	51.0	2582	335.0	334.7	11.1	12.0	14.0	8.5	0.2	100262.7	58
115	9.9	50.4	50.7	2405	335.0	334.7	9.0	11.5	11.9	9.2	0.2	100262.9	58
116	12.5	50.5	50.8	2556	335.0	331.6	9.3	12.0	13.1	8.7	0.2	100262.9	58
117	12.3	51.3	51.6	2670	335.0	331.2	10.8	12.4	12.9	10.3	0.2	100263.1	58
118	14.8	52.1	52.4	2647	335.0	331.1	11.7	12.3	15.5	10.4	0.2	100263.0	58
119	14.3	51.1	51.4	2613	335.0	331.1	11.5	12.1	15.0	9.1	0.2	100263.0	58
120	15.3	50.7	51.0	2582	335.0	331.4	11.2	12.0	16.0	8.3	0.2	100262.9	58
121	14.0	51.2	51.6	2567	335.0	334.8	10.4	11.9	14.7	8.5	0.2	100263.0	58
122	11.4	53.5	53.8	2541	335.0	335.2	9.4	11.8	12.0	8.5	0.2	100263.0	58
123	12.6	51.4	51.7	2598	335.0	335.2	9.2	12.1	13.2	8.5	0.2	100262.9	58
124	14.3	52.4	52.7	2718	335.0	335.2	10.7	12.5	15.0	10.3	0.2	100263.0	60
125	13.3	52.6	52.9	2654	335.0	336.5	10.4	12.3	14.0	10.4	0.2	100263.0	60
126	14.6	52.2	52.5	2731	335.0	338.4	11.9	12.6	15.3	9.4	0.2	100263.0	60
127	14.1	51.3	51.6	2752	335.0	338.4	13.2	12.7	14.8	9.5	0.2	100263.0	60
128	14.3	50.8	51.1	2642	335.0	338.4	12.9	12.2	14.9	9.6	0.2	100262.8	60
129	12.6	50.5	50.8	2511	335.0	338.4	11.0	11.7	13.2	9.1	0.2	100262.9	60
130	12.9	50.9	51.2	2625	335.0	338.4	11.2	12.2	13.5	9.6	0.2	100262.8	60
131	13.9	51.1	51.4	2687	335.0	338.4	12.0	12.4	14.5	11.9	0.2	100262.8	60
132	11.9	51.6	51.9	2507	335.0	338.3	9.9	11.7	12.5	10.0	0.2	100262.8	60
133	12.3	51.7	52.0	2576	335.0	338.4	9.4	12.1	12.9	10.3	0.2	100262.9	60
134	15.4	53.3	53.6	2839	335.0	338.4	13.0	13.1	16.2	12.1	0.2	100263.0	60
135	14.2	52.0	52.3	2661	335.0	338.5	12.2	12.3	14.9	14.5	0.2	100263.0	60
136	13.2	52.0	52.3	2526	335.0	338.5	10.4	11.8	13.8	14.5	0.2	100262.9	54
137	10.0	51.8	52.1	2424	335.0	338.4	7.3	11.5	12.0	14.0	0.2	100262.9	54
138				2806	335.0	338.3	11.2	13.0	14.1	15.1	0.2	100262.9	54
139	15.1	55.3	55.5	2916	335.0	338.4	14.6	13.5	15.8	15.6	0.2	100262.9	54
140	15.7	51.9	52.2	2781	335.0	338.4	15.3	12.9	16.4	13.2	0.2	100262.7	54
141	15.2	52.0	52.3	2738	335.0	338.4	16.2	12.7	15.9	13.0	0.2	100262.7	54
142	16.1	52.8	53.2	2671	335.0	338.4	16.3	12.4	16.9	13.5	0.2	100262.9	53
143	16.4	53.8	54.2	2681	335.0	338.4	16.9	12.5	17.2	14.2	0.2	100263.0	53
144	14.6	53.3	53.6	2534	335.0	338.4	15.6	11.9	15.4	12.5	0.2	100262.9	53
145	15.3	54.5	54.8	2571	335.0	338.4	15.4	12.1	16.0	11.9	0.2	100263.1	53
146	15.2	51.9	52.2	2610	335.0	338.4	15.3	12.2	16.0	10.6	0.2	100263.0	53
147	14.9	53.2	53.5	2651	335.0	338.4	15.7	12.3	15.7	11.1	0.2	100262.9	53
148	16.0	51.9	52.2	2633	335.0	338.4	15.6	12.2	16.7	11.2	0.2	100262.9	56
149	13.9	52.1	52.4	2543	335.0	338.4	14.6	11.9	14.5	10.8	0.2	100262.9	56
150	15.1	50.9	51.2	2566	335.0	338.4	14.0	12.0	15.8	11.1	0.2	100263.0	56
151	14.2	50.8	51.2	2589	335.0	338.4	13.9	12.1	14.9	12.9	0.2	100263.1	56
152	14.4	51.4	51.7	2549	335.0	338.4	13.0	11.9	15.1	11.9	0.2	100263.0	56
153	13.3	50.9	51.2	2534	335.0	338.4	12.1	11.8	14.0	13.2	0.2	100262.9	56
154	13.1	50.9	51.2	2585	335.0	338.3	10.6	12.0	13.8	12.2	0.2	100262.8	54
155	12.2	50.9	51.2	2528	335.0	338.3	9.2	11.8	12.8	12.8	0.2	100262.8	54
156	11.8	50.8	51.0	2532	335.0	338.3	7.9	11.8	12.3	12.6	0.2	100262.9	54
157	12.8	52.6	52.9	2652	335.0	338.3	8.5	12.2	13.4	12.5	0.2	100263.1	54
158	12.8	52.8	53.1	2623	335.0	338.3	8.0	12.1	13.5	11.1	0.2	100263.0	54
159	11.8	50.9	51.2	2602	335.0	338.4	7.2	12.0	12.4	10.1	0.2	100263.1	55
160	12.3	51.9	52.2	2690	335.0	338.4	8.1	12.4	12.9	10.8	0.2	100262.9	55
161	12.6	52.0	52.3	2785	335.0	338.3	10.3	12.8	13.2	10.9	0.2	100263.0	55
162	13.4	51.2	51.5	2696	335.0	338.3	10.8	12.5	14.0	10.4	0.2	100263.2	55
163	13.7	51.2	51.5	2625	335.0	338.3	10.2	12.3	14.4	9.1	0.2	100263.1	55
164	13.3	51.8	52.1	2724	335.0	338.4	11.8	12.6	13.9	10.0	0.2	100263.2	55
165	14.5	51.5	51.8	2665	335.0	338.4	11.9	12.4	15.2	12.6	0.2	100263.3	57
166	14.8	51.4	51.7	2668	335.0	338.4	12.3	12.4	15.5	11.8	0.2	100263.1	57
167	14.5	51.3	51.6	2679	335.0	338.4	12.8	12.5	15.2	12.7	0.2	100263.3	57
168	13.8	51.1	51.4	2685	335.0	338.4	13.5	12.5	14.5	11.6	0.2	100263.2	57
169	14.6	51.1	51.4	2667	335.0	338.4	14.0	12.5	15.3	10.7	0.2	100263.1	57
170	14.6	52.1	52.5	2689	335.0	338.4	14.7	12.5	15.3	10.7	0.2	100263.3	57
171	15.2	51.4	51.7	2633	335.0	338.4	14.6	12.3	15.9	11.1	0.2	100263.4	56
172	14.8	50.9	51.2	2579	335.0	338.4	13.9	12.1	15.5	10.3	0.2	100263.4	56
173	15.4	51.8	52.1	2642	335.0	338.4	14.4	12.3	16.2	11.4	0.2	100263.5	56
174	14.5	51.6	51.9	2645	335.0	338.4	14.6	12.3	15.2	11.9	0.2	100263.4	56
175	14.0	51.0	51.3	2587	335.0	338.4	14.1	12.1	14.7	10.3	0.2	100263.4	56
176	15.2	50.9	51.3	2585	335.0	338.4	13.8	12.1	16.0	10.9	0.2	100263.4	56

Table E.01 Measurement data - Turbine ON

Project: North Kent Wind Farm - IEC 61400- 11 Edition 3.0 - Turbine T4

Report ID: 17283.03.T4.RP3

Created on: 1/28/2021

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

Data Point #	Standardized Wind Speed (m/s)	LAeq (as measured)	LAeq (adjusted for windscreen IL)	Turbine Power Output (kW)	Reference Yaw Angle (°)	Yaw Angle (°)	Pitch Angle (°)	Rotor RPM	Nacelle Anemometer Wind Speed (m/s)	10m Anemometer Wind Speed (m/s)	Air Temperature (-C)	Pressure (Pa)	Relative Humidity (%)
177	13.7	50.9	51.2	2591	335.0	338.3	13.5	12.1	14.4	10.7	0.2	100263.2	56
178	13.8	51.9	52.2	2667	335.0	338.3	14.2	12.4	14.5	11.2	0.2	100263.2	56
179	15.0	51.5	51.8	2607	335.0	338.3	13.8	12.2	15.7	10.3	0.2	100263.2	56
180	13.9	51.8	52.1	2584	335.0	338.4	13.3	12.1	14.6	8.2	0.2	100263.2	56
181	13.7	51.0	51.4	2520	335.0	338.4	12.1	11.9	14.3	10.6	0.2	100263.1	56
182	12.4	51.2	51.5	2557	335.0	338.4	11.6	12.0	13.0	11.2	0.2	100263.2	56
183	13.5	51.6	51.9	2569	335.0	338.5	11.0	12.0	14.1	10.4	0.2	100263.1	55
184	13.2	51.2	51.5	2601	335.0	338.5	10.7	12.1	13.8	10.5	0.2	100263.2	55
185	14.1	50.6	50.9	2596	335.0	338.5	10.3	12.1	14.8	10.1	0.2	100263.2	55
186	12.6	50.8	51.1	2547	335.0	338.4	9.1	11.9	13.2	9.3	0.2	100263.2	55
187	13.0	50.4	50.7	2486	335.0	338.8	7.2	11.7	13.6	9.7	0.2	100263.2	55
188	10.2	50.4	50.6	2472	335.0	341.8	5.0	11.6	11.8	9.8	0.2	100263.4	55
189				2604	335.0	342.0	4.9	12.0	10.3	9.7	0.2	100263.2	57
190	11.8	51.4	51.7	2760	335.0	342.0	7.3	12.7	12.4	8.5	0.2	100263.3	57
191	13.9	52.3	52.6	2833	335.0	342.1	10.0	13.0	14.6	7.5	0.2	100263.3	57
192	13.7	52.7	53.0	2805	335.0	342.0	11.7	13.0	14.3	7.3	0.2	100263.2	57
193	15.1	52.8	53.2	2775	335.0	342.0	13.2	12.9	15.8	7.3	0.2	100263.3	57
194	15.4	52.1	52.4	2685	335.0	345.9	14.0	12.5	16.2	7.0	0.3	100273.2	60
195	15.4	51.8	52.1	2643	335.0	346.0	14.0	12.3	16.1	9.5	0.4	100277.5	62
196	14.2	52.5	52.8	2585	335.0	346.0	13.4	12.1	14.9	9.9	0.4	100277.5	62
197	14.0	51.2	51.5	2565	335.0	346.0	12.8	12.0	14.7	8.4	0.4	100277.6	62
198	13.1	50.8	51.1	2542	335.0	346.0	11.8	11.9	13.7	8.1	0.4	100277.8	62
199	14.0	52.9	53.2	2684	335.0	346.0	13.1	12.5	14.7	9.5	0.4	100277.8	62
200	14.5	52.6	53.0	2626	335.0	346.0	12.8	12.2	15.2	8.8	0.4	100267.8	60
201	14.4	54.1	54.5	2565	335.0	346.0	12.0	12.0	15.1	8.5	0.4	100263.5	59
202	14.6	50.9	51.2	2568	335.0	346.9	11.5	12.0	15.3	9.9	0.4	100263.7	59
203	13.8	51.2	51.5	2619	335.0	350.0	11.4	12.2	14.5	11.0	0.4	100263.7	59
204	13.6	50.8	51.1	2549	335.0	350.0	10.5	11.9	14.2	9.9	0.4	100263.7	59
205	12.7	50.6	50.9	2555	335.0	349.9	9.5	12.0	13.3	9.2	0.4	100263.9	59
206	12.5	50.4	50.7	2619	335.0	350.0	9.6	12.1	13.1	7.7	0.4	100273.7	59
207	10.2	50.3	50.6	2473	335.0	350.0	6.9	11.6	12.0	7.7	0.4	100277.8	59
208	10.9	50.5	50.8	2508	335.0	349.9	5.2	11.7	11.4	9.5	0.4	100277.7	59
209	9.8	50.7	51.0	2339	335.0	349.9	3.0	11.7	11.7	10.4	0.4	100277.8	59
210	9.1	51.3	51.6	2060	335.0	349.9	1.4	11.9	10.1	10.0	0.4	100277.9	59
211	9.4	51.1	51.4	2182	335.0	350.0	1.7	12.2	10.5	9.1	0.4	100277.9	59
212				2116	335.0	351.9	1.2	12.2	10.3	8.1	0.4	100277.8	59
213				2426	335.0	354.4	1.3	12.2	10.8	7.8	0.4	100277.9	59
214				2300	335.0	354.5	0.5	12.2	9.8	7.8	0.4	100277.8	59
215				2437	335.0	358.0	0.4	12.2	10.5	9.0	0.4	100277.9	59
216				2479	335.0	358.8	0.1	12.1	10.9	8.1	0.4	100277.8	59
217				2537	335.0	358.8	0.1	12.2	10.6	7.7	0.4	100277.9	59
218				2623	335.0	208.1	0.1	12.2	11.9	7.9	0.4	100277.9	65
219				2669	335.0	2.8	0.9	12.3	11.2	9.1	0.4	100278.0	68
220				2749	335.0	2.8	3.5	12.7	11.4	9.0	0.4	100277.9	68
221				2764	335.0	2.8	5.4	12.8	11.2	8.3	0.4	100278.1	68
222				2683	335.0	2.8	5.5	12.4	12.4	7.5	0.4	100277.9	68
223				2555	335.0	2.8	3.6	11.9	11.1	7.0	0.4	100278.0	68
224				2554	335.0	4.0	2.4	12.0	11.5	7.4	0.1	100278.1	70
225				2421	335.0	6.1	1.5	12.0	10.3	7.8	0.0	100278.1	71
226				2400	335.0	6.1	1.2	12.2	11.2	7.0	0.0	100278.0	71
227				2670	335.0	6.2	2.4	12.4	11.7	6.9	0.0	100277.9	71
228				2730	335.0	6.2	4.3	12.6	10.9	9.6	0.0	100277.9	71
229				2544	335.0	6.2	2.8	12.1	10.9	9.8	0.0	100278.0	71
230				2546	335.0	6.2	2.1	12.1	10.6	10.0	-0.1	100277.9	72
231				2675	335.0	6.2	3.3	12.4	11.2	8.1	-0.2	100278.2	72
232				2635	335.0	6.2	3.0	12.2	10.9	8.7	-0.2	100278.2	72
233				2612	335.0	6.2	2.2	12.1	11.0	7.9	-0.2	100278.1	72
234				2655	335.0	6.2	2.2	12.3	11.4	8.7	-0.2	100278.1	72
235				2547	335.0	6.2	1.2	12.1	11.0	8.5	-0.3	100278.0	74
236				2481	335.0	6.2	0.7	12.1	10.7	8.5	-0.4	100277.9	75
237				2724	335.0	6.2	3.3	12.7	12.2	7.3	-0.4	100278.0	75
238				2674	335.0	6.2	3.4	12.3	11.3	7.1	-0.4	100278.2	75
239				2502	335.0	6.2	2.0	12.1	10.3	8.2	-0.4	100278.1	75
240				2731	335.0	6.2	4.6	12.7	11.8	7.8	-0.4	100278.2	75
241				2652	335.0	6.1	4.3	12.3	11.0	7.9	-0.4	100278.4	75
242				2590	335.0	6.1	3.0	12.0	10.3	7.7	-0.5	100278.3	76
243				2748	335.0	6.2	5.4	12.7	12.7	7.1	-0.5	100278.3	76
244				2767	335.0	6.2	7.5	12.8	12.8	6.0	-0.5	100278.2	76
245				2746	335.0	6.2	8.9	12.8	13.4	7.7	-0.5	100278.2	76
246				2706	335.0	6.1	9.6	12.6	12.8	9.7	-0.5	100278.3	76
247	11.8	51.0	51.3	2617	335.0	347.8	9.3	12.1	12.4	8.0	-0.2	100305.7	60
248	11.6	51.9	52.2	2548	335.0	347.8	7.9	11.9	12.2	6.8	-0.2	100305.7	61
249	11.6	51.7	52.0	2637	335.0	347.8	8.2	12.2	12.2	8.1	-0.2	100305.6	61
250	12.1	50.5	50.8	2616	335.0	347.8	7.7	12.1	12.7	9.5	-0.2	100305.7	61
251	11.8	50.4	50.7	2659	335.0	347.8	8.0	12.3	12.4	9.4	-0.2	100305.8	61
252	12.9	51.3	51.7	2746	335.0	347.8	9.8	12.7	13.6	8.8	-0.2	100305.5	61
253	12.7	50.3	50.7	2677	335.0	347.8	9.8	12.3	13.3	8.7	-0.2	100305.4	60
254	11.3	50.8	51.1	2528	335.0	347.8	7.8	11.8	11.8	8.8	-0.2	100305.1	59
255	11.6	50.1	50.4	2525	335.0	347.8	6.3	11.8	12.2	9.1	-0.2	100305.2	59
256	10.9	51.1	51.4	2549	335.0	347.8	5.1	11.9	11.5	8.4	-0.2	100305.3	59
257				2581	335.0	347.8	4.2	12.0	10.6	9.9	-0.2	100305.0	59
258	10.5	51.3	51.6	2623	335.0	347.8	3.9	12.1	11.0	10.3	-0.2	100305.1	59
259	9.8	51.4	51.7	2345	335.0	347.8	1.8	11.9	11.0	11.2	-0.2	100304.9	59
260	9.9	51.0	51.2	2390	335.0	347.7	1.9	12.1	9.8	11.4	-0.2	100304.9	58
261	10.3	51.4	51.7	2626	335.0	347.7	2.0	12.2	10.8	11.3	-0.2	100305.0	58
262	10.7	51.5	51.8	2695	335.0	347.7	3.0	12.4	11.2	10.9	-0.2	100305.0	58
263	11.6	51.6	51.9	2801	335.0	347.7	5.9	12.9	12.2	10.8	-0.2	100305.0	58
264	10.9	50.7	51.0	2681	335.0	347.7	5.6	12.4	11.4	9.9	-0.2	100305.0	58

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

Data Point #	Standardized Wind Speed (m/s)	LAeq (as measured)	LAeq (adjusted for windscreen IL)	Turbine Power Output (kW)	Reference Yaw Angle (°)	Yaw Angle (°)	Pitch Angle (°)	Rotor RPM	Nacelle Anemometer Wind Speed (m/s)	10m Anemometer Wind Speed (m/s)	Air Temperature (-C)	Pressure (Pa)	Relative Humidity (%)
265	10.9	50.6	50.9	2668	335.0	347.7	5.8	12.3	11.4	9.7	-0.2	100304.9	58
266	10.6	50.9	51.2	2657	335.0	347.8	5.9	12.3	11.1	10.2	-0.2	100305.0	58
267	11.8	51.0	51.3	2689	335.0	347.8	6.6	12.4	12.4	9.6	-0.2	100305.0	58
268	10.7	50.8	51.1	2647	335.0	346.8	6.6	12.3	11.2	9.7	-0.2	100304.9	58
269	10.9	50.4	50.8	2631	335.0	344.1	6.3	12.2	11.4	9.1	-0.2	100305.0	58
270	11.1	50.3	50.6	2558	335.0	344.1	4.7	11.9	11.6	8.6	-0.2	100305.1	58
271	10.3	50.6	50.9	2602	335.0	344.1	4.5	12.1	10.8	8.2	-0.2	100305.1	59
272	10.8	51.3	51.6	2630	335.0	344.1	4.5	12.2	11.3	8.1	-0.2	100305.1	60
273	10.5	50.8	51.1	2633	335.0	344.1	4.2	12.2	11.0	7.8	-0.2	100305.0	60
274	11.1	51.0	51.2	2671	335.0	344.0	4.9	12.3	11.6	8.8	-0.2	100305.0	60
275	11.7	51.1	51.4	2739	335.0	344.0	6.6	12.7	12.2	11.0	-0.2	100305.1	60
276	11.9	51.0	51.3	2707	335.0	344.1	7.4	12.5	12.4	11.1	-0.2	100305.0	60
277	11.7	50.5	50.8	2622	335.0	344.1	6.7	12.2	12.2	10.3	-0.2	100305.0	59
278	11.2	51.2	51.5	2604	335.0	344.0	6.3	12.1	11.7	10.3	-0.2	100304.9	57
279				2523	335.0	344.0	4.3	11.8	10.5	9.7	-0.2	100304.8	57
280	10.6	51.1	51.4	2534	335.0	344.0	2.8	11.9	11.1	9.7	-0.2	100304.9	57
281	9.8	51.3	51.5	2338	335.0	344.0	1.7	12.0	10.8	11.1	-0.2	100304.8	57
282	10.9	51.9	52.2	2567	335.0	344.0	2.4	12.3	11.4	11.1	-0.2	100304.9	57
283	11.7	51.7	52.0	2694	335.0	344.0	3.7	12.5	12.2	10.1	-0.2	100305.1	58
284	10.8	51.0	51.3	2614	335.0	344.0	2.8	12.1	11.3	10.7	-0.2	100305.1	59
285	10.1	51.0	51.2	2461	335.0	344.0	1.9	12.1	10.8	11.6	-0.2	100304.9	59
286	9.9	50.9	51.1	2415	335.0	344.0	1.3	12.1	11.1	11.0	-0.2	100305.0	59
287	11.0	52.7	53.0	2809	335.0	344.0	5.2	13.1	11.6	10.7	-0.2	100305.0	59
288	11.6	52.8	53.1	2851	335.0	344.1	8.3	13.2	12.1	10.0	-0.2	100304.9	59
289	11.4	52.2	52.5	2712	335.0	344.1	8.2	12.5	12.0	10.1	-0.2	100305.1	59
290	12.6	51.7	52.0	2666	335.0	344.0	8.2	12.4	13.2	10.5	-0.2	100305.0	59
291	12.4	51.1	51.4	2690	335.0	344.0	9.0	12.5	13.0	9.9	-0.2	100305.0	59
292	12.3	50.6	50.9	2642	335.0	344.0	9.0	12.3	12.9	9.9	-0.2	100305.0	59
293	11.8	50.7	51.0	2579	335.0	344.0	8.1	12.1	12.3	9.5	-0.2	100305.1	59
294	11.4	50.2	50.5	2542	335.0	344.0	7.1	12.0	12.0	8.3	-0.2	100314.2	60
295	12.5	50.5	50.8	2561	335.0	344.1	6.2	12.0	13.1	7.6	-0.2	100318.2	61
296	11.4	51.2	51.5	2615	335.0	344.1	6.2	12.2	11.9	7.2	-0.2	100318.2	61
297	10.7	51.5	51.8	2563	335.0	344.0	5.0	12.0	11.2	7.1	-0.2	100318.2	61
298	11.2	51.6	51.9	2652	335.0	344.1	5.7	12.3	11.7	9.5	-0.2	100318.3	61
299	12.0	51.5	51.8	2730	335.0	344.1	7.7	12.7	12.6	10.0	-0.2	100318.1	61
300	12.4	51.1	51.4	2645	335.0	344.1	7.4	12.3	13.0	9.6	-0.2	100318.2	60
301	11.4	50.6	50.9	2653	335.0	344.1	7.6	12.3	11.9	8.9	-0.2	100318.2	59
302	11.2	50.3	50.7	2631	335.0	344.1	7.6	12.2	11.8	8.2	-0.2	100318.3	59
303	10.6	49.8	50.1	2571	335.0	344.1	6.5	12.0	11.2	8.4	-0.2	100318.3	59
304	10.6	50.3	50.6	2552	335.0	344.1	5.3	11.9	11.1	7.3	-0.2	100318.4	59
305	10.4	50.7	50.9	2525	335.0	344.1	3.5	11.9	10.9	7.1	-0.2	100318.3	59
306				2558	335.0	344.1	2.7	12.0	10.3	7.5	-0.2	100318.4	62
307	10.2	51.5	51.8	2474	335.0	344.1	1.7	12.0	10.7	8.7	-0.2	100318.3	64
308	10.8	51.6	51.9	2656	335.0	344.1	2.8	12.3	11.3	8.4	-0.2	100318.4	64
309	11.2	51.2	51.5	2703	335.0	344.1	4.0	12.5	11.7	8.5	-0.2	100318.4	64
310	10.3	50.9	51.2	2631	335.0	344.1	3.4	12.2	10.8	8.7	-0.2	100318.5	64
311	11.1	51.2	51.5	2668	335.0	344.1	4.2	12.4	11.6	8.6	-0.2	100318.4	64
312				2621	335.0	344.1	3.6	12.2	10.2	9.2	-0.2	100318.5	62
313				2662	335.0	343.3	3.0	12.1	10.7	8.8	-0.2	100318.4	61
314	10.9	51.2	51.4	2601	335.0	340.5	2.3	12.1	11.5	9.0	-0.2	100318.5	61
315	11.1	51.3	51.6	2589	335.0	340.5	2.0	12.1	11.6	8.0	-0.2	100318.4	61
316	9.9	51.5	51.7	2406	335.0	340.5	1.1	12.1	10.5	7.6	-0.2	100318.4	61
317	9.7	51.3	51.6	2328	335.0	340.5	0.4	12.1	10.0	8.1	-0.2	100318.2	61
318	9.9	51.5	51.8	2407	335.0	340.5	0.2	12.2	9.8	8.6	-0.2	100318.4	62
319	10.8	51.3	51.6	2536	335.0	340.5	0.1	12.2	11.3	9.8	-0.2	100318.7	62
320	9.9	51.2	51.4	2416	335.0	340.5	-0.1	12.1	10.6	9.3	-0.2	100318.6	62
321				2624	335.0	340.5	0.7	12.3	10.3	8.7	-0.2	100318.5	62
322				2700	335.0	340.5	2.5	12.5	10.3	8.5	-0.2	100318.5	62
323				2610	335.0	340.4	1.7	12.2	10.0	8.5	-0.2	100318.6	62
324	10.6	51.3	51.6	2729	335.0	340.4	3.9	12.6	11.1	7.2	-0.2	100318.6	62
325	10.9	50.9	51.2	2636	335.0	340.4	3.1	12.2	11.5	8.7	-0.2	100318.7	62
326	10.1	50.7	51.0	2462	335.0	340.4	1.7	12.0	11.5	8.4	-0.2	100318.5	62
327	9.7	50.5	50.7	2314	335.0	340.4	1.1	12.1	10.1	8.4	-0.2	100318.5	62
328	9.6	51.0	51.3	2278	335.0	340.4	0.3	12.2	9.9	9.2	-0.2	100318.6	62
329	9.7	50.7	51.0	2314	335.0	340.4	0.0	12.1	10.8	9.3	-0.2	100318.7	62
330	9.7	51.1	51.4	2333	335.0	340.4	-0.3	12.1	9.9	8.5	-0.2	100318.7	59
331	9.5	50.8	51.1	2227	335.0	340.4	-0.4	12.1	10.6	7.5	-0.2	100318.7	59
332	9.9	50.8	51.1	2394	335.0	340.4	-0.1	12.2	10.9	7.2	-0.2	100318.8	59
333	10.5	51.4	51.7	2507	335.0	340.4	0.0	12.2	11.0	7.4	-0.2	100318.8	59
334	10.6	51.6	51.9	2606	335.0	340.4	1.2	12.4	11.1	8.2	-0.2	100319.0	59
335	11.4	51.6	51.9	2827	335.0	340.5	5.4	13.1	12.0	8.6	-0.2	100318.8	59
336				2678	335.0	340.5	4.9	12.4	10.7	8.5	0.0	100318.6	59
337				2548	335.0	338.0	3.2	12.0	10.4	8.5	0.0	100318.6	59
338	9.9	50.5	50.8	2382	335.0	336.9	1.8	12.0	11.2	7.8	0.0	100318.6	59
339	9.7	50.7	51.0	2314	335.0	336.9	1.5	12.1	10.3	7.2	0.0	100318.6	59
340	9.2	51.0	51.3	2106	335.0	336.9	0.3	12.1	10.1	6.7	0.0	100318.6	59
341	9.1	51.7	51.7	2066	335.0	336.9	-0.4	12.2	9.4	6.8	0.0	100318.6	59
342	9.8	51.2	51.4	2361	335.0	337.0	0.3	12.2	10.0	7.6	0.0	100318.3	63
343	10.1	51.6	51.9	2452	335.0	337.0	0.1	12.2	9.8	8.7	0.0	100318.5	63
344	9.7	51.4	51.7	2298	335.0	337.0	-0.2	12.1	10.3	8.1	0.0	100318.5	63
345				2613	335.0	337.0	0.6	12.3	10.6	7.8	0.0	100318.4	63
346				2530	335.0	336.9	0.1	12.1	10.3	8.1	0.0	100318.5	63
347				2510	335.0	335.8	0.0	12.1	10.7	7.6	0.0	100318.6	63
348	9.7	51.4	51.7	2327	335.0	333.5	-0.2	12.1	9.9	7.2	0.0	100318.6	64
349	9.5	51.2	51.4	2223	335.0	333.5	-0.4	12.1	9.8	7.7	0.0	100318.6	64
350	9.0	51.6	51.9	2003	335.0	333.1	-0.8	12.1	9.3	7.2	0.0	100318.6	64
351	8.5	51.6	51.8	1725	335.0	329.8	-1.2	12.1	8.5	6.8	0.0	100318.8	64
352	8.3	51.4	51.6	1660	335.0	329.6	-1.3	12.2	9.3	7.4	0.0	100318.7	64

Table E.01 Measurement data - Turbine ON

Project: North Kent Wind Farm - IEC 61400- 11 Edition 3.0 - Turbine T4

Report ID: 17283.03.T4.RP3

Created on: 1/28/2021

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

Data Point #	Standardized Wind Speed (m/s)	LAeq (as measured)	LAeq (adjusted for windscreen IL)	Turbine Power Output (kW)	Reference Yaw Angle (°)	Yaw Angle (°)	Pitch Angle (°)	Rotor RPM	Nacelle Anemometer Wind Speed (m/s)	10m Anemometer Wind Speed (m/s)	Air Temperature (-C)	Pressure (Pa)	Relative Humidity (%)
353	8.2	51.1	51.4	1561	335.0	329.6	-1.4	12.2	8.6	6.9	0.0	100318.6	64
354	8.2	51.3	51.6	1590	335.0	329.6	-1.4	12.2	8.9	8.4	0.0	100330.7	65
355	8.1	51.3	51.5	1519	335.0	329.6	-1.5	12.2	7.7	8.8	0.0	100330.8	65
356	7.6	51.3	51.6	1287	335.0	329.5	-1.8	12.2	8.6	7.8	0.0	100330.8	65
357	7.7	51.5	51.8	1307	335.0	328.0	-1.8	12.3	8.4	7.5	0.0	100330.9	65
358	8.0	52.0	52.3	1465	335.0	325.9	-1.5	12.6	8.6	8.1	0.0	100330.8	65
359	8.6	52.1	52.4	1796	335.0	325.9	-0.7	12.7	9.7	8.2	0.0	100330.8	65
360	10.1	51.3	51.6	2460	335.0	326.0	1.3	12.5	9.5	8.3	0.0	100319.8	64
361				2654	335.0	326.0	1.4	12.3	10.4	7.7	0.0	100318.5	64
362	10.3	51.2	51.5	2681	335.0	326.0	2.1	12.4	10.8	7.8	0.0	100318.6	64
363	10.7	50.9	51.1	2660	335.0	326.0	2.3	12.3	11.2	9.1	0.0	100318.7	64
364				2598	335.0	326.0	1.4	12.1	10.6	8.4	0.0	100318.9	64
365	10.0	50.9	51.2	2452	335.0	326.0	0.5	12.1	10.0	7.1	0.0	100318.8	64
366	9.3	51.2	51.5	2159	335.0	326.0	-0.3	12.1	10.5	7.0	-0.2	100318.9	65
367	9.9	51.5	51.8	2399	335.0	326.0	0.1	12.2	10.1	7.1	-0.2	100318.9	65
368	9.5	51.3	51.5	2240	335.0	326.0	-0.1	12.1	9.9	7.0	-0.2	100318.9	65
369	9.6	51.1	51.4	2252	335.0	326.0	-0.3	12.1	10.7	7.7	-0.2	100318.9	65
370	9.6	51.2	51.4	2263	335.0	326.0	-0.3	12.2	10.4	8.7	-0.2	100318.9	65
371	9.1	51.2	51.5	2061	335.0	326.0	-0.7	12.1	9.5	9.3	-0.2	100319.0	63
372	9.3	51.4	51.6	2140	335.0	326.0	0.2	12.2	10.3	9.9	-0.2	100319.1	62
373	9.6	50.9	51.2	2292	335.0	326.0	0.4	12.2	10.4	9.1	-0.2	100319.1	62
374	9.6	51.0	51.3	2290	335.0	326.0	-0.1	12.1	10.7	9.0	-0.2	100319.1	62
375	9.4	51.3	51.6	2197	335.0	327.8	-0.3	12.1	10.0	9.2	-0.2	100319.0	62
376	9.0	51.2	51.4	2012	335.0	329.7	-0.8	12.2	9.8	8.7	-0.2	100319.0	62
377	9.5	51.4	51.6	2251	335.0	329.7	0.2	12.3	10.3	8.2	-0.2	100319.0	62
378	10.0	50.9	51.1	2433	335.0	329.7	0.2	12.2	10.2	8.2	-0.2	100319.1	62
379	9.9	51.2	51.5	2414	335.0	329.7	-0.2	12.1	10.6	7.6	-0.2	100319.1	62
380	9.2	51.2	51.4	2098	335.0	329.7	-0.6	12.1	10.3	6.6	-0.2	100319.2	62
381	8.7	51.1	51.4	1844	335.0	329.7	-1.0	12.1	9.9	6.6	-0.2	100319.2	62
382	8.6	51.6	51.8	1807	335.0	329.7	-1.1	12.2	8.8	7.6	-0.2	100319.3	62
383	8.8	51.4	51.7	1901	335.0	329.6	-1.0	12.2	9.7	7.8	-0.2	100319.2	63
384	8.6	51.1	51.4	1805	335.0	329.6	-1.1	12.2	8.9	7.4	-0.2	100319.2	64
385	8.9	51.2	51.4	1944	335.0	329.7	-0.8	12.3	9.3	7.9	-0.2	100319.2	64
386	9.1	51.3	51.6	2048	335.0	329.7	-0.8	12.3	9.7	7.6	-0.2	100319.2	64
387	9.0	50.9	51.2	2019	335.0	329.7	-0.8	12.2	8.9	7.3	-0.2	100319.2	64
388	8.8	51.3	51.5	1888	335.0	329.7	-1.0	12.2	9.0	8.3	-0.2	100319.2	64
389	8.9	51.6	51.9	1948	335.0	329.7	-0.8	12.3	9.3	7.6	-0.2	100319.1	63
390	9.0	51.5	51.8	2036	335.0	329.7	-0.7	12.3	9.0	8.2	-0.2	100319.2	62
391	8.8	51.2	51.4	1883	335.0	329.7	-1.0	12.2	9.9	8.2	-0.2	100319.0	62
392	8.3	50.7	50.9	1634	335.0	329.7	-1.3	12.1	8.3	8.9	-0.2	100319.0	62
393	8.0	50.9	51.1	1466	335.0	329.7	-1.5	12.2	8.9	8.2	-0.2	100319.0	62
394	8.1	51.1	51.4	1527	335.0	329.6	-1.5	12.3	8.6	7.9	-0.2	100319.2	62
395	8.0	51.4	51.6	1458	335.0	329.6	-1.6	12.3	7.4	9.0	-0.2	100319.2	62
396	8.2	51.6	51.9	1590	335.0	329.7	-1.3	12.5	8.9	7.7	-0.2	100319.4	62
397	8.4	51.8	52.1	1706	335.0	332.0	-1.2	12.5	9.6	7.7	-0.2	100319.3	62
398	9.2	51.6	51.8	2081	335.0	333.0	0.1	12.5	8.9	8.2	-0.2	100319.1	62
399	9.8	51.0	51.3	2348	335.0	333.0	0.8	12.3	9.3	8.9	-0.2	100319.1	62
400				2561	335.0	333.1	0.7	12.2	10.0	8.6	-0.2	100319.1	62
401	10.0	51.2	51.5	2431	335.0	333.1	-0.1	12.1	9.8	8.8	-0.2	100319.0	61
402	9.9	51.0	51.2	2401	335.0	333.1	-0.2	12.1	10.1	8.6	-0.2	100319.0	60
403	9.7	51.0	51.2	2330	335.0	333.1	-0.2	12.1	10.4	8.5	-0.2	100319.1	60
404				2504	335.0	333.1	0.4	12.3	10.6	7.8	-0.2	100319.1	60
405				2756	335.0	333.1	3.4	12.8	10.5	8.0	-0.2	100319.3	60
406	10.4	51.1	51.4	2702	335.0	333.1	4.1	12.5	10.9	8.4	-0.2	100319.4	60
407	9.3	50.9	51.2	2161	335.0	333.1	1.0	12.1	10.0	8.3	-0.2	100319.1	62
408	8.9	51.1	51.3	1957	335.0	333.1	-0.8	12.1	8.7	7.8	-0.2	100319.2	62
409	8.3	50.8	51.1	1625	335.0	333.1	-1.3	12.1	8.8	8.8	-0.2	100319.1	62
410	8.6	51.5	51.8	1797	335.0	333.1	-1.1	12.3	8.6	8.0	-0.2	100319.0	62
411	8.9	51.7	51.9	1949	335.0	333.1	-0.9	12.3	9.3	6.7	-0.2	100318.9	62
412	9.1	51.6	51.8	2067	335.0	333.0	-0.5	12.3	9.6	7.1	-0.1	100318.9	63
413	10.4	51.6	51.9	2520	335.0	332.6	1.2	12.3	10.9	7.4	0.0	100318.9	63
414	9.8	51.0	51.3	2372	335.0	329.4	0.1	12.1	9.6	7.6	0.0	100318.8	63
415	9.9	51.1	51.4	2414	335.0	329.2	0.0	12.1	10.0	9.5	0.0	100318.9	63
416	9.9	51.5	51.8	2406	335.0	329.2	0.0	12.2	10.6	10.1	0.0	100318.9	63
417				2554	335.0	329.2	0.4	12.2	10.5	10.7	0.0	100319.0	63
418				2653	335.0	329.2	1.9	12.4	10.5	9.9	0.0	100319.0	59
419	9.2	51.9	52.2	2090	335.0	329.2	-0.5	12.0	9.1	9.1	0.0	100318.9	57
420	9.9	51.5	51.7	2410	335.0	329.2	0.6	12.2	10.2	10.2	0.0	100319.0	57
421				2657	335.0	329.2	1.2	12.3	10.7	9.9	0.0	100319.1	57
422	10.3	51.3	51.6	2696	335.0	329.2	2.4	12.5	10.8	10.5	0.0	100318.9	57
423	11.1	51.9	52.2	2727	335.0	331.6	4.5	12.7	11.6	9.8	0.0	100318.8	57
424				2667	335.0	332.9	4.4	12.4	10.4	9.5	0.0	100309.6	57
425	11.1	50.9	51.2	2593	335.0	332.9	3.2	12.1	11.7	9.4	0.0	100305.6	56
426	10.6	51.2	51.5	2658	335.0	332.9	3.7	12.3	11.1	9.1	0.0	100305.4	56
427	10.5	50.5	50.8	2495	335.0	332.9	2.7	12.0	11.0	8.6	0.0	100305.5	56
428	9.6	51.1	51.4	2255	335.0	332.9	1.5	12.1	11.0	8.1	0.0	100305.6	56
429	9.7	50.7	51.0	2322	335.0	332.9	1.3	12.2	10.0	9.0	0.0	100305.5	56
430				2501	335.0	332.9	1.3	12.2	10.5	9.6	0.0	100305.5	58
431	11.0	51.5	51.8	2669	335.0	332.9	2.2	12.4	11.6	7.9	0.0	100305.5	58
432				2738	335.0	332.9	4.3	12.7	10.7	8.2	0.0	100305.6	58
433	10.6	50.7	51.0	2671	335.0	332.9	4.6	12.4	11.1	7.8	0.0	100305.9	58
434	11.5	51.4	51.7	2710	335.0	332.9	6.0	12.6	12.1	7.8	0.0	100306.0	58
435	10.8	51.1	51.4	2698	335.0	332.9	6.8	12.5	11.3	9.4	0.0	100305.9	58
436	11.6	50.7	51.1	2668	335.0	332.9	7.2	12.4	12.1	9.1	0.0	100305.6	59
437	10.5	50.2	50.5	2554	335.0	332.9	5.4	12.0	11.0	8.7	0.0	100305.8	59
438	12.3	51.2	51.5	2685	335.0	332.9	7.1	12.5	12.9	12.3	0.0	100305.7	59
439	11.4	51.3	51.6	2688	335.0	332.8	8.1	12.5	12.0	10.2	0.0	100305.9	59
440	12.2	50.9	51.2	2649	335.0	332.8	8.0	12.3	12.7	9.0	0.0	100305.7	59

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

Data Point #	Standardized Wind Speed (m/s)	LAeq (as measured)	LAeq (adjusted for windscreen IL)	Turbine Power Output (kW)	Reference Yaw Angle (°)	Yaw Angle (°)	Pitch Angle (°)	Rotor RPM	Nacelle Anemometer Wind Speed (m/s)	10m Anemometer Wind Speed (m/s)	Air Temperature (-C)	Pressure (Pa)	Relative Humidity (%)
441	12.8	51.2	51.5	2719	335.0	332.8	9.7	12.7	13.4	9.8	0.0	100305.9	59
442	12.6	51.5	51.8	2650	335.0	332.8	9.6	12.3	13.2	9.5	0.0	100314.9	58
443	12.6	51.5	51.8	2637	335.0	332.8	9.7	12.3	13.2	9.9	0.0	100318.8	57
444	11.9	52.7	53.0	2614	335.0	332.9	9.4	12.2	12.5	9.5	0.0	100319.0	57
445	12.2	51.7	52.0	2628	335.0	332.9	9.7	12.3	12.8	9.2	0.0	100319.1	57
446	11.9	50.8	51.2	2610	335.0	332.9	9.5	12.2	12.4	9.5	0.0	100318.8	57
447	12.0	51.2	51.5	2584	335.0	332.9	8.7	12.1	12.6	11.3	0.0	100318.9	57
448	11.0	50.7	51.0	2559	335.0	332.9	7.8	12.0	11.5	10.8	0.0	100319.0	57
449	12.1	51.1	51.4	2672	335.0	332.9	8.9	12.5	12.7	11.4	0.0	100319.1	57
450	12.2	51.4	51.7	2676	335.0	332.9	9.8	12.5	12.8	10.2	0.0	100318.9	57
451	12.6	51.5	51.8	2601	335.0	332.9	9.1	12.1	13.2	10.9	0.0	100319.0	57
452	11.5	50.7	51.0	2506	335.0	332.9	7.3	11.8	12.0	10.6	0.0	100319.0	57
453	11.7	50.7	51.0	2584	335.0	332.9	7.0	12.1	12.2	9.7	0.0	100319.0	56
454	11.4	50.5	50.9	2639	335.0	332.9	7.5	12.3	12.0	10.0	0.0	100319.1	56
455	11.7	50.2	50.6	2624	335.0	332.9	7.2	12.2	12.3	10.3	0.0	100319.1	56
456	12.0	50.6	50.9	2636	335.0	332.9	7.5	12.3	12.6	10.1	0.0	100319.0	56
457	12.0	50.2	50.5	2575	335.0	332.9	6.5	12.0	12.6	9.3	0.0	100319.0	56
458	11.5	50.1	50.4	2547	335.0	332.9	5.1	11.9	12.0	8.3	0.0	100319.1	56
459	11.2	51.0	51.2	2596	335.0	332.9	4.8	12.1	11.8	9.1	0.0	100312.6	58
460	12.0	51.6	51.9	2734	335.0	332.9	7.0	12.7	12.6	9.8	0.0	100306.1	59
461	12.1	51.4	51.7	2780	335.0	332.9	9.4	12.9	12.6	10.5	0.0	100306.2	59
462	11.8	50.9	51.2	2682	335.0	332.9	9.5	12.5	12.4	10.9	0.0	100306.1	59
463	13.2	50.5	50.8	2649	335.0	332.9	9.5	12.3	13.8	10.8	0.0	100306.1	59
464	11.4	49.9	50.3	2567	335.0	332.9	8.5	12.0	12.0	10.9	0.0	100306.1	59
465	13.0	50.6	50.9	2591	335.0	332.8	8.1	12.1	13.6	10.9	0.0	100306.0	58
466	11.5	50.8	51.1	2619	335.0	332.8	8.2	12.2	12.1	11.3	0.0	100306.1	57
467	11.5	51.6	51.9	2626	335.0	332.8	8.3	12.2	12.0	10.2	0.0	100306.2	57
468	11.7	51.4	51.7	2651	335.0	332.9	8.7	12.4	12.3	10.0	0.0	100306.2	57
469	11.8	51.0	51.3	2653	335.0	332.9	9.0	12.3	12.4	10.5	0.0	100306.1	57
470	11.6	51.1	51.4	2626	335.0	332.9	8.8	12.2	12.1	10.0	0.0	100306.0	57
471	10.8	50.9	51.2	2547	335.0	332.9	7.5	11.9	11.3	9.5	0.0	100305.9	58
472	10.2	51.0	51.3	2478	335.0	332.9	5.1	11.7	11.5	9.6	0.0	100306.0	59
473	10.5	50.8	51.1	2504	335.0	332.9	3.4	11.8	11.0	9.6	0.0	100305.9	59
474				2606	335.0	332.9	3.5	12.1	10.7	9.8	0.0	100305.9	59
475	10.9	51.0	51.3	2691	335.0	332.9	4.9	12.5	11.5	8.9	0.0	100306.1	59
476	11.1	51.1	51.4	2691	335.0	332.9	5.7	12.5	11.6	8.7	0.0	100306.1	59
477	10.6	50.7	51.0	2644	335.0	332.9	5.4	12.3	11.1	7.8	0.0	100306.1	60
478				2595	335.0	332.9	4.6	12.1	10.4	9.2	0.0	100306.1	60
479				2557	335.0	332.9	3.2	12.0	10.6	7.9	0.0	100305.9	60
480	10.4	50.6	50.9	2597	335.0	332.9	2.8	12.1	10.9	8.4	0.0	100305.9	60
481	9.9	50.8	51.0	2406	335.0	332.9	1.4	12.0	10.0	8.7	0.0	100305.9	60
482	9.7	51.4	51.7	2320	335.0	332.9	1.1	12.1	9.6	8.4	0.0	100306.0	60
483	10.2	51.2	51.4	2470	335.0	332.9	1.0	12.2	10.2	9.1	0.0	100306.0	61
484	9.8	51.3	51.6	2374	335.0	332.9	0.2	12.1	10.6	8.7	0.0	100306.1	61
485	9.8	51.4	51.7	2363	335.0	332.9	-0.1	12.1	10.3	8.4	0.0	100306.1	61
486	9.6	51.7	52.0	2272	335.0	332.9	-0.4	12.1	9.9	7.6	0.0	100306.1	61
487	10.8	52.6	52.9	2732	335.0	332.9	2.8	12.8	11.3	8.9	0.0	100306.1	61
488	11.7	52.4	52.7	2854	335.0	332.8	6.8	13.2	12.3	8.3	0.0	100312.5	62
489	12.1	52.5	52.8	2796	335.0	332.8	8.4	12.9	12.6	8.5	0.0	100319.3	62
490	10.9	50.9	51.2	2611	335.0	332.8	6.9	12.1	11.5	8.5	0.0	100319.4	62
491	11.3	51.6	51.8	2639	335.0	332.8	7.0	12.2	11.9	10.2	0.0	100319.5	62
492	10.6	50.9	51.1	2672	335.0	332.8	7.8	12.4	11.1	9.0	0.0	100319.5	62
493	10.6	51.0	51.2	2533	335.0	332.8	5.7	11.9	11.1	10.8	0.0	100319.7	62
494	10.1	51.2	51.5	2465	335.0	332.9	4.4	11.9	10.9	12.1	0.0	100313.2	60
495	11.3	51.5	51.8	2513	335.0	332.9	3.3	12.0	11.8	12.3	0.0	100306.4	57
496	10.9	51.2	51.4	2607	335.0	332.9	3.1	12.1	11.5	9.2	0.0	100306.3	57
497				2651	335.0	332.8	3.5	12.3	10.3	9.6	0.0	100306.2	57
498	10.0	51.6	51.9	2450	335.0	332.9	2.0	12.0	10.9	12.3	0.0	100306.1	57
499	10.6	51.4	51.7	2519	335.0	336.2	1.9	12.1	11.1	11.7	0.0	100306.3	57
500	10.9	51.7	52.0	2565	335.0	337.3	2.0	12.2	11.4	11.9	0.0	100306.4	56
501	12.4	52.8	53.1	2883	335.0	337.3	7.0	13.4	13.0	11.3	0.0	100306.3	55
502	13.4	52.2	52.5	2855	335.0	337.2	9.7	13.2	14.0	10.4	0.0	100306.4	55
503	11.3	51.4	51.7	2642	335.0	337.3	8.5	12.3	11.8	8.7	0.0	100306.5	55
504	12.0	51.5	51.8	2671	335.0	337.3	9.1	12.4	12.6	7.3	0.0	100306.6	55
505	12.7	50.7	51.0	2677	335.0	337.3	9.6	12.4	13.3	8.2	0.0	100306.6	55
506	12.1	51.1	51.5	2563	335.0	338.0	8.4	12.0	12.7	10.5	0.0	100306.3	58
507	12.2	51.0	51.3	2602	335.0	340.9	8.2	12.1	12.7	11.3	0.0	100306.2	60
508	12.5	50.5	50.8	2613	335.0	340.9	8.0	12.2	13.1	12.0	0.0	100306.3	60
509	11.8	50.2	50.5	2534	335.0	340.9	6.5	11.9	12.4	11.3	0.0	100306.3	60
510	11.8	51.2	51.5	2562	335.0	340.9	5.6	12.0	12.4	10.3	0.0	100306.4	60
511	12.5	51.7	52.0	2753	335.0	340.9	8.3	12.7	13.1	9.7	0.0	100306.3	60
512	11.3	51.6	51.9	2645	335.0	340.9	7.7	12.3	11.9	9.5	0.0	100306.4	60
513	11.3	50.9	51.2	2568	335.0	340.9	6.4	12.0	11.8	10.4	0.0	100306.4	59
514	11.3	51.9	52.1	2574	335.0	340.9	5.7	12.0	11.8	11.3	0.0	100306.6	59
515	11.3	52.6	52.9	2553	335.0	342.0	4.7	12.0	11.9	9.7	0.0	100306.5	59
516	11.7	51.7	52.0	2647	335.0	344.7	5.2	12.3	12.3	10.2	0.0	100306.8	59
517	11.4	51.3	51.5	2681	335.0	344.8	6.0	12.4	11.9	9.7	0.0	100306.7	59
518	10.5	51.5	51.8	2622	335.0	344.8	5.2	12.2	11.0	8.8	0.0	100306.6	60
519	11.8	51.2	51.5	2690	335.0	346.4	6.6	12.5	12.4	8.1	0.0	100306.6	60
520	10.9	50.8	51.1	2615	335.0	348.9	6.2	12.2	11.4	8.7	0.0	100306.6	60
521	11.7	50.7	51.0	2635	335.0	348.9	6.2	12.3	12.2	8.2	0.0	100306.5	60
522	12.1	51.7	52.0	2704	335.0	348.9	7.6	12.5	12.6	9.4	0.0	100306.8	60
523	12.8	52.0	52.3	2646	335.0	348.9	7.3	12.3	13.4	8.4	0.0	100306.5	60
524	13.4	52.1	52.4	2733	335.0	348.9	9.2	12.7	14.1	7.9	0.0	100314.3	61
525	13.1	51.4	51.7	2660	335.0	348.9	9.0	12.3	13.7	7.5	0.0	100319.6	63
526	13.1	52.5	52.8	2632	335.0	349.5	9.2	12.3	13.7	8.0	0.0	100319.5	63
527				2541	335.0	352.5	7.0	11.9	11.7	8.0	0.0	100319.5	63
528				2609	335.0	352.5	7.1	12.1	11.3	7.4	0.0	100319.5	63

Table E.01 Measurement data - Turbine ON

Project: North Kent Wind Farm - IEC 61400- 11 Edition 3.0 - Turbine T4

Report ID: 17283.03.T4.RP3

Created on: 1/28/2021

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

Data Point #	Standardized Wind Speed (m/s)	LAeq (as measured)	LAeq (adjusted for windscreen IL)	Turbine Power Output (kW)	Reference Yaw Angle (°)	Yaw Angle (°)	Pitch Angle (°)	Rotor RPM	Nacelle Anemometer Wind Speed (m/s)	10m Anemometer Wind Speed (m/s)	Air Temperature (-C)	Pressure (Pa)	Relative Humidity (%)
529				2635	335.0	352.5	7.1	12.2	12.6	7.0	0.0	100319.6	64
530				2665	335.0	352.5	7.8	12.4	12.6	7.3	0.0	100319.6	65
531				2642	335.0	352.5	7.8	12.3	12.4	7.8	0.0	100319.4	65
532				2621	335.0	352.5	7.6	12.2	12.4	7.7	0.0	100319.5	65
533				2643	335.0	352.5	7.7	12.3	11.7	8.3	0.0	100319.4	65
534				2672	335.0	352.5	8.4	12.4	12.4	8.8	0.0	100319.4	65
535				2566	335.0	352.5	7.1	12.0	11.9	9.3	0.0	100319.5	64
536				2446	335.0	352.5	4.4	11.7	11.8	8.2	0.0	100319.4	63
537				2397	335.0	352.5	2.9	11.8	10.4	8.0	0.0	100319.3	63
538				2611	335.0	352.5	3.3	12.2	11.1	8.3	0.0	100319.4	63
539				2616	335.0	352.5	2.9	12.1	10.3	8.2	0.0	100319.3	63
540				2575	335.0	352.5	1.9	12.1	10.6	9.3	0.0	100319.4	63
541				2537	335.0	352.5	1.5	12.1	10.9	9.0	0.0	100319.6	63
542				2624	335.0	352.5	1.7	12.3	12.0	8.4	0.0	100319.5	64
543				2670	335.0	352.5	2.8	12.4	11.2	7.8	0.0	100319.5	64
544				2640	335.0	352.5	2.5	12.2	11.0	8.1	0.0	100319.6	64
545				2601	335.0	352.5	1.9	12.2	11.3	8.5	0.0	100319.8	64
546				2666	335.0	352.5	2.8	12.3	10.9	7.9	0.0	100319.7	64
547				2494	335.0	352.5	1.5	12.1	10.6	7.4	-0.1	100319.8	64
548				2504	335.0	352.5	1.2	12.1	10.8	7.7	-0.2	100319.8	65
549				2613	335.0	352.5	1.2	12.2	11.2	7.1	-0.2	100319.7	65
550				2659	335.0	352.5	1.7	12.3	11.2	7.7	-0.2	100319.8	65
551				2658	335.0	352.5	2.1	12.3	10.7	7.8	-0.2	100319.9	65
552				2661	335.0	352.5	2.4	12.4	11.1	7.5	-0.2	100320.0	65
553				2612	335.0	352.5	2.4	12.2	10.9	7.0	-0.2	100319.8	65
554				2204	335.0	352.5	0.5	12.0	10.3	8.5	-0.3	100319.7	66
555				2202	335.0	352.5	0.0	12.2	10.2	7.5	-0.3	100319.6	66
556				2386	335.0	352.5	0.3	12.2	10.1	6.5	-0.3	100319.7	66
557				2376	335.0	352.5	-0.1	12.2	10.0	6.4	-0.3	100319.6	66
558				2507	335.0	352.5	0.0	12.2	10.2	6.1	-0.3	100319.7	66
559				2491	335.0	352.5	-0.1	12.1	10.1	6.1	-0.3	100324.4	66
560				2417	335.0	352.5	-0.2	12.1	10.4	6.6	-0.3	100331.7	67
561				2264	335.0	352.5	-0.3	12.1	9.8	6.8	-0.3	100332.0	67
562				2396	335.0	352.5	-0.1	12.2	10.8	6.7	-0.3	100332.1	67
563				2496	335.0	352.5	-0.1	12.2	10.1	6.9	-0.3	100332.0	67
564				2008	335.0	349.0	-0.8	12.3	9.6	6.2	-0.4	100331.3	67
565				2125	335.0	349.0	-0.6	12.3	9.7	7.0	-0.4	100331.5	67
566	9.8	50.5	50.8	2347	335.0	349.0	0.2	12.2	10.1	8.1	-0.3	100331.4	66
567	9.9	50.9	51.2	2391	335.0	349.0	-0.1	12.2	10.8	7.9	-0.3	100331.4	66
568	10.7	51.5	51.8	2603	335.0	349.1	0.4	12.3	11.2	6.5	-0.3	100331.4	66
569	10.4	50.8	51.1	2498	335.0	349.1	0.0	12.1	10.9	6.8	-0.3	100331.1	66
570	9.5	51.6	51.8	2238	335.0	348.2	-0.3	12.1	10.0	7.4	-0.3	100333.8	66
571	9.4	51.0	51.3	2191	335.0	344.8	-0.2	12.2	9.6	7.0	-0.3	100344.6	66
572	9.3	51.2	51.4	2141	335.0	344.7	-0.6	12.2	10.0	7.7	-0.3	100344.7	66
573	8.9	51.1	51.4	1983	335.0	344.7	-0.9	12.2	9.5	6.4	-0.3	100344.6	66
574	8.6	50.7	51.0	1811	335.0	344.7	-1.1	12.2	8.7	8.1	-0.3	100344.5	66
575	8.8	51.4	51.7	1933	335.0	344.7	-0.8	12.3	9.2	5.9	-0.3	100344.6	66
576	8.7	51.4	51.6	1874	335.0	344.7	-1.0	12.2	9.2	5.9	-0.2	100344.7	66
577	9.2	51.5	51.8	2109	335.0	344.7	0.0	12.3	9.6	6.7	-0.2	100344.7	66
578	9.5	51.1	51.3	2228	335.0	344.7	0.2	12.2	9.5	6.6	-0.2	100344.6	66
579	9.4	50.6	50.9	2190	335.0	344.7	-0.4	12.1	9.7	7.8	-0.2	100344.7	66
580	8.9	51.3	51.6	1938	335.0	344.7	-0.8	12.2	9.2	7.9	-0.2	100344.6	66
581	8.6	51.2	51.5	1806	335.0	344.7	-1.1	12.2	8.5	8.0	-0.2	100344.7	66
582	8.4	51.0	51.3	1699	335.0	344.7	-1.2	12.2	8.7	8.3	-0.2	100344.7	66
583	8.8	51.3	51.6	1895	335.0	344.6	-0.9	12.3	9.1	8.0	-0.2	100344.6	63
584	9.2	51.4	51.7	2090	335.0	344.6	-0.3	12.3	10.6	8.6	-0.2	100344.7	63
585	9.2	51.7	52.0	2112	335.0	344.3	-0.6	12.3	8.9	9.1	-0.2	100344.6	63
586	9.4	51.6	51.8	2203	335.0	340.7	-0.5	12.3	9.6	8.4	-0.2	100344.6	63
587	9.4	51.2	51.5	2203	335.0	340.2	-0.5	12.2	10.3	7.6	-0.2	100344.6	63
588	9.1	51.0	51.2	2075	335.0	340.2	-0.7	12.2	9.9	6.6	-0.2	100344.5	64
589	8.8	50.5	50.8	1925	335.0	340.2	-0.9	12.1	8.5	6.8	-0.2	100344.7	65
590	8.2	50.5	50.8	1574	335.0	340.2	-1.4	12.1	8.8	7.6	-0.2	100344.6	65
591	8.1	51.0	51.2	1547	335.0	340.2	-1.4	12.2	8.4	7.1	-0.2	100344.6	65
592	8.5	51.3	51.5	1753	335.0	340.2	-1.1	12.3	8.8	6.3	-0.2	100344.6	65
593	8.3	51.1	51.3	1650	335.0	340.2	-1.3	12.2	8.1	6.8	-0.2	100344.7	65
594	8.1	50.9	51.1	1520	335.0	340.2	-1.5	12.2	8.0	7.0	-0.2	100344.7	65
595	7.8	51.1	51.4	1368	335.0	340.2	-1.7	12.3	8.3	7.9	-0.2	100344.8	65
596	7.7	51.1	51.3	1328	335.0	340.2	-1.7	12.4	7.9	8.1	-0.2	100344.7	65
597	7.9	52.2	52.4	1412	335.0	340.2	-1.5	12.5	8.1	7.8	-0.2	100344.5	65
598	8.5	52.1	52.3	1765	335.0	340.2	-1.0	12.7	9.1	8.0	-0.2	100344.5	65
599	9.1	51.6	51.8	2046	335.0	340.2	-0.1	12.6	8.5	7.7	-0.2	100344.5	65
600	8.8	51.1	51.4	1911	335.0	340.2	-1.0	12.3	8.7	8.3	-0.1	100344.5	64
601	8.3	51.0	51.3	1654	335.0	340.2	-1.3	12.3	8.5	8.3	-0.2	100344.4	62
602	8.0	51.4	51.7	1490	335.0	340.2	-1.5	12.3	8.8	7.3	-0.2	100344.5	62
603	7.7	51.3	51.6	1322	335.0	340.2	-1.8	12.3	7.7	6.8	-0.2	100344.6	62
604	7.4	50.3	50.5	1175	335.0	340.2	-1.8	11.8	8.0	7.7	-0.2	100344.5	62
605	7.2	49.7	49.9	1088	335.0	340.2	-1.8	11.5	8.8	7.2	-0.2	100344.7	62
606	8.5	51.6	51.9	1739	335.0	340.2	-0.7	12.7	8.6	7.3	0.0	100344.6	64
607	8.4	52.0	52.2	1698	335.0	340.2	-1.3	12.6	8.7	7.6	0.0	100344.5	64
608	8.0	52.4	52.6	1490	335.0	340.2	-1.5	12.5	8.2	7.6	0.0	100344.2	64
609	8.3	52.4	52.7	1617	335.0	340.2	-1.1	12.7	9.8	8.2	0.0	100344.3	64
610	9.0	51.6	51.9	2033	335.0	340.2	-0.1	12.6	9.6	7.1	0.0	100344.3	64
611	9.3	51.4	51.7	2157	335.0	340.2	-0.2	12.4	9.8	6.3	0.0	100344.3	64
612	9.6	51.5	51.8	2273	335.0	340.2	-0.3	12.2	9.4	6.7	0.0	100344.3	64
613	9.2	50.9	51.2	2105	335.0	340.2	-0.7	12.2	9.9	6.2	0.0	100344.3	64
614	8.8	52.6	52.8	1909	335.0	340.2	-1.0	12.1	8.9	5.7	0.0	100344.3	64
615	8.5	51.4	51.7	1731	335.0	340.0	-1.2	12.2	8.6	6.2	0.0	100344.3	64
616	8.3	50.9	51.2	1663	335.0	336.9	-1.3	12.2	9.0	5.8	0.0	100344.3	64

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

Data Point #	Standardized Wind Speed (m/s)	LAeq (as measured)	LAeq (adjusted for windscreen IL)	Turbine Power Output (kW)	Reference Yaw Angle (°)	Yaw Angle (°)	Pitch Angle (°)	Rotor RPM	Nacelle Anemometer Wind Speed (m/s)	10m Anemometer Wind Speed (m/s)	Air Temperature (-C)	Pressure (Pa)	Relative Humidity (%)
617	8.0	51.9	52.1	1485	335.0	336.6	-1.5	12.2	8.9	6.5	0.0	100344.3	65
618	8.7	51.7	51.9	1833	335.0	336.6	-0.1	12.4	9.4	7.7	0.0	100344.5	66
619	8.5	51.3	51.6	1761	335.0	336.6	-1.0	12.3	9.7	7.7	0.0	100344.5	66
620	8.8	51.5	51.8	1893	335.0	336.7	-0.7	12.4	9.1	6.7	0.0	100344.4	66
621	9.5	51.1	51.4	2221	335.0	336.7	0.4	12.3	9.4	7.2	0.0	100344.4	66
622	9.1	51.2	51.5	2053	335.0	336.7	-0.7	12.2	9.4	7.0	0.0	100344.5	66
623	8.9	51.3	51.6	1943	335.0	336.6	-0.7	12.2	10.0	7.1	0.0	100345.9	66
624	9.1	51.3	51.6	2071	335.0	336.6	-0.6	12.3	10.0	6.9	0.0	100344.6	66
625	9.4	51.4	51.6	2171	335.0	336.7	-0.2	12.3	9.6	6.6	0.0	100344.6	66
626	10.1	51.0	51.3	2464	335.0	336.7	1.2	12.3	9.7	6.1	0.0	100344.7	66
627				2486	335.0	336.7	0.7	12.1	10.2	5.8	0.0	100344.4	66
628	9.5	51.2	51.4	2231	335.0	336.7	-0.4	12.1	9.2	5.6	0.0	100344.6	66
629	9.3	51.6	51.8	2150	335.0	336.7	-0.4	12.2	9.4	5.8	0.0	100344.6	66
630	9.4	51.1	51.4	2194	335.0	336.7	-0.4	12.2	8.5	6.8	0.0	100344.6	66
631	9.0	51.0	51.3	2024	335.0	336.7	-0.7	12.1	9.2	8.2	0.0	100344.5	66
632	9.4	50.9	51.2	2166	335.0	336.7	-0.3	12.2	9.5	8.2	0.0	100344.4	66
633	9.4	51.1	51.3	2172	335.0	336.7	-0.5	12.2	9.7	7.2	0.0	100344.4	66
634	9.2	51.7	52.0	2090	335.0	336.7	-0.7	12.2	8.9	6.4	0.0	100344.5	66
635	8.5	51.4	51.7	1753	335.0	336.7	-1.2	12.1	8.6	7.2	0.0	100344.5	66
636	8.4	51.1	51.4	1696	335.0	336.7	-1.2	12.2	8.8	8.2	0.0	100344.7	64
637	8.4	50.6	50.9	1704	335.0	336.7	-1.2	12.2	8.2	8.4	0.0	100344.8	64
638	8.5	51.1	51.4	1739	335.0	336.7	-1.2	12.2	8.9	8.1	0.0	100344.9	64
639	8.3	50.6	50.9	1646	335.0	336.7	-1.3	12.2	7.9	8.0	0.0	100344.8	64
640	7.6	50.1	50.4	1298	335.0	336.7	-1.8	12.0	7.2	7.3	0.0	100344.8	64
641	7.4	49.6	49.8	1174	335.0	336.7	-1.8	11.8	8.0	6.8	0.0	100345.0	63
642	7.4	49.9	50.1	1160	335.0	336.7	-1.8	11.8	8.0	6.4	0.0	100344.8	63
643	7.5	50.5	50.8	1241	335.0	336.6	-1.8	12.1	8.8	7.4	0.0	100344.9	63
644	7.7	50.8	51.1	1335	335.0	336.6	-1.8	12.4	8.4	7.0	0.0	100344.9	63
645	7.8	51.2	51.5	1373	335.0	336.6	-1.7	12.5	7.0	7.4	0.0	100345.0	63
646	7.8	51.4	51.7	1396	335.0	336.6	-1.6	12.6	9.4	8.1	0.0	100344.9	63
647	7.9	51.3	51.5	1409	335.0	336.7	-1.6	12.6	8.1	8.3	0.0	100345.1	62
648	7.7	51.1	51.4	1312	335.0	336.7	-1.8	12.3	7.9	7.6	0.0	100345.1	62
649	7.4	50.2	50.4	1185	335.0	336.7	-1.8	11.8	8.3	7.1	0.0	100345.1	62
650				1256	335.0	336.6	-1.5	12.1	8.2	7.1	0.0	100345.1	62
651				1400	335.0	336.6	-1.2	12.5	8.6	7.9	0.0	100345.1	62
652				1679	335.0	336.6	-0.9	12.7	9.0	7.7	0.0	100345.2	60
653				1648	335.0	336.6	-1.0	12.6	7.5	7.0	0.0	100345.2	58
654				1741	335.0	336.6	-0.9	12.7	9.4	7.1	0.0	100345.2	58
655	8.1	52.3	52.6	1511	335.0	336.6	-1.2	12.5	9.2	7.4	0.0	100345.1	58
656	8.2	52.3	52.6	1567	335.0	336.6	-1.4	12.6	9.1	7.3	0.0	100345.2	58
657	8.3	52.5	52.8	1629	335.0	336.6	-1.3	12.6	8.9	5.7	0.0	100345.3	58
658	8.1	51.7	51.9	1537	335.0	336.6	-1.5	12.6	9.0	5.7	0.0	100345.3	59
659	8.4	52.3	52.5	1706	335.0	336.6	-1.2	12.7	9.1	5.7	0.0	100345.3	60
660	8.6	52.0	52.3	1816	335.0	336.6	-1.1	12.6	8.3	5.2	0.0	100345.3	60
661	8.1	50.9	51.2	1543	335.0	336.6	-1.4	12.4	7.2	5.2	0.0	100345.0	60
662	7.7	50.4	50.7	1308	335.0	336.6	-1.8	12.3	8.4	5.6	0.0	100344.8	60
663	7.3	49.5	49.8	1157	335.0	336.6	-1.8	11.7	8.7	6.5	0.0	100345.1	60
664	6.9	48.4	48.7	938	335.0	336.6	-1.8	10.9	6.4	6.5	0.0	100345.1	61
665	6.4	46.7	46.9	775	335.0	336.6	-1.8	10.3	7.5	7.6	0.0	100345.1	63
666	6.7	48.3	48.6	860	335.0	337.1	-1.8	10.7	7.2	7.4	0.0	100344.9	63
667	7.8	50.9	51.2	1353	335.0	340.2	-0.5	12.3	8.9	7.5	0.0	100345.2	63
668	8.7	51.7	51.9	1838	335.0	340.3	1.2	12.7	8.1	6.7	0.0	100345.2	63
669	8.7	51.4	51.6	1875	335.0	340.3	0.9	12.6	9.4	5.7	0.0	100345.4	63
670	8.9	51.7	52.0	1954	335.0	340.3	-0.1	12.7	8.3	6.5	0.0	100345.2	62
671	9.1	51.4	51.7	2047	335.0	340.3	-0.4	12.5	9.6	6.0	0.0	100345.2	61
672	9.1	51.0	51.2	2059	335.0	340.3	-0.7	12.4	9.4	5.7	0.0	100345.1	61
673	9.1	51.2	51.5	2041	335.0	340.3	-0.8	12.3	9.0	5.6	0.0	100345.2	61
674	9.0	51.1	51.3	2022	335.0	340.3	-0.8	12.2	9.9	5.4	0.0	100345.2	61
675	8.9	51.0	51.2	1962	335.0	340.3	-0.8	12.2	8.9	5.1	0.0	100345.4	61
676	9.0	51.0	51.3	2035	335.0	340.3	-0.7	12.3	10.1	5.8	0.0	100345.3	62
677	8.9	50.6	50.9	1967	335.0	340.2	-0.9	12.2	9.8	7.1	0.0	100345.2	63
678	8.5	51.4	51.7	1740	335.0	340.3	-1.2	12.1	9.0	7.2	0.0	100345.4	63
679	8.6	51.5	51.7	1802	335.0	340.3	-1.0	12.3	9.5	6.6	0.0	100345.4	63
680	9.0	51.3	51.6	2017	335.0	340.3	-0.7	12.3	9.7	6.8	0.0	100345.4	63
681	8.9	50.9	51.2	1943	335.0	340.3	-0.9	12.2	9.0	6.1	0.0	100345.4	63
682	8.7	50.5	50.7	1830	335.0	340.3	-1.1	12.2	9.2	7.5	0.0	100345.3	62
683	8.5	50.7	51.0	1764	335.0	340.3	-1.2	12.2	8.9	8.3	0.0	100345.5	61
684	8.8	50.5	50.7	1922	335.0	340.3	-0.9	12.3	9.7	7.8	0.0	100345.6	61
685	9.0	50.7	50.9	2030	335.0	340.3	-0.7	12.3	9.6	6.9	0.0	100345.7	61
686	9.6	51.0	51.3	2259	335.0	340.3	-0.4	12.3	10.2	7.8	0.0	100345.6	61
687	9.1	51.0	51.2	2072	335.0	340.2	-0.7	12.2	9.7	7.3	0.0	100345.6	60
688	8.6	50.7	51.0	1791	335.0	340.2	-1.1	12.1	9.5	7.4	0.0	100345.4	59
689	8.3	51.8	52.0	1635	335.0	340.2	-1.3	12.2	9.5	7.0	0.0	100345.6	59
690				1399	335.0	343.5	-1.6	12.2	8.8	7.1	0.0	100345.6	59
691	8.1	52.3	52.6	1533	335.0	344.5	-1.4	12.3	8.6	6.5	0.0	100345.5	59
692	8.8	51.0	51.3	1933	335.0	344.5	0.0	12.5	9.4	6.1	0.0	100345.6	59
693	9.2	50.9	51.1	2114	335.0	344.4	0.0	12.3	9.6	7.0	0.1	100351.9	60
694	9.5	50.7	51.0	2233	335.0	344.5	-0.2	12.3	9.4	7.1	0.2	100358.4	62
695	10.0	50.9	51.1	2425	335.0	344.5	0.0	12.2	9.3	7.0	0.2	100358.5	62
696	9.7	50.9	51.1	2298	335.0	344.5	-0.3	12.1	9.7	8.3	0.2	100358.5	62
697	9.8	50.8	51.0	2365	335.0	330.6	0.0	11.9	9.9	7.7	0.4	100464.2	53
698	9.7	50.6	50.9	2318	335.0	327.6	-0.3	11.9	9.9	8.2	0.4	100464.0	53
699	9.5	50.7	50.9	2214	335.0	327.5	-0.4	11.9	9.6	8.6	0.4	100464.0	53
700	9.5	50.8	51.0	2218	335.0	327.5	-0.4	11.9	9.7	8.3	0.4	100464.0	53
701	9.7	50.7	50.9	2322	335.0	327.5	-0.2	12.0	10.8	8.7	0.4	100463.5	54
702	9.9	50.8	51.1	2389	335.0	327.5	-0.2	12.0	10.4	8.9	0.4	100463.7	54
703	9.6	51.2	51.5	2288	335.0	327.5	-0.2	12.0	10.0	8.4	0.4	100464.1	54
704	10.1	51.0	51.2	2453	335.0	327.5	0.0	12.1	10.3	9.0	0.4	100463.9	54

Table E.01 Measurement data - Turbine ON

Project: North Kent Wind Farm - IEC 61400- 11 Edition 3.0 - Turbine T4

Report ID: 17283.03.T4.RP3

Created on: 1/28/2021

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

Data Point #	Standardized Wind Speed (m/s)	LAeq (as measured)	LAeq (adjusted for windscreen IL)	Turbine Power Output (kW)	Reference Yaw Angle (°)	Yaw Angle (°)	Pitch Angle (°)	Rotor RPM	Nacelle Anemometer Wind Speed (m/s)	10m Anemometer Wind Speed (m/s)	Air Temperature (-C)	Pressure (Pa)	Relative Humidity (%)
705	10.0	50.7	51.0	2449	335.0	327.5	-0.1	12.1	10.7	8.9	0.4	100463.9	54
706	9.9	51.2	51.4	2387	335.0	327.5	-0.2	12.1	9.4	7.6	0.4	100464.1	54
707	9.3	51.1	51.4	2155	335.0	327.5	-0.6	12.1	10.3	6.9	0.3	100464.2	54
708	9.4	51.1	51.3	2175	335.0	327.5	-0.5	12.2	9.5	7.5	0.3	100464.0	54
709	9.5	51.3	51.6	2220	335.0	327.5	-0.5	12.2	9.8	8.0	0.3	100464.0	54
710	9.2	51.3	51.6	2094	335.0	327.5	-0.7	12.2	9.4	7.8	0.3	100463.9	54
711	9.0	51.5	51.8	2033	335.0	324.2	-0.7	12.2	9.3	7.9	0.3	100463.9	54
712	9.2	51.4	51.7	2119	335.0	323.1	-0.4	12.3	9.5	7.0	0.3	100463.9	54
713	9.5	51.1	51.3	2244	335.0	323.2	-0.3	12.3	10.4	6.4	0.3	100464.2	54
714	9.3	51.1	51.3	2163	335.0	323.2	-0.6	12.2	9.7	6.3	0.3	100464.1	54
715	9.2	51.3	51.6	2102	335.0	323.2	-0.7	12.2	10.3	6.5	0.3	100464.0	54
716	9.3	51.3	51.6	2157	335.0	323.2	-0.5	12.2	9.4	6.3	0.3	100464.1	54
717	9.3	51.3	51.6	2143	335.0	323.2	-0.7	12.2	9.3	6.4	0.3	100464.1	54
718	9.5	51.2	51.5	2249	335.0	323.2	-0.2	12.3	10.4	7.0	0.3	100463.9	54
719	9.8	51.0	51.3	2352	335.0	323.2	0.3	12.2	10.1	7.5	0.3	100463.9	57
720	9.6	51.1	51.4	2258	335.0	323.2	-0.4	12.1	10.6	7.9	0.3	100463.8	57
721	9.2	51.1	51.4	2081	335.0	323.2	-0.7	12.2	9.8	6.6	0.3	100463.7	57
722	8.9	51.3	51.6	1966	335.0	323.2	-0.9	12.2	9.7	6.6	0.3	100463.8	57
723	8.6	51.4	51.7	1814	335.0	323.2	-1.1	12.2	9.5	6.6	0.3	100463.8	57
724	8.7	51.3	51.5	1878	335.0	323.3	-1.0	12.2	8.8	6.5	0.3	100464.9	57
725	8.4	51.0	51.3	1665	335.0	323.3	-1.3	12.2	8.1	7.4	0.3	100477.9	58
726	8.1	50.9	51.1	1539	335.0	323.3	-1.5	12.2	8.7	7.7	0.3	100477.7	58
727	8.4	51.3	51.5	1689	335.0	323.3	-1.3	12.3	9.0	8.3	0.3	100477.8	58
728	8.4	51.5	51.8	1672	335.0	323.3	-1.1	12.3	7.6	8.0	0.3	100477.6	58
729	9.5	51.7	51.9	2223	335.0	323.3	0.9	12.4	9.8	7.8	0.3	100477.3	58
730	9.5	51.4	51.7	2222	335.0	323.2	0.3	12.2	9.9	7.2	0.3	100477.4	57
731	9.4	51.5	51.7	2171	335.0	323.2	-0.3	12.2	9.9	6.6	0.3	100477.4	57
732	9.7	52.2	52.4	2294	335.0	323.2	-0.3	12.2	9.4	6.2	0.3	100477.3	57
733	9.8	51.5	51.7	2363	335.0	323.2	-0.2	12.2	10.1	5.6	0.3	100477.3	57
734	9.7	51.0	51.2	2297	335.0	323.2	-0.4	12.1	10.1	6.5	0.3	100477.2	57
735	9.6	51.2	51.4	2267	335.0	323.2	-0.4	12.2	10.3	6.5	0.3	100477.2	57
736	9.5	51.2	51.5	2241	335.0	323.2	-0.4	12.2	10.6	6.3	0.3	100477.3	57
737	9.5	51.1	51.4	2235	335.0	323.2	-0.4	12.2	9.6	7.3	0.3	100477.3	58
738	9.4	51.3	51.5	2192	335.0	323.2	-0.4	12.2	9.8	6.7	0.3	100477.4	58
739	9.8	51.5	51.8	2366	335.0	323.2	-0.1	12.2	9.9	6.8	0.3	100477.4	58
740	10.2	51.7	51.9	2476	335.0	323.2	-0.1	12.2	10.6	7.3	0.3	100477.3	58
741	9.9	51.8	52.1	2409	335.0	323.2	-0.2	12.1	10.3	7.4	0.3	100477.4	58
742	9.8	52.2	52.5	2343	335.0	323.2	-0.2	12.1	10.0	5.8	0.3	100477.3	57
743	9.6	52.7	53.0	2283	335.0	323.2	-0.2	12.1	9.9	6.2	0.3	100477.4	57
744	9.7	51.4	51.7	2318	335.0	323.2	-0.2	12.2	9.4	5.9	0.3	100477.3	57
745	9.8	51.1	51.4	2342	335.0	323.2	-0.3	12.1	10.1	7.2	0.3	100477.3	57
746	9.6	51.4	51.7	2279	335.0	323.2	-0.3	12.1	10.7	7.5	0.3	100477.2	57
747	9.5	51.7	51.9	2209	335.0	322.5	-0.4	12.2	9.1	6.7	0.3	100477.2	57
748				2344	335.0	319.8	-0.2	12.2	9.6	7.5	0.3	100477.4	58
749				2417	335.0	319.8	-0.1	12.2	10.2	6.8	0.3	100477.2	58
750				2460	335.0	319.8	-0.1	12.1	10.0	7.6	0.3	100477.3	58
751				2319	335.0	319.8	-0.2	12.1	10.2	8.1	0.3	100477.2	58
752				2319	335.0	319.8	-0.2	12.1	10.4	8.1	0.3	100477.4	58
753				2458	335.0	319.8	-0.1	12.2	10.2	7.1	0.3	100477.5	58
754				2580	335.0	319.8	0.0	12.2	10.2	7.2	0.3	100477.5	59
755				2624	335.0	319.8	0.2	12.2	10.3	7.4	0.3	100477.6	59
756				2651	335.0	319.8	0.5	12.2	11.6	7.1	0.3	100477.6	59
757				2626	335.0	319.8	0.2	12.2	10.7	6.6	0.3	100477.7	59
758				2581	335.0	319.8	0.1	12.1	10.8	6.7	0.3	100477.7	59
759				2401	335.0	319.8	-0.2	12.1	10.2	6.9	0.3	100477.6	59
760				2274	335.0	319.8	-0.3	12.1	9.8	6.6	0.3	100477.7	59
761				2296	335.0	319.8	-0.3	12.2	9.9	7.7	0.3	100477.6	59
762				2255	335.0	319.8	-0.4	12.2	9.8	7.3	0.3	100477.4	59
763				2327	335.0	319.8	-0.2	12.2	9.5	8.1	0.3	100477.5	59
764				2101	335.0	319.8	-0.7	12.1	9.5	7.3	0.3	100477.6	59
765				1945	335.0	319.8	-0.9	12.2	9.3	7.1	0.3	100477.8	59
766				2125	335.0	319.8	-0.5	12.3	9.8	7.0	0.3	100477.8	58
767				2082	335.0	319.8	-0.7	12.2	8.6	6.3	0.3	100477.7	58
768				1950	335.0	319.8	-0.9	12.2	9.2	6.6	0.3	100477.7	58
769				1940	335.0	319.8	-0.9	12.2	9.0	7.3	0.3	100477.7	58
770				1908	335.0	319.8	-1.0	12.2	9.3	7.0	0.3	100477.7	58
771				1843	335.0	319.8	-1.1	12.2	9.5	7.0	0.3	100477.7	58
772				1632	335.0	319.8	-1.3	12.2	9.1	7.3	0.3	100477.7	58
773				1621	335.0	319.8	-1.3	12.2	8.7	7.6	0.3	100477.7	58
774				1935	335.0	319.8	-0.9	12.4	9.8	7.8	0.3	100477.8	58
775				2177	335.0	319.8	-0.4	12.3	10.8	7.9	0.3	100477.9	58
776				2143	335.0	319.8	-0.6	12.3	9.7	7.9	0.3	100477.8	58
777				2056	335.0	319.8	-0.8	12.2	9.7	9.1	0.3	100477.8	56
778				2034	335.0	319.8	-0.7	12.2	9.8	9.6	0.3	100477.8	56
779				2257	335.0	319.8	0.0	12.3	10.0	8.7	0.3	100477.8	56
780				2302	335.0	319.8	0.0	12.2	9.6	7.9	0.3	100477.7	56
781				2307	335.0	319.8	-0.2	12.2	10.3	8.2	0.3	100477.7	56

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

Data Point #	Standardized Wind Speed (m/s)	LAeq (as measured)	LAeq (adjusted for windscreen IL)	Turbine Power Output (kW)	Reference Yaw Angle (°)	Yaw Angle (°)	Pitch Angle (°)	Rotor RPM	Nacelle Anemometer Wind Speed (m/s)	10m Anemometer Wind Speed (m/s)	Air Temperature (-C)	Pressure (Pa)	Relative Humidity (%)

Table E.02 Measurement data - Background

Project: North Kent Wind Farm - IEC 61400- 11 Edition 3.0 - Turbine T4

Report ID: 17283.03.T4.RP3

Created on: 1/28/2021

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

Data Point #	Standardized Wind Speed (m/s)	LAeq (as measured)	LAeq (adjusted for windscreen IL)	Rotor RPM	10m Anemometer Wind Speed (m/s)	Air Temperature (-C)	Pressure (Pa)	Relative Humidity (%)
1	11.4	41.5	41.8	0.4	9.4	0	100207.5	65
2	10.4	39.4	39.7	0.4	8.6	0	100207.6	65
3	12.1	38.9	39.2	0.6	10.0	0	100207.5	65
4	12.8	40.5	40.8	0.6	10.6	0	100207.6	65
5	10.6	37.5	37.7	0.6	8.8	0	100207.8	65
6	10.7	40.2	40.5	0.4	8.8	0	100216.2	64
7	10.9	37.0	37.3	0.6	9.0	0	100219.7	64
8	10.2	38.1	38.4	0.6	8.4	0	100219.9	64
9	11.6	37.4	37.7	0.5	9.6	0	100219.9	64
10	11.7	38.1	38.4	0.5	9.7	0	100219.9	64
11	11.9	37.1	37.4	0.5	9.9	0	100220.3	64
12	13.7	39.2	39.5	0.6	11.3	0	100220.5	63
13	13.6	40.2	40.5	0.6	11.2	0	100220.3	63
14	14.1	41.3	41.6	0.5	11.6	0	100220.2	63
15	13.1	42.7	42.9	0.5	10.8	0	100220.2	63
16	13.0	43.8	44.1	0.5	10.7	0	100220.2	63
17	13.3	44.3	44.6	0.5	10.9	0	100220.2	63
18	12.1	42.3	42.5	0.6	10.0	0	100220.4	61
19	12.8	40.8	41.1	0.6	10.6	0	100220.5	60
20	11.3	40.6	40.9	0.5	9.4	0	100220.3	60
21	11.7	37.8	38.1	0.6	9.6	0	100220.7	60
22	11.8	37.4	37.6	0.5	9.7	0	100220.7	60
23	13.4	39.2	39.5	0.4	11.1	0	100220.7	60
24	11.9	42.1	42.4	0.6	9.8	0	100220.9	61
25	11.7	39.0	39.3	0.4	9.6	0	100220.8	61
26	12.9	36.6	36.9	0.5	10.6	0	100220.8	61
27	14.4	36.8	37.0	0.5	11.9	0	100220.8	61
28	13.7	36.0	36.3	0.4	11.3	0	100220.8	61
29	14.1	38.4	38.7	0.6	11.6	0	100220.9	61
30	12.3	40.4	40.7	0.6	10.2	0	100220.8	61
31	12.9	41.0	41.3	0.5	10.6	0	100220.8	61
32	13.3	44.0	44.3	0.7	11.0	0	100220.5	61
33	12.8	43.7	43.8	0.6	10.5	0	100220.6	61
34	11.1	45.2	45.5	0.5	9.1	0	100220.6	61
35	11.7	43.4	43.7	0.4	9.6	0	100220.6	61
36	10.6	40.3	40.6	0.5	8.7	0	100220.9	61
37	10.0	41.9	42.2	0.5	8.3	0	100221.0	61
38	10.1	39.5	39.8	0.5	8.3	0	100221.0	61
39	11.3	38.1	38.3	0.5	9.3	0	100221.0	61
40	12.8	40.7	41.0	0.5	10.6	0	100221.1	61
41	11.5	43.3	43.6	0.7	9.5	0	100221.1	61
42	13.4	40.9	41.2	0.7	11.1	0	100221.2	62
43	12.3	36.7	36.9	0.5	10.2	0	100221.5	62
44	13.2	38.4	38.7	0.5	10.9	0	100221.1	62
45	13.2	42.7	43.0	0.5	10.9	0	100221.1	62
46	12.0	40.2	40.5	0.6	9.9	0	100221.1	62
47	11.7	38.4	38.7	0.5	9.6	0	100221.3	62
48	11.6	37.8	38.0	0.4	9.6	0	100221.0	62
49	10.9	41.0	41.3	0.5	9.0	0	100221.0	62
50	11.6	41.4	41.7	0.5	9.6	0	100221.3	62
51	11.2	40.4	40.7	0.6	9.2	0	100221.2	62
52	14.0	43.4	43.8	0.8	11.6	0	100221.1	62
53	14.4	44.7	45.0	0.8	11.9	0	100221.2	62
54	13.6	44.4	44.7	0.8	11.2	0	100221.3	59
55	13.1	39.6	39.9	0.6	10.8	0	100221.3	58
56	12.5	40.9	41.2	0.5	10.3	0	100221.3	58
57	11.6	40.8	41.1	0.7	9.6	0	100221.3	58
58	11.0	42.1	42.4	0.7	9.0	0	100221.3	58
59	11.1	40.2	40.5	0.5	9.2	0	100221.3	58
60	11.7	43.8	44.1	0.6	9.6	0	100221.3	58
61	12.5	45.4	45.7	0.5	10.3	0	100221.5	58
62	11.2	42.1	42.3	0.5	9.2	0	100221.5	58
63	10.4	41.3	41.6	0.4	8.6	0	100221.2	58
64	11.0	42.2	42.5	0.5	9.1	0	100221.2	58
65	10.4	42.5	42.8	0.5	8.6	0	100221.2	58
66	11.0	40.1	40.4	0.3	9.1	0	100221.2	60
67	10.0	37.6	37.9	0.4	8.2	0	100221.3	61
68	9.3	36.6	36.9	0.4	7.7	0	100221.3	61
69	9.0	36.7	37.0	0.4	7.5	0	100221.4	61
70	10.0	37.8	38.1	0.5	8.2	0	100221.4	61
71	11.1	36.7	37.0	0.4	9.1	0	100221.5	61
72	10.7	38.3	38.6	0.4	8.9	0	100221.5	62
73	13.4	38.8	39.1	0.5	11.1	0	100221.6	63
74	13.3	39.5	39.8	0.5	11.0	0	100221.4	63
75	11.8	36.6	36.8	0.5	9.7	0	100221.4	63
76	10.3	37.0	37.3	0.6	8.5	0	100221.5	63
77	10.8	39.1	39.4	0.5	9.0	0	100221.4	63
78	11.3	40.3	40.5	0.5	9.4	0	100221.3	63
79	11.2	42.1	42.4	0.4	9.3	0	100221.5	63
80	12.8	45.5	45.8	0.4	10.6	0	100221.5	63
81	13.4	46.6	46.9	0.5	11.0	0	100221.4	63
82	10.8	43.7	44.1	0.5	8.9	0	100221.5	63
83	10.0	38.9	39.2	0.7	8.3	0	100221.4	63

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

Data Point #	Standardized Wind Speed (m/s)	LAeq (as measured)	LAeq (adjusted for windscreen IL)	Rotor RPM	10m Anemometer Wind Speed (m/s)	Air Temperature (-C)	Pressure (Pa)	Relative Humidity (%)
84	11.5	44.6	44.9	0.7	9.5	0	100229.4	63
85	11.6	47.7	48.1	0.6	9.5	0	100234.8	64
86	13.3	46.9	47.2	0.5	11.0	0	100234.6	64
87	12.2	42.5	42.8	0.5	10.1	0	100234.6	64
88	11.1	41.1	41.4	0.6	9.1	0	100234.5	64
89	11.1	43.6	44.0	0.5	9.2	0	100234.7	64
90	11.4	42.9	43.3	0.5	9.4	0	100226.5	62
91	10.7	42.5	42.8	0.5	8.8	0	100221.1	61
92	10.8	44.5	45.0	0.5	8.9	0	100221.0	61
93	9.8	40.4	40.8	0.6	8.1	0	100221.1	61
94	9.8	41.8	42.1	0.7	8.1	0	100221.1	61
95	9.2	41.4	41.8	0.6	7.6	0	100221.1	61
96	11.2	39.7	40.0	0.7	9.2	0	100221.1	63
97	11.9	41.1	41.4	0.6	9.8	0	100221.3	65
98	11.5	40.9	41.2	0.5	9.5	0	100221.2	65
99	10.8	43.3	43.7	0.6	8.9	0	100221.3	65
100	9.7	40.8	41.1	0.5	8.0	0	100221.2	65
101	11.2	40.6	40.9	0.5	9.2	0	100221.2	65
102	12.9	41.5	41.8	0.5	10.7	0	100221.4	63
103	13.3	41.7	42.0	0.5	11.0	0	100221.3	63
104	13.2	39.9	40.2	0.5	10.9	0	100221.2	63
105	13.7	37.7	38.0	0.7	11.3	0	100221.2	63
106	13.0	38.7	39.0	0.7	10.7	0	100221.3	63
107	13.5	38.0	38.3	0.7	11.2	0	100221.4	63
108	12.9	42.1	42.4	0.7	10.6	0	100221.3	60
109	14.1	41.7	42.0	0.7	11.6	0	100221.3	59
110	13.1	40.5	40.8	0.5	10.8	0	100221.4	59
111	11.9	41.5	41.8	0.5	9.8	0	100221.4	59
112	10.4	44.8	45.1	0.5	8.6	0	100221.4	59
113	12.8	44.1	44.4	0.4	10.6	0	100221.4	59
114	13.1	40.3	40.6	0.5	10.8	0	100221.6	59
115	12.1	39.0	39.4	0.4	10.0	0	100221.6	59
116	11.1	38.4	38.7	0.4	9.1	0	100221.8	59
117	12.3	39.1	39.4	0.6	10.2	0	100221.8	59
118	12.2	37.8	38.1	0.7	10.1	0	100221.6	59
119	12.5	37.9	38.1	0.5	10.3	0	100221.7	59
120	10.1	42.1	42.4	0.6	8.3	0	100221.6	61
121	10.0	38.3	38.6	0.6	8.2	0	100221.7	62
122	10.8	39.1	39.3	0.6	8.9	0	100221.7	62
123	13.5	42.0	42.4	0.7	11.2	0	100221.7	62
124	11.8	41.7	42.0	0.4	9.7	0	100221.8	62
125	12.7	42.3	42.6	0.5	10.5	0	100221.7	62
126	11.0	41.6	42.0	0.5	9.1	0	100222.8	60
127	12.2	40.0	40.3	0.5	10.1	0	100221.5	60
128	15.1	38.8	39.1	0.6	12.4	0	100221.7	60
129	14.8	40.8	41.1	0.5	12.2	0	100221.7	60
130	12.6	40.0	40.3	0.4	10.4	0	100221.7	60
131	13.1	39.9	40.2	0.6	10.8	0	100221.7	60
132	12.0	41.3	41.6	0.6	9.9	0	100221.8	61
133	13.3	40.9	41.2	0.6	11.0	0	100221.7	61
134	14.2	39.8	40.1	0.6	11.7	0	100221.8	61
135	13.7	39.9	40.2	0.7	11.3	0	100221.7	61
136	15.6	42.7	42.9	0.7	12.9	0	100221.7	61
137	15.7	45.0	45.3	0.7	13.0	0	100221.7	61
138	14.5	46.3	46.6	0.7	11.9	0	100221.6	59
139	12.1	45.4	45.7	0.7	10.0	0	100221.7	59
140	10.8	45.6	45.9	0.7	9.0	0	100221.7	59
141	12.5	45.2	45.5	0.6	10.3	0	100221.8	59
142	12.1	45.2	45.5	0.7	10.0	0	100221.7	59
143	12.3	43.1	43.4	0.7	10.2	0	100221.6	59
144	12.8	43.7	44.0	0.7	10.6	0	100223.0	61
145	12.6	41.5	41.7	0.5	10.4	0	100221.7	61
146	13.0	40.2	40.5	0.5	10.7	0	100221.7	61
147	13.5	42.2	42.5	0.7	11.1	0	100221.7	61
148	12.9	44.6	45.0	0.7	10.7	0	100221.8	61
149	13.9	43.8	44.1	0.6	11.5	0	100221.9	61
150	14.0	46.1	46.4	0.6	11.5	0	100222.0	60
151	13.7	46.4	46.7	0.6	11.3	0	100221.9	59
152	13.1	41.1	41.4	0.6	10.8	0	100221.9	59
153	12.7	43.1	43.4	0.5	10.5	0	100221.8	59
154	12.8	41.1	41.4	0.6	10.6	0	100221.8	59
155	12.3	45.0	45.3	0.5	10.2	0	100221.7	59
156	12.5	44.7	45.0	0.6	10.3	0	100235.2	59
157	14.3	42.3	42.6	0.8	11.8	0	100235.3	59
158	13.3	41.6	41.9	0.6	11.0	0	100235.2	59
159	13.3	41.9	42.2	0.7	11.0	0	100235.2	59
160	13.2	43.0	43.3	0.8	10.9	0	100235.3	59
161	11.9	43.0	43.3	0.6	9.8	0	100235.4	59
162	13.0	43.3	43.6	0.7	10.7	0	100235.5	59
163	13.6	43.6	43.9	0.8	11.2	0	100235.5	59
164	14.2	44.4	44.7	0.7	11.7	0	100235.7	59
165	12.7	41.6	41.9	0.8	10.5	0	100235.8	59
166	14.6	45.5	45.8	0.7	12.0	0	100235.6	59

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

Data Point #	Standardized Wind Speed (m/s)	LAeq (as measured)	LAeq (adjusted for windscreen IL)	Rotor RPM	10m Anemometer Wind Speed (m/s)	Air Temperature (-C)	Pressure (Pa)	Relative Humidity (%)
167	16.2	44.4	44.7	0.7	13.3	0	100235.6	59
168	15.4	45.7	46.0	0.8	12.7	0	100223.5	55
169	14.4	48.0	48.3	0.7	11.8	0	100222.1	55
170	14.0	46.9	47.2	0.4	11.6	0	100222.1	55
171	12.9	46.3	46.6	0.7	10.6	0	100222.1	55
172	14.5	41.7	42.0	0.7	12.0	0	100222.2	55
173	13.9	45.1	45.4	0.6	11.5	0	100222.3	55
174	13.3	45.0	45.2	0.7	11.0	0	100222.2	57
175	11.3	43.1	43.4	0.7	9.3	0	100222.1	57
176	11.7	43.8	44.1	0.7	9.7	0	100222.0	57
177	12.2	41.7	42.0	0.7	10.0	0	100222.0	57
178	11.7	41.7	42.0	0.7	9.6	0	100222.1	57
179	11.3	44.7	45.0	0.6	9.3	0	100222.0	57
180	11.2	42.1	42.4	0.7	9.3	0	100247.2	60
181	11.4	43.5	43.8	0.7	9.4	0	100248.6	60
182	12.3	45.5	45.9	0.6	10.1	0	100248.7	60
183	13.3	43.2	43.5	0.7	11.0	0	100248.5	60
184	13.7	42.3	42.6	0.6	11.3	0	100248.5	60
185	14.7	43.8	44.2	0.6	12.1	0	100248.6	60
186	13.1	46.6	46.9	0.7	10.8	0	100248.7	59
187	12.8	44.1	44.4	0.7	10.5	0	100248.7	59
188	12.7	44.5	44.8	0.7	10.5	0	100248.8	59
189	11.8	44.4	44.7	0.6	9.7	0	100248.8	59
190	10.7	48.0	48.4	0.5	8.9	0	100248.8	59
191				0.6	9.3	0	100248.8	59
192	11.9	48.0	48.3	0.7	9.8	0	100248.7	60
193	11.0	45.6	45.9	0.6	9.1	0	100248.9	61
194	11.1	46.2	46.5	0.5	9.2	0	100248.9	61
195	10.4	45.2	45.5	0.5	8.6	0	100248.8	61
196	11.3	41.7	42.0	0.5	9.3	0	100248.9	61
197	12.2	42.8	43.1	0.4	10.1	0	100248.8	61
198	12.2	42.7	43.0	0.5	10.1	0	100248.9	60
199	13.0	40.0	40.3	0.5	10.8	0	100248.8	59
200	11.1	42.1	42.4	0.6	9.2	-1	100278.4	74
201	10.8	43.1	43.4	0.6	8.9	-1	100278.3	74
202	10.5	40.6	40.9	0.5	8.7	-1	100278.5	74
203	10.7	39.3	39.6	0.5	8.8	-1	100278.6	74
204	13.1	41.0	41.3	0.5	10.8	-1	100278.8	74
205	11.8	39.2	39.4	0.5	9.7	-1	100278.7	74
206	9.0	42.3	42.6	0.5	7.5	-1	100278.7	74
207	8.5	42.2	42.5	0.5	7.0	-1	100278.6	74
208	8.7	43.0	43.3	0.5	7.2	-1	100278.7	74
209	9.3	42.5	42.8	0.5	7.7	-1	100278.7	74
210	8.5	41.1	41.4	0.5	7.1	-1	100278.6	74
211	9.5	40.8	41.1	0.5	7.8	-1	100278.7	74
212	12.3	42.3	42.6	0.5	10.2	-1	100278.6	77
213	13.3	40.5	40.8	0.5	11.0	-1	100278.7	77
214	13.4	42.3	42.6	0.6	11.1	-1	100278.8	77
215	12.1	41.8	42.1	0.5	10.0	-1	100278.6	77
216	12.4	44.6	44.9	0.5	10.3	-1	100278.7	77
217	13.3	48.2	48.4	0.6	11.0	-1	100275.9	76
218				0.6	10.7	-1	100264.5	74
219	11.2	46.9	47.2	0.5	9.3	-1	100264.5	74
220				0.5	8.1	-1	100264.4	74
221				0.6	7.9	-1	100264.5	74
222				0.7	6.2	-1	100264.5	74
223				0.7	6.2	-1	100268.5	74
224	8.8	47.1	47.4	0.7	7.3	-1	100278.6	77
225	10.5	45.6	45.9	0.7	8.6	-1	100278.7	77
226	12.1	43.3	43.5	0.6	10.0	-1	100278.7	77
227	10.3	46.4	46.7	0.6	8.5	-1	100278.6	77
228	10.4	45.4	45.6	0.7	8.6	-1	100278.9	77
229				0.6	8.1	-1	100278.8	77
230				0.7	8.6	-1	100278.9	75
231	10.7	45.7	46.0	0.8	8.8	-1	100278.8	75
232	9.0	43.8	44.1	0.7	7.4	-1	100278.8	75
233	9.5	45.7	46.0	0.7	7.9	-1	100278.8	75
234	10.7	48.9	49.3	0.8	8.8	-1	100278.9	75
235	10.4	48.6	48.9	0.7	8.6	-1	100282.6	75
236	11.3	46.3	46.7	0.7	9.3	-1	100291.9	75
237	12.5	44.7	45.1	0.6	10.4	-1	100291.9	75
238	10.1	42.0	42.3	0.6	8.3	-1	100291.8	75
239	10.4	40.9	41.2	0.6	8.6	-1	100291.8	75
240	10.3	42.3	42.6	0.5	8.5	-1	100291.8	75
241	11.0	41.6	41.9	0.5	9.1	-1	100286.7	74
242	9.9	40.6	40.9	0.6	8.2	-1	100279.1	72
243	8.7	38.8	39.1	0.6	7.2	-1	100279.1	72
244	9.6	45.5	45.8	0.7	7.9	-1	100279.1	72
245	12.2	45.1	45.4	0.6	10.1	-1	100279.1	72
246	12.7	45.5	45.8	0.6	10.5	-1	100279.1	72
247	13.5	43.0	43.3	0.7	11.1	-1	100279.2	71
248	12.3	44.2	44.5	0.6	10.1	-1	100279.0	70
249	11.7	42.5	42.8	0.5	9.7	-1	100279.0	70

Table E.02 Measurement data - Background

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

Data Point #	Standardized Wind Speed (m/s)	LAeq (as measured)	LAeq (adjusted for windscreen IL)	Rotor RPM	10m Anemometer Wind Speed (m/s)	Air Temperature (-C)	Pressure (Pa)	Relative Humidity (%)
250	11.6	43.1	43.4	0.5	9.5	-1	100279.1	70
251	12.0	43.3	43.6	0.6	9.9	-1	100279.1	70
252	12.3	44.2	44.5	0.4	10.1	-1	100279.0	70
253	11.7	41.0	41.2	0.6	9.6	-1	100279.0	71
254	12.2	40.5	40.8	0.6	10.1	-1	100279.0	71
255	12.0	42.4	42.7	0.5	9.9	-1	100279.0	71
256	10.8	39.4	39.7	0.5	8.9	-1	100279.0	71
257	11.7	43.3	43.6	0.6	9.7	-1	100279.0	71
258	12.8	42.7	43.0	0.7	10.5	-1	100278.9	71
259	12.1	48.3	48.7	0.6	9.9	-1	100285.3	71
260	12.3	43.8	44.2	0.7	10.2	-1	100291.9	71
261	10.8	39.7	40.0	0.6	8.9	-1	100292.0	71
262	12.1	40.0	40.3	0.6	10.0	-1	100291.9	71
263	11.7	38.4	38.7	0.6	9.6	-1	100291.8	71
264	11.6	40.6	40.9	0.6	9.6	-1	100291.8	71
265	12.9	39.5	39.8	0.6	10.7	-1	100285.4	71
266	12.2	41.0	41.3	0.7	10.1	-1	100278.9	70
267	10.2	43.0	43.3	0.7	8.4	-1	100279.0	70
268	9.6	41.6	41.9	0.6	7.9	-1	100279.1	70
269	9.7	42.5	42.8	0.7	8.0	-1	100279.0	70
270	9.2	47.6	48.0	0.7	7.6	-1	100279.0	70
271	9.4	43.5	43.8	0.6	7.7	-1	100285.6	71
272	11.3	44.0	44.3	0.4	9.4	-1	100292.0	72
273	10.5	45.5	45.8	0.5	8.7	-1	100291.9	72
274	9.9	44.7	45.1	0.6	8.2	-1	100292.1	72
275	10.1	43.3	43.6	0.5	8.3	-1	100292.1	72
276	10.4	46.1	46.4	0.6	8.6	-1	100292.1	72
277	10.7	46.0	46.3	0.6	8.8	-1	100292.2	72
278	11.4	43.1	43.4	0.6	9.4	-1	100291.9	72
279	10.5	41.5	41.8	0.7	8.7	-1	100292.1	72
280	12.7	42.1	42.5	0.6	10.5	-1	100292.0	72
281	12.4	40.5	40.8	0.5	10.2	-1	100292.2	72
282	11.4	38.2	38.4	0.5	9.4	-1	100292.3	72
283	12.0	41.3	41.6	0.6	9.9	-1	100291.9	69
284	10.4	39.9	40.2	0.6	8.6	-1	100291.9	68
285	10.6	45.3	45.5	0.5	8.8	-1	100291.9	68
286	9.4	46.1	46.3	0.7	7.8	-1	100291.9	68
287	9.0	45.0	45.3	0.7	7.4	-1	100292.2	68
288	10.0	40.9	41.2	0.6	8.2	-1	100292.2	68
289	8.8	38.6	38.9	0.7	7.3	-1	100302.2	71
290	11.4	41.0	41.3	0.8	9.4	-1	100304.7	71
291	10.9	38.9	39.2	0.8	9.0	-1	100304.7	71
292	11.6	43.4	43.8	0.7	9.6	-1	100304.7	71
293	12.3	42.6	42.9	0.7	10.2	-1	100304.8	71
294	11.2	43.1	43.4	0.6	9.3	-1	100304.9	71
295	10.4	42.2	42.5	0.7	8.6	-1	100294.7	69
296	10.5	40.3	40.6	0.7	8.7	-1	100292.1	69
297	10.7	40.9	41.2	0.6	8.8	-1	100292.3	69
298	9.1	42.6	42.9	0.8	7.5	-1	100292.1	69
299	7.9	38.8	39.1	0.7	6.5	-1	100292.1	69
300	9.2	39.1	39.4	0.7	7.6	-1	100292.3	69
301	11.6	39.7	40.0	0.8	9.6	-1	100292.2	69
302	10.9	41.1	41.4	0.6	9.0	-1	100292.1	69
303	11.4	44.0	44.3	0.7	9.4	-1	100292.3	69
304	11.3	42.0	42.3	0.6	9.4	-1	100292.1	69
305	10.3	41.9	42.2	0.5	8.5	-1	100292.2	69
306	10.2	42.1	42.4	0.5	8.4	-1	100292.3	69
307	11.9	43.6	43.9	0.6	9.8	-1	100292.2	68
308	11.4	40.3	40.6	0.5	9.4	-1	100292.2	68
309	9.7	42.7	42.9	0.6	8.0	-1	100292.1	68
310	9.0	45.8	46.1	0.6	7.5	-1	100292.3	68
311	9.0	42.3	42.6	0.6	7.4	-1	100292.4	68
312	8.8	38.9	39.2	0.6	7.2	-1	100292.3	68
313	9.8	40.9	41.1	0.6	8.1	-1	100292.4	69
314	9.0	41.2	41.5	0.8	7.5	-1	100292.3	69
315	8.2	42.9	43.1	0.8	6.8	-1	100292.3	69
316	7.2	42.1	42.4	0.8	5.9	-1	100292.3	69
317	7.8	44.6	44.9	0.7	6.4	-1	100292.3	69
318	10.0	45.4	45.7	0.8	8.3	-1	100292.3	69
319	9.8	45.8	46.1	0.8	8.1	-1	100292.3	68
320	8.2	46.0	46.3	0.6	6.7	-1	100292.3	68
321	9.1	44.5	44.8	0.6	7.5	-1	100292.2	68
322	9.8	44.0	44.4	0.6	8.1	-1	100292.2	68
323	10.1	39.9	40.2	0.5	8.4	-1	100292.2	68
324	10.3	41.3	41.6	0.6	8.5	-1	100292.4	68
325	10.8	39.8	40.1	0.7	8.9	-1	100292.3	67
326	11.5	38.4	38.6	0.5	9.5	-1	100292.3	67
327	12.7	39.5	39.8	0.5	10.5	-1	100292.4	67
328	13.8	41.6	41.9	0.5	11.4	-1	100292.3	67
329	12.5	42.9	43.2	0.6	10.3	-1	100292.4	67
330	10.1	42.6	42.9	0.7	8.4	-1	100292.3	67
331	9.0	44.2	44.6	0.6	7.4	-1	100292.3	66
332	10.5	45.7	46.0	0.6	8.7	-1	100292.4	66

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

Data Point #	Standardized Wind Speed (m/s)	LAeq (as measured)	LAeq (adjusted for windscreen IL)	Rotor RPM	10m Anemometer Wind Speed (m/s)	Air Temperature (-C)	Pressure (Pa)	Relative Humidity (%)
333				0.7	9.8	-1	100292.3	66
334				0.6	9.2	-1	100292.4	66
335	10.3	47.3	47.7	0.5	8.5	-1	100292.4	66
336	10.7	43.3	43.6	0.5	8.8	-1	100292.4	66
337	10.0	47.3	47.6	0.4	8.3	0	100292.4	67
338	11.2	45.4	45.8	0.5	9.2	0	100292.3	67
339	10.8	43.1	43.4	0.5	8.9	0	100292.2	67
340	11.5	44.5	44.8	0.7	9.5	0	100292.5	67
341	10.4	42.2	42.5	0.6	8.6	0	100292.5	67
342	8.4	44.7	45.0	0.5	6.9	0	100292.5	67
343	8.7	43.2	43.5	0.6	7.2	0	100292.5	67
344	8.8	41.2	41.5	0.6	7.2	0	100292.4	68
345	8.7	44.3	44.6	0.6	7.2	0	100292.5	68
346	10.5	40.0	40.3	0.5	8.6	0	100292.5	68
347	9.3	41.5	41.8	0.6	7.6	0	100292.3	68
348	8.3	41.2	41.5	0.6	6.8	0	100292.4	68
349	8.5	45.0	45.3	0.6	7.0	0	100292.4	68
350	8.6	46.1	46.4	0.6	7.1	0	100292.3	68
351	8.9	47.3	47.7	0.6	7.3	0	100292.5	68
352	7.7	45.0	45.3	0.6	6.3	0	100292.4	68
353	9.5	45.7	45.9	0.6	7.9	0	100292.3	68
354	11.6	48.0	48.3	0.7	9.6	0	100292.4	68
355	12.1	43.5	43.8	0.5	10.0	0	100283.5	66
356	13.3	42.5	42.8	0.6	11.0	0	100279.6	65
357	12.1	43.4	43.7	0.6	10.0	0	100279.5	65
358	12.8	44.1	44.4	0.6	10.6	0	100279.6	65
359	10.8	42.4	42.7	0.5	8.9	0	100279.8	65
360	9.2	39.6	39.8	0.6	7.6	0	100282.2	65
361	11.7	43.1	43.4	0.5	9.7	0	100292.6	64
362	13.2	45.4	45.7	0.6	10.9	0	100292.7	64
363	11.4	42.8	43.1	0.5	9.4	0	100292.6	64
364	9.7	43.3	43.6	0.7	8.0	0	100292.5	64
365	12.1	43.2	43.5	0.7	10.0	0	100292.5	64
366	11.9	42.5	42.8	0.6	9.8	0	100292.6	64
367	10.1	40.9	41.1	0.6	8.4	0	100292.6	61
368	8.3	41.5	41.9	0.2	6.8	0	100358.4	57
369	8.1	40.3	40.6	0.3	6.7	0	100358.4	57
370	7.8	33.0	33.3	0.4	6.4	0	100358.3	58
371	8.1	32.3	32.5	0.4	6.7	0	100358.4	58
372	7.8	35.1	35.4	0.4	6.5	0	100358.4	58
373	8.6	35.5	35.8	0.3	7.1	0	100358.6	58
374	8.0	32.8	33.1	0.4	6.6	0	100358.7	58
375	8.2	32.3	32.6	0.4	6.8	0	100358.6	58
376	8.2	29.6	29.8	0.5	6.8	0	100358.6	59
377	7.4	32.5	32.8	0.4	6.1	0	100358.7	59
378	7.5	30.3	30.5	0.3	6.2	0	100358.8	59
379	7.6	31.4	31.6	0.3	6.3	0	100358.6	59
380	7.5	32.3	32.5	0.3	6.2	0	100358.5	59
381	7.2	34.7	35.0	0.3	6.0	0	100358.6	59
382	7.1	35.2	35.5	0.3	5.8	0	100358.7	60
383	6.3	33.7	33.8	0.3	5.2	0	100358.7	60
384	6.4	32.7	33.0	0.3	5.3	0	100358.7	60
385	6.4	32.5	32.8	0.3	5.3	0	100358.6	60
386	7.4	31.8	32.0	0.4	6.1	0	100358.7	60
387	6.8	34.8	35.1	0.3	5.6	0	100399.8	71
388	6.8	35.8	36.0	0.3	5.6	0	100399.8	71
389	6.9	39.9	40.2	0.4	5.7	0	100399.7	71
390	6.0	38.9	39.2	0.3	5.0	0	100399.7	71
391	7.3	39.4	39.7	0.3	6.0	0	100399.9	71
392	6.5	37.7	38.0	0.4	5.4	0	100399.8	71
393	8.1	36.5	36.8	0.4	6.7	0	100399.9	71
394	7.2	34.9	35.2	0.4	6.0	0	100399.7	71
395	7.6	37.1	37.4	0.5	6.3	0	100399.7	71
396				0.4	5.3	0	100399.8	71
397				0.3	5.2	0	100399.7	71
398	5.8	38.2	38.5	0.3	4.8	0	100399.8	71
399	6.5	37.2	37.5	0.3	5.3	0	100399.7	72
400	8.4	37.2	37.5	0.3	6.9	0	100399.8	72
401	7.9	38.0	38.3	0.3	6.5	0	100399.6	72
402	7.7	36.2	36.5	0.3	6.3	0	100399.6	72
403	7.0	34.8	35.0	0.4	5.8	0	100399.9	72
404	6.3	36.2	36.4	0.4	5.2	0	100399.7	72
405	7.6	36.9	37.2	0.3	6.2	0	100399.8	71
406	6.8	35.4	35.6	0.2	5.6	0	100399.8	71
407	6.4	35.8	36.0	0.2	5.3	0	100399.7	71
408	6.6	35.0	35.2	0.3	5.4	0	100399.7	71
409	6.9	35.4	35.6	0.3	5.7	0	100399.7	71
410	6.3	33.7	33.9	0.4	5.2	0	100399.9	71
411	6.7	35.9	36.2	0.3	5.5	0	100399.8	72
412	6.0	36.1	36.3	0.3	5.0	0	100399.7	72
413	6.9	35.3	35.5	0.3	5.7	0	100399.6	72
414	6.7	34.7	34.9	0.3	5.6	0	100399.6	72
415	6.2	35.1	35.2	0.4	5.1	0	100399.6	72

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

Data Point #	Standardized Wind Speed (m/s)	LAeq (as measured)	LAeq (adjusted for windscreen IL)	Rotor RPM	10m Anemometer Wind Speed (m/s)	Air Temperature (-C)	Pressure (Pa)	Relative Humidity (%)
416	5.5	33.8	33.9	0.4	4.5	0	100399.7	72
417	4.8	34.2	34.4	0.4	4.0	0	100399.6	72
418	5.5	37.7	37.8	0.4	4.5	0	100399.8	72
419	5.6	38.4	38.6	0.4	4.6	0	100399.7	72
420	6.1	34.5	34.7	0.4	5.0	0	100399.7	72
421	6.8	33.7	33.9	0.4	5.6	0	100399.8	72
422	6.3	34.3	34.4	0.4	5.2	0	100399.7	72
423	7.6	36.6	36.8	0.4	6.3	0	100399.7	70
424	7.8	34.7	35.0	0.4	6.4	0	100399.9	70
425	7.5	34.8	34.9	0.2	6.2	0	100399.8	70
426	7.0	43.0	43.1	0.3	5.8	0	100399.8	70
427				0.3	5.3	0	100399.8	70
428	6.4	37.5	37.7	0.3	5.3	0	100399.7	70
429	7.6	34.9	35.1	0.3	6.2	0	100399.7	70
430	8.2	38.5	38.7	0.3	6.7	0	100399.6	70
431	7.8	42.4	42.6	0.3	6.4	0	100399.6	70
432	7.4	39.0	39.2	0.3	6.1	0	100399.6	70
433	7.2	36.3	36.6	0.3	5.9	0	100399.5	70
434	6.7	35.2	35.4	0.3	5.6	0	100399.8	70
435	6.2	35.0	35.2	0.3	5.1	0	100399.8	70
436	5.5	35.4	35.5	0.3	4.5	0	100399.6	70
437	6.1	36.1	36.2	0.3	5.0	0	100399.4	70
438	7.1	35.2	35.4	0.3	5.9	0	100399.5	70
439	6.6	36.4	36.7	0.3	5.5	0	100399.6	70
440	6.5	35.1	35.3	0.3	5.3	0	100399.7	71
441	6.3	34.3	34.5	0.3	5.2	0	100399.6	72
442	6.5	34.7	34.9	0.3	5.4	0	100399.6	72
443	6.4	33.8	34.0	0.4	5.3	0	100399.7	72
444	5.7	34.3	34.5	0.4	4.7	0	100399.7	72
445	5.4	35.7	35.9	0.3	4.5	0	100399.5	72
446	5.1	36.2	36.5	0.4	4.2	0	100405.7	72
447	5.9	35.4	35.6	0.4	4.9	0	100412.4	73
448	5.9	35.3	35.6	0.4	4.9	0	100412.4	73
449	5.8	35.8	36.1	0.4	4.8	0	100412.4	73
450	5.9	34.2	34.4	0.4	4.9	0	100412.4	73
451	5.6	34.1	34.3	0.4	4.6	0	100412.2	73
452	5.3	34.9	35.1	0.3	4.4	0	100412.1	73
453	5.2	36.0	36.2	0.2	4.3	0	100412.2	73
454	5.0	35.4	35.6	0.3	4.2	0	100412.2	73
455	5.3	33.2	33.3	0.3	4.3	0	100412.3	73
456	5.4	35.1	35.2	0.3	4.4	0	100412.2	73
457	5.8	34.8	35.0	0.3	4.8	0	100412.2	73
458	6.0	35.1	35.3	0.3	4.9	0	100406.2	72
459	5.8	33.8	34.0	0.3	4.8	0	100399.5	72
460	6.6	33.5	33.7	0.3	5.4	0	100399.5	72
461	6.0	32.4	32.6	0.3	4.9	0	100399.5	72
462	6.0	31.8	32.0	0.3	5.0	0	100399.5	72
463	5.7	32.6	32.8	0.3	4.7	0	100399.7	72
464	5.4	31.7	31.8	0.2	4.5	-1	100405.7	72
465	4.9	32.2	32.3	0.3	4.1	-1	100412.4	72
466	5.1	32.4	32.5	0.3	4.2	-1	100412.4	72
467	5.9	33.4	33.6	0.2	4.9	-1	100412.3	72
468	5.3	34.3	34.5	0.2	4.4	-1	100412.4	72
469				0.1	4.4	-1	100412.4	72
470	6.6	42.5	42.7	0.1	5.4	-1	100412.5	73
471	6.0	39.2	39.4	0.2	5.0	-1	100412.4	73
472	6.0	36.2	36.5	0.3	4.9	-1	100412.4	73
473	6.5	33.1	33.3	0.3	5.4	-1	100412.5	73
474	6.5	33.9	34.0	0.4	5.3	-1	100412.5	73
475	6.9	33.3	33.4	0.3	5.7	-1	100412.6	73
476	6.5	32.8	32.9	0.3	5.4	-1	100412.6	71
477	6.0	32.5	32.6	0.3	5.0	-1	100412.6	70
478	5.8	32.3	32.4	0.3	4.8	-1	100412.8	70
479	6.5	41.1	41.5	0.4	5.4	-1	100412.8	70
480				0.4	4.8	-1	100412.8	70
481	4.9	32.0	32.1	0.3	4.0	-1	100412.6	70
482	4.3	31.6	31.8	0.4	3.6	-1	100412.6	72
483	3.7	31.6	31.7	0.4	3.1	-1	100412.6	73
484	4.6	31.4	31.5	0.4	3.8	-1	100412.6	73
485	4.3	33.5	33.7	0.4	3.5	-1	100412.7	73
486	4.3	34.5	34.7	0.3	3.5	-1	100412.7	73
487	4.4	34.5	34.7	0.4	3.7	-1	100412.6	73
488	5.6	32.9	33.1	0.3	4.6	0	100412.7	73
489	4.9	33.5	33.7	0.3	4.0	0	100412.8	74
490	4.7	33.4	33.6	0.3	3.8	0	100412.7	74
491	4.0	32.1	32.2	0.4	3.3	0	100412.6	74
492	3.8	31.8	31.9	0.4	3.2	0	100412.8	74
493	4.1	31.8	32.0	0.3	3.4	0	100412.5	74
494	4.9	31.9	32.0	0.2	4.0	0	100422.7	74
495	5.3	31.9	32.1	0.2	4.3	0	100425.7	74
496	5.1	32.2	32.4	0.2	4.2	0	100425.9	74
497	5.2	31.1	31.2	0.2	4.3	0	100425.9	74
498	5.1	31.9	32.1	0.3	4.2	0	100425.8	74

Table E.02 Measurement data - Background

Project: North Kent Wind Farm - IEC 61400- 11 Edition 3.0 - Turbine T4

Report ID: 17283.03.T4.RP3

Created on: 1/28/2021

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

Data Point #	Standardized Wind Speed (m/s)	LAeq (as measured)	LAeq (adjusted for windscreen IL)	Rotor RPM	10m Anemometer Wind Speed (m/s)	Air Temperature (-C)	Pressure (Pa)	Relative Humidity (%)
499	5.9	31.8	32.0	0.4	4.9	0	100425.9	74
500	5.5	32.6	32.8	0.3	4.6	0	100416.9	71
501	5.2	33.3	33.4	0.3	4.3	0	100412.7	70
502	5.6	32.9	33.0	0.3	4.6	0	100412.7	70
503	6.0	33.6	33.7	0.3	4.9	0	100412.7	70
504	5.8	34.5	34.7	0.3	4.8	0	100412.6	70
505	4.9	33.5	33.7	0.3	4.0	0	100412.7	70
506	4.6	34.0	34.2	0.3	3.8	0	100424.2	72
507	4.2	34.6	34.8	0.3	3.4	0	100425.8	72
508	4.4	39.3	39.5	0.3	3.6	0	100425.8	72
509				0.2	4.3	0	100425.7	72
510				0.4	4.7	0	100425.9	72
511				0.5	4.0	0	100425.9	72
512	5.1	34.9	35.1	0.4	4.2	0	100412.9	72
513	5.1	34.7	34.9	0.2	4.2	0	100412.7	72
514	4.5	34.5	34.7	0.2	3.7	0	100412.9	72
515	4.7	33.0	33.1	0.3	3.9	0	100412.8	72
516	5.5	33.3	33.4	0.2	4.5	0	100412.7	72
517	6.3	31.6	31.8	0.3	5.2	0	100412.7	71
518	5.5	31.9	32.0	0.3	4.5	0	100412.6	68
519	6.9	32.0	32.2	0.3	5.7	0	100412.9	68
520	6.5	31.6	31.7	0.3	5.4	0	100412.7	68
521	5.9	32.0	32.2	0.3	4.9	0	100412.7	68
522	6.1	31.6	31.7	0.3	5.0	0	100412.7	68
523	5.8	31.7	31.9	0.3	4.8	0	100413.8	68
524	6.0	30.9	31.1	0.4	5.0	0	100412.9	69
525	5.7	30.4	30.6	0.4	4.7	0	100412.4	69
526	5.4	30.7	30.9	0.3	4.5	0	100412.6	69
527	5.6	31.1	31.3	0.3	4.6	0	100412.6	69
528	5.6	30.6	30.8	0.3	4.6	0	100412.6	69
529	5.8	31.1	31.3	0.4	4.8	0	100414.9	69
530				0.4	4.3	0	100425.7	68
531				0.4	4.9	0	100425.9	68
532	5.7	36.2	36.5	0.4	4.7	0	100425.9	68
533	6.2	30.1	30.2	0.3	5.1	0	100425.8	68
534	5.5	30.5	30.7	0.3	4.5	0	100425.8	68
535	5.2	31.6	31.8	0.4	4.3	0	100425.9	68
536	5.1	31.4	31.6	0.4	4.2	0	100426.1	69
537	4.6	30.9	31.1	0.3	3.8	0	100425.8	69
538	4.9	32.6	32.8	0.3	4.0	0	100425.9	69
539	5.7	31.8	32.0	0.3	4.7	0	100425.8	69
540	6.1	31.4	31.5	0.3	5.0	0	100425.9	69
541	5.9	31.5	31.7	0.3	4.8	0	100425.7	69
542	5.6	31.8	31.9	0.4	4.7	0	100425.8	67
543	5.7	31.1	31.3	0.3	4.7	0	100425.9	67
544	6.5	31.4	31.6	0.4	5.3	0	100425.7	67
545	7.3	31.8	31.9	0.3	6.0	0	100425.7	67
546	6.7	31.7	31.9	0.3	5.5	0	100425.7	67
547	5.6	32.6	32.7	0.4	4.6	0	100425.7	67
548	5.8	31.6	31.7	0.3	4.8	0	100426.0	66
549	5.6	34.3	34.4	0.3	4.7	0	100426.0	66
550	6.7	34.4	34.6	0.3	5.5	0	100425.9	66
551	6.6	34.3	34.4	0.3	5.4	0	100425.7	66
552	6.9	32.5	32.6	0.3	5.7	0	100425.8	66
553	7.0	31.5	31.6	0.3	5.8	0	100426.7	66
554	7.4	32.6	32.7	0.3	6.1	0	100437.9	65
555	7.1	33.3	33.5	0.3	5.8	0	100438.0	65
556	6.6	33.6	33.7	0.4	5.4	0	100438.0	65
557	6.4	34.8	34.9	0.3	5.3	0	100438.0	65
558	6.9	33.7	33.8	0.3	5.7	0	100438.3	65
559	6.7	32.7	32.8	0.3	5.6	0	100438.1	65
560	5.7	31.5	31.7	0.3	4.7	0	100438.2	66
561	5.3	31.1	31.2	0.2	4.3	0	100438.0	66
562	5.7	31.7	31.9	0.2	4.7	0	100438.3	66
563	5.5	32.4	32.5	0.2	4.5	0	100438.3	66
564	4.8	32.4	32.6	0.2	4.0	0	100438.3	66
565	4.9	31.3	31.5	0.2	4.0	0	100438.2	66
566	4.8	30.0	30.1	0.3	3.9	0	100438.3	68
567	5.2	30.2	30.3	0.2	4.3	0	100438.3	68
568	5.9	29.8	30.0	0.4	4.9	0	100438.3	68
569	6.0	31.5	31.7	0.3	5.0	0	100438.3	68
570	6.0	30.0	30.2	0.3	5.0	0	100438.3	68
571	6.4	31.1	31.3	0.3	5.2	0	100438.4	68
572	6.3	31.3	31.5	0.3	5.2	0	100438.3	68
573	5.9	30.9	31.1	0.3	4.8	0	100438.3	68
574	4.9	30.8	30.9	0.3	4.0	0	100438.3	68
575	6.0	32.7	32.9	0.4	5.0	0	100438.4	68
576	5.9	32.8	33.0	0.3	4.9	0	100438.4	68
577	5.3	35.1	35.3	0.3	4.4	0	100438.3	68
578	5.0	32.9	33.2	0.3	4.2	0	100438.2	69
579	5.4	30.3	30.5	0.3	4.4	0	100438.1	69
580	5.2	30.3	30.5	0.2	4.3	0	100437.9	69
581	6.6	31.5	31.7	0.3	5.4	0	100438.1	69

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

Data Point #	Standardized Wind Speed (m/s)	LAeq (as measured)	LAeq (adjusted for windscreen IL)	Rotor RPM	10m Anemometer Wind Speed (m/s)	Air Temperature (-C)	Pressure (Pa)	Relative Humidity (%)
582	6.6	33.6	33.9	0.2	5.4	0	100438.3	69
583	6.7	39.7	40.1	0.3	5.6	0	100438.5	69
584				0.4	5.2	0	100438.4	68
585				0.4	4.5	0	100438.3	68
586	5.2	29.6	29.7	0.3	4.3	0	100438.4	68
587	5.1	32.4	32.6	0.3	4.2	0	100438.2	68
588	5.2	32.4	32.6	0.3	4.3	0	100438.2	68
589	5.4	31.0	31.2	0.2	4.5	0	100438.2	68
590	5.3	32.6	32.9	0.2	4.3	0	100438.3	68
591	6.2	31.2	31.4	0.3	5.2	0	100438.4	68
592	6.3	30.7	30.9	0.3	5.2	0	100438.3	68
593	7.2	30.1	30.3	0.2	5.9	0	100438.3	68
594	6.6	30.1	30.3	0.3	5.5	0	100438.3	68
595	6.5	29.7	29.9	0.3	5.3	0	100438.1	67
596	6.4	29.1	29.2	0.4	5.3	0	100438.2	65
597	6.7	29.8	30.0	0.3	5.6	0	100438.2	65
598	6.2	35.2	35.3	0.3	5.1	0	100438.2	65
599	5.7	38.0	38.2	0.3	4.7	0	100438.4	65
600	6.5	43.0	43.2	0.4	5.4	0	100438.1	65
601				0.4	5.3	0	100443.5	66
602	6.0	34.8	34.9	0.5	5.0	0	100451.7	66
603	5.8	31.1	31.3	0.6	4.8	0	100451.8	66
604	6.6	30.1	30.3	0.6	5.4	0	100451.9	66
605	7.5	29.9	30.1	0.5	6.2	0	100451.9	66
606	9.4	30.2	30.4	0.5	7.7	0	100451.8	66
607	9.6	30.4	30.6	0.6	7.9	0	100446.7	63
608	9.9	30.7	30.9	0.6	8.2	0	100438.3	58
609	9.2	34.9	35.1	0.5	7.6	0	100438.3	58
610	10.0	36.6	36.9	0.5	8.2	0	100438.3	58
611	8.6	35.8	36.1	0.5	7.1	0	100438.4	58
612	8.4	37.0	37.3	0.5	7.0	0	100438.4	58
613	9.1	38.8	39.2	0.6	7.5	0	100438.5	58
614	9.9	36.6	36.9	0.5	8.2	0	100438.5	58
615	9.4	36.2	36.5	0.4	7.7	0	100438.5	58
616	9.9	35.7	36.0	0.4	8.2	0	100438.4	58
617	9.0	36.2	36.5	0.3	7.4	0	100438.3	58
618	9.5	35.8	36.1	0.3	7.8	0	100438.2	58
619	9.3	34.0	34.3	0.3	7.7	0	100438.3	57
620	8.7	32.6	32.8	0.3	7.2	0	100438.4	55
621	8.1	32.0	32.2	0.4	6.7	0	100438.3	55
622	7.7	32.4	32.6	0.4	6.4	0	100438.2	55
623	9.6	32.0	32.1	0.5	7.9	0	100438.1	55
624	9.0	31.0	31.2	0.4	7.4	0	100438.3	55
625	8.3	32.9	33.1	0.3	6.8	0	100439.5	56
626	10.0	32.8	33.0	0.2	8.2	0	100438.3	57
627	10.8	36.9	37.1	0.6	8.9	0	100438.1	57
628	11.3	36.6	36.8	0.7	9.3	0	100438.2	57
629	12.0	37.1	37.3	0.6	9.9	0	100438.1	57
630	10.7	40.1	40.4	0.5	8.8	0	100438.2	57
631	11.2	43.8	44.1	0.6	9.2	0	100438.0	55
632	9.2	41.2	41.5	0.5	7.6	0	100438.1	54
633	8.8	40.9	41.2	0.6	7.3	0	100437.9	54
634	9.2	42.9	43.2	0.7	7.6	0	100438.0	54
635	10.7	39.9	40.2	0.6	8.8	0	100438.0	54
636	8.9	33.7	33.9	0.5	7.3	0	100437.9	54
637	11.1	34.7	35.0	0.4	9.2	0	100439.3	55
638	11.6	37.7	37.9	0.4	9.6	0	100437.9	55
639	12.2	36.1	36.3	0.4	10.1	0	100438.1	55
640	11.1	44.1	44.4	0.4	9.1	0	100438.0	55
641	10.4	42.4	42.5	0.5	8.6	0	100438.0	55
642	10.1	31.4	31.6	0.5	8.4	0	100438.1	55
643	9.6	34.4	34.7	0.5	8.0	0	100448.6	55
644	9.0	34.6	34.9	0.5	7.5	0	100451.6	55
645	8.3	35.4	35.7	0.5	6.8	0	100451.6	55
646	9.4	34.6	34.9	0.5	7.8	0	100451.7	55
647	9.7	33.8	34.1	0.5	8.0	0	100451.5	55
648	10.1	33.7	33.9	0.5	8.3	0	100451.8	55
649	9.4	39.8	40.1	0.5	7.7	0	100451.7	55
650	9.6	38.5	38.8	0.6	7.9	0	100451.6	55
651	9.4	38.1	38.4	0.5	7.8	0	100451.7	55
652	10.0	36.4	36.7	0.6	8.3	0	100451.7	55
653	10.6	39.4	39.7	0.6	8.7	0	100451.6	55
654	10.7	36.5	36.8	0.4	8.9	0	100451.5	55
655	10.6	37.5	37.8	0.4	8.8	0	100451.8	54
656	9.4	40.9	41.2	0.5	7.7	0	100451.7	53
657	9.9	40.5	40.8	0.5	8.2	0	100451.5	53
658	10.0	38.2	38.5	0.5	8.3	0	100451.5	53
659	11.9	43.9	44.2	0.5	9.8	0	100451.5	53
660	11.8	40.9	41.2	0.6	9.7	0	100451.6	53
661	11.3	38.8	39.1	0.5	9.3	0	100442.3	52
662	12.1	40.8	41.1	0.4	9.9	0	100438.1	52
663	12.1	37.9	38.2	0.4	10.0	0	100438.1	52
664	10.3	37.0	37.3	0.6	8.5	0	100438.2	52

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

Data Point #	Standardized Wind Speed (m/s)	LAeq (as measured)	LAeq (adjusted for windscreen IL)	Rotor RPM	10m Anemometer Wind Speed (m/s)	Air Temperature (-C)	Pressure (Pa)	Relative Humidity (%)
665	9.8	38.0	38.3	0.6	8.1	0	100438.1	52
666	9.6	34.4	34.6	0.6	7.9	0	100438.3	52
667	9.9	33.6	33.8	0.5	8.2	0	100464.1	55
668	10.3	35.9	36.2	0.6	8.5	0	100464.7	55
669	10.8	42.3	42.4	0.6	8.9	0	100464.6	55
670	10.9	42.2	42.4	0.5	9.0	0	100464.7	55
671	11.1	40.3	40.6	0.6	9.2	0	100464.5	55
672	10.3	38.0	38.2	0.6	8.5	0	100464.4	55
673	9.3	35.4	35.6	0.5	7.6	0	100464.4	53
674	10.0	35.9	36.1	0.6	8.3	0	100464.4	53
675	11.5	35.7	36.0	0.6	9.5	0	100464.5	53
676	12.1	37.3	37.6	0.5	10.0	0	100464.5	53
677	11.9	40.3	40.7	0.5	9.8	0	100464.6	53
678	11.5	36.6	36.9	0.5	9.5	0	100464.4	53
679	10.5	37.0	37.2	0.5	8.7	0	100464.4	52
680	10.6	43.8	44.1	0.4	8.7	0	100464.3	52
681	10.5	42.6	42.9	0.4	8.7	0	100464.4	52
682	9.6	38.0	38.3	0.4	8.0	0	100464.5	52
683	9.9	38.1	38.4	0.5	8.2	0	100464.5	52

Appendix F
Information for the Regulator

Appendix F.01
Calibration Certificates

ISO17025

As Left RECALIBRATION CERTIFICATE

Sales Region:	NA
Account:	Aercoustics engineering limited
Instrument:	Simcenter SCADAS
Manufacturer:	Siemens Industry Software B.V.
Type:	SCR202
Serial number(s):	22163146
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 23.2°C ± 0.3°C and a relative humidity of 39% ± 5%.
Calibration date:	March 19, 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, March 20 2020

Calibration performed by:

Wilfred Nolles, Customer Service Engineer

Certificate approved by:

F.Lemmens, Production Manager

The Raad voor Accreditatie is one of the signatories of the Multilateral Agreement of the European Cooperation for Accreditation (EA) for the mutual recognition of calibration certificates.

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CALIBRATION RvA K 159

ilac-MRA

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	2019 June, 24
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)			0022163146			
	VD8_E (1)		2016335037	105	0	
	VD8_E (2)		2016335043	105	0	
	SYSCON_REC (3)		2015139002	11	0	
		SYSCPB (0)	2015145002	3	0	
	PS12-2 MOB (4)		2016123030	19	11	

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4 SYSCON_REC_h11s0

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 %).

BW 25k6 **Alternating voltage 3.16V < IR <= 10V** **Spec: <= ±0.100%** **Uncertainty: 530µV**	
Chan	Value
0,x,x,0	0.669 mV, 0.017%
0,x,x,1	0.744 mV, 0.019%

BW 51k2 **Alternating voltage 3.16V < IR <= 10V** **Spec: <= ±0.100%** **Uncertainty: 530µV**	
Chan	Value
0,x,x,0	0.799 mV, 0.020%
0,x,x,1	0.873 mV, 0.022%

BW 102k4 **Not in Scope** **Spec: 1.00000 ±0.10%**	
Chan	Value
0,x,x,0	1.00020, 0.02%
0,x,x,1	1.00021, 0.02%

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5 VD8_E_h105s0

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 %).

AdcBw 25600Hz, Range 10V Alternating voltage 3.16V < IR <= 10V Spec: <= ±0.100% Uncertainty: 530µV	
Chan	Value
0,1,x,0	-0.306 mV, -0.008%
0,1,x,1	-0.301 mV, -0.008%
0,1,x,2	-0.299 mV, -0.007%
0,1,x,3	-0.296 mV, -0.007%
0,1,x,4	-0.298 mV, -0.007%
0,1,x,5	-0.299 mV, -0.007%
0,1,x,6	-0.303 mV, -0.008%
0,1,x,7	-0.303 mV, -0.008%
0,2,x,0	-0.298 mV, -0.007%
0,2,x,1	-0.294 mV, -0.007%
0,2,x,2	-0.297 mV, -0.007%
0,2,x,3	-0.297 mV, -0.007%
0,2,x,4	-0.300 mV, -0.007%
0,2,x,5	-0.309 mV, -0.008%
0,2,x,6	-0.303 mV, -0.008%
0,2,x,7	-0.303 mV, -0.008%

AdcBw 25600Hz, Range 3.16V Alternating voltage 1V < IR <= 3.16V Spec: <= ±0.100% Uncertainty: 310µV	
Chan	Value
0,1,x,0	-0.116 mV, -0.005%
0,1,x,1	-0.113 mV, -0.005%
0,1,x,2	-0.111 mV, -0.005%
0,1,x,3	-0.109 mV, -0.005%
0,1,x,4	-0.111 mV, -0.005%
0,1,x,5	-0.112 mV, -0.005%
0,1,x,6	-0.112 mV, -0.005%
0,1,x,7	-0.112 mV, -0.005%
0,2,x,0	-0.111 mV, -0.005%
0,2,x,1	-0.108 mV, -0.005%
0,2,x,2	-0.110 mV, -0.005%
0,2,x,3	-0.111 mV, -0.005%
0,2,x,4	-0.112 mV, -0.005%
0,2,x,5	-0.118 mV, -0.005%
0,2,x,6	-0.110 mV, -0.005%
0,2,x,7	-0.109 mV, -0.005%

AdcBw 25600Hz, Range 1V Alternating voltage 316mV < IR <= 1V Spec: <= ±0.100% Uncertainty: 120µV	
Chan	Value
0,1,x,0	-0.025 mV, -0.004%
0,1,x,1	-0.024 mV, -0.003%
0,1,x,2	-0.023 mV, -0.003%
0,1,x,3	-0.022 mV, -0.003%
0,1,x,4	-0.024 mV, -0.003%
0,1,x,5	-0.024 mV, -0.003%
0,1,x,6	-0.023 mV, -0.003%
0,1,x,7	-0.023 mV, -0.003%
0,2,x,0	-0.022 mV, -0.003%
0,2,x,1	-0.022 mV, -0.003%
0,2,x,2	-0.022 mV, -0.003%
0,2,x,3	-0.023 mV, -0.003%
0,2,x,4	-0.022 mV, -0.003%
0,2,x,5	-0.025 mV, -0.003%
0,2,x,6	-0.022 mV, -0.003%
0,2,x,7	-0.022 mV, -0.003%

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AdcBw 25600Hz, Range 0.316V
Alternating voltage 100mV < IR <= 316mV
Spec: <= ±0.100%
Uncertainty: 66µV

Chan	Value
0,1,x,0	-0.007 mV, -0.003%
0,1,x,1	-0.007 mV, -0.003%
0,1,x,2	-0.007 mV, -0.003%
0,1,x,3	-0.007 mV, -0.003%
0,1,x,4	-0.007 mV, -0.003%
0,1,x,5	-0.007 mV, -0.003%
0,1,x,6	-0.007 mV, -0.003%
0,1,x,7	-0.007 mV, -0.003%
0,2,x,0	-0.007 mV, -0.003%
0,2,x,1	-0.007 mV, -0.003%
0,2,x,2	-0.007 mV, -0.003%
0,2,x,3	-0.007 mV, -0.003%
0,2,x,4	-0.007 mV, -0.003%
0,2,x,5	-0.007 mV, -0.003%
0,2,x,6	-0.007 mV, -0.003%
0,2,x,7	-0.007 mV, -0.003%

AdcBw 25600Hz, Range 100mV
Not in Scope
Spec: 1.00000 ±0.10%

Chan	Value
0,1,x,0	999.97213m, 0.00%
0,1,x,1	999.97543m, 0.00%
0,1,x,2	999.97596m, 0.00%
0,1,x,3	999.97627m, 0.00%
0,1,x,4	999.97492m, 0.00%
0,1,x,5	999.97341m, 0.00%
0,1,x,6	999.97623m, 0.00%
0,1,x,7	999.97529m, 0.00%
0,2,x,0	999.98069m, 0.00%
0,2,x,1	999.97865m, 0.00%
0,2,x,2	999.97752m, 0.00%
0,2,x,3	999.97830m, 0.00%
0,2,x,4	999.98149m, 0.00%
0,2,x,5	999.97711m, 0.00%
0,2,x,6	999.97876m, 0.00%
0,2,x,7	999.98077m, 0.00%

AdcBw 51200Hz, Range 10V
Alternating voltage 3.16V < IR <= 10V
Spec: <= ±0.100%
Uncertainty: 530µV

Chan	Value
0,1,x,0	-0.182 mV, -0.005%
0,1,x,1	-0.170 mV, -0.004%
0,1,x,2	-0.171 mV, -0.004%
0,1,x,3	-0.164 mV, -0.004%
0,1,x,4	-0.167 mV, -0.004%
0,1,x,5	-0.169 mV, -0.004%
0,1,x,6	-0.167 mV, -0.004%
0,1,x,7	-0.166 mV, -0.004%
0,2,x,0	-0.171 mV, -0.004%
0,2,x,1	-0.169 mV, -0.004%
0,2,x,2	-0.171 mV, -0.004%
0,2,x,3	-0.170 mV, -0.004%
0,2,x,4	-0.156 mV, -0.004%
0,2,x,5	-0.171 mV, -0.004%
0,2,x,6	-0.163 mV, -0.004%
0,2,x,7	-0.159 mV, -0.004%

AdcBw 51200Hz, Range 3.16V
Alternating voltage 1V < IR <= 3.16V
Spec: <= ±0.100%
Uncertainty: 310µV

Chan	Value
0,1,x,0	-0.054 mV, -0.002%
0,1,x,1	-0.049 mV, -0.002%
0,1,x,2	-0.045 mV, -0.002%
0,1,x,3	-0.042 mV, -0.002%
0,1,x,4	-0.045 mV, -0.002%
0,1,x,5	-0.047 mV, -0.002%
0,1,x,6	-0.047 mV, -0.002%
0,1,x,7	-0.046 mV, -0.002%
0,2,x,0	-0.046 mV, -0.002%
0,2,x,1	-0.046 mV, -0.002%
0,2,x,2	-0.048 mV, -0.002%
0,2,x,3	-0.048 mV, -0.002%
0,2,x,4	-0.044 mV, -0.002%
0,2,x,5	-0.050 mV, -0.002%
0,2,x,6	-0.042 mV, -0.002%
0,2,x,7	-0.041 mV, -0.002%

AdcBw 51200Hz, Range 1V
Alternating voltage 316mV < IR <= 1V
Spec: <= ±0.100%
Uncertainty: 120µV

Chan	Value
0,1,x,0	-0.011 mV, -0.001%
0,1,x,1	-0.010 mV, -0.001%
0,1,x,2	-0.010 mV, -0.001%
0,1,x,3	-0.009 mV, -0.001%
0,1,x,4	-0.010 mV, -0.001%
0,1,x,5	-0.010 mV, -0.001%
0,1,x,6	-0.010 mV, -0.001%
0,1,x,7	-0.010 mV, -0.001%
0,2,x,0	-0.009 mV, -0.001%
0,2,x,1	-0.009 mV, -0.001%
0,2,x,2	-0.009 mV, -0.001%
0,2,x,3	-0.009 mV, -0.001%
0,2,x,4	-0.008 mV, -0.001%
0,2,x,5	-0.009 mV, -0.001%
0,2,x,6	-0.007 mV, -0.001%
0,2,x,7	-0.007 mV, -0.001%

AdcBw 51200Hz, Range 0.316V
Alternating voltage 100mV < IR <= 316mV
Spec: <= ±0.100%
Uncertainty: 66µV

Chan	Value
0,1,x,0	-0.005 mV, -0.002%
0,1,x,1	-0.005 mV, -0.002%
0,1,x,2	-0.005 mV, -0.002%
0,1,x,3	-0.005 mV, -0.002%
0,1,x,4	-0.005 mV, -0.002%
0,1,x,5	-0.005 mV, -0.002%
0,1,x,6	-0.005 mV, -0.002%
0,1,x,7	-0.005 mV, -0.002%
0,2,x,0	-0.004 mV, -0.002%
0,2,x,1	-0.004 mV, -0.002%
0,2,x,2	-0.004 mV, -0.002%
0,2,x,3	-0.004 mV, -0.002%
0,2,x,4	-0.004 mV, -0.002%
0,2,x,5	-0.004 mV, -0.002%
0,2,x,6	-0.004 mV, -0.002%
0,2,x,7	-0.004 mV, -0.002%

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AdcBw 51200Hz, Range 100mV
Not in Scope
Spec: 1.00000 ±0.10%

Chan	Value
0,1,x,0	999.97764m, 0.00%
0,1,x,1	999.97874m, 0.00%
0,1,x,2	999.97774m, 0.00%
0,1,x,3	999.97792m, 0.00%
0,1,x,4	999.97859m, 0.00%
0,1,x,5	999.97759m, 0.00%
0,1,x,6	999.97677m, 0.00%
0,1,x,7	999.97949m, 0.00%
0,2,x,0	999.98480m, 0.00%
0,2,x,1	999.98321m, 0.00%
0,2,x,2	999.98022m, 0.00%
0,2,x,3	999.98122m, 0.00%
0,2,x,4	999.98444m, 0.00%
0,2,x,5	999.98320m, 0.00%
0,2,x,6	999.98367m, 0.00%
0,2,x,7	999.98347m, 0.00%

AdcBw 102400Hz, Range 10V
Alternating voltage 3.16V < IR <= 10V
Spec: <= ±0.100%
Uncertainty: 530µV

Chan	Value
0,1,x,0	-0.061 mV, -0.002%
0,1,x,1	-0.064 mV, -0.002%
0,1,x,2	-0.061 mV, -0.002%
0,1,x,3	-0.063 mV, -0.002%
0,1,x,4	-0.059 mV, -0.001%
0,1,x,5	-0.058 mV, -0.001%
0,1,x,6	-0.062 mV, -0.002%
0,1,x,7	-0.063 mV, -0.002%
0,2,x,0	-0.059 mV, -0.001%
0,2,x,1	-0.060 mV, -0.002%
0,2,x,2	-0.063 mV, -0.002%
0,2,x,3	-0.062 mV, -0.002%
0,2,x,4	-0.060 mV, -0.001%
0,2,x,5	-0.060 mV, -0.002%
0,2,x,6	-0.053 mV, -0.001%
0,2,x,7	-0.050 mV, -0.001%

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

Chan	Value
0,1,x,0	-0.013 mV, -0.001%
0,1,x,1	-0.016 mV, -0.001%
0,1,x,2	-0.016 mV, -0.001%
0,1,x,3	-0.017 mV, -0.001%
0,1,x,4	-0.014 mV, -0.001%
0,1,x,5	-0.013 mV, -0.001%
0,1,x,6	-0.021 mV, -0.001%
0,1,x,7	-0.020 mV, -0.001%
0,2,x,0	-0.017 mV, -0.001%
0,2,x,1	-0.019 mV, -0.001%
0,2,x,2	-0.017 mV, -0.001%
0,2,x,3	-0.018 mV, -0.001%
0,2,x,4	-0.015 mV, -0.001%
0,2,x,5	-0.012 mV, -0.001%
0,2,x,6	-0.012 mV, -0.001%
0,2,x,7	-0.012 mV, -0.001%

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

Chan	Value
0,1,x,0	-0.005 mV, -0.001%
0,1,x,1	-0.007 mV, -0.001%
0,1,x,2	-0.006 mV, -0.001%
0,1,x,3	-0.007 mV, -0.001%
0,1,x,4	-0.007 mV, -0.001%
0,1,x,5	-0.007 mV, -0.001%
0,1,x,6	-0.008 mV, -0.001%
0,1,x,7	-0.008 mV, -0.001%
0,2,x,0	-0.005 mV, -0.001%
0,2,x,1	-0.005 mV, -0.001%
0,2,x,2	-0.006 mV, -0.001%
0,2,x,3	-0.007 mV, -0.001%
0,2,x,4	-0.005 mV, -0.001%
0,2,x,5	-0.003 mV, -0.000%
0,2,x,6	-0.005 mV, -0.001%
0,2,x,7	-0.005 mV, -0.001%

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

Chan	Value
0,1,x,0	-0.002 mV, -0.001%
0,1,x,1	-0.003 mV, -0.001%
0,1,x,2	-0.003 mV, -0.001%
0,1,x,3	-0.003 mV, -0.001%
0,1,x,4	-0.003 mV, -0.001%
0,1,x,5	-0.003 mV, -0.001%
0,1,x,6	-0.004 mV, -0.002%
0,1,x,7	-0.004 mV, -0.002%
0,2,x,0	-0.002 mV, -0.001%
0,2,x,1	-0.002 mV, -0.001%
0,2,x,2	-0.003 mV, -0.001%
0,2,x,3	-0.003 mV, -0.001%
0,2,x,4	-0.002 mV, -0.001%
0,2,x,5	-0.001 mV, -0.001%
0,2,x,6	-0.002 mV, -0.001%
0,2,x,7	-0.003 mV, -0.001%

AdcBw 102400Hz, Range 100mV
Not in Scope
Spec: 1.00000 ±0.10%

Chan	Value
0,1,x,0	999.99559m, 0.00%
0,1,x,1	999.98981m, 0.00%
0,1,x,2	999.99153m, 0.00%
0,1,x,3	999.98896m, 0.00%
0,1,x,4	999.98895m, 0.00%
0,1,x,5	999.99023m, 0.00%
0,1,x,6	999.98544m, 0.00%
0,1,x,7	999.98629m, 0.00%
0,2,x,0	999.99521m, 0.00%
0,2,x,1	999.99225m, 0.00%
0,2,x,2	999.98926m, 0.00%
0,2,x,3	999.98988m, 0.00%
0,2,x,4	999.99199m, 0.00%
0,2,x,5	1.00000, 0.00%
0,2,x,6	999.99145m, 0.00%
0,2,x,7	999.98793m, 0.00%

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5.2 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 100mV Direct voltage IR <= 316mV Spec: <= ±0.100 mV Uncertainty: 4.8µV	
Chan	Value
0,1,x,0	-0.041 mV
0,1,x,1	-0.043 mV
0,1,x,2	-0.046 mV
0,1,x,3	0.002 mV
0,1,x,4	0.028 mV
0,1,x,5	0.032 mV
0,1,x,6	0.043 mV
0,1,x,7	0.042 mV
0,2,x,0	0.046 mV
0,2,x,1	0.040 mV
0,2,x,2	0.048 mV
0,2,x,3	0.037 mV
0,2,x,4	-0.010 mV
0,2,x,5	-0.052 mV
0,2,x,6	-0.037 mV
0,2,x,7	-0.048 mV

AdcBw 102400Hz, Range 1V Direct voltage 316mV < IR <= 1V Spec: <= ±1.000 mV Uncertainty: 5.2µV	
Chan	Value
0,1,x,0	-0.036 mV
0,1,x,1	-0.034 mV
0,1,x,2	-0.038 mV
0,1,x,3	-0.002 mV
0,1,x,4	0.030 mV
0,1,x,5	0.023 mV
0,1,x,6	0.034 mV
0,1,x,7	0.035 mV
0,2,x,0	0.042 mV
0,2,x,1	0.032 mV
0,2,x,2	0.041 mV
0,2,x,3	0.031 mV
0,2,x,4	-0.004 mV
0,2,x,5	-0.042 mV
0,2,x,6	-0.029 mV
0,2,x,7	-0.040 mV

AdcBw 102400Hz, Range 10V Direct voltage 3.16V < IR <= 10V Spec: <= ±10.000 mV Uncertainty: 21µV	
Chan	Value
0,1,x,0	-0.051 mV
0,1,x,1	-0.028 mV
0,1,x,2	-0.007 mV
0,1,x,3	-0.031 mV
0,1,x,4	0.057 mV
0,1,x,5	0.046 mV
0,1,x,6	0.038 mV
0,1,x,7	0.015 mV
0,2,x,0	0.059 mV
0,2,x,1	0.027 mV
0,2,x,2	0.086 mV
0,2,x,3	0.003 mV
0,2,x,4	0.044 mV
0,2,x,5	-0.034 mV
0,2,x,6	-0.004 mV
0,2,x,7	-0.041 mV

AdcBw 51200Hz, Range 0.316V Direct voltage IR <= 316mV Spec: <= ±0.316 mV Uncertainty: 4.8µV	
Chan	Value
0,1,x,0	-0.024 mV
0,1,x,1	-0.025 mV
0,1,x,2	-0.025 mV
0,1,x,3	0.005 mV
0,1,x,4	0.021 mV
0,1,x,5	0.020 mV
0,1,x,6	0.029 mV
0,1,x,7	0.026 mV
0,2,x,0	0.034 mV
0,2,x,1	0.023 mV
0,2,x,2	0.030 mV
0,2,x,3	0.025 mV
0,2,x,4	-0.002 mV
0,2,x,5	-0.031 mV
0,2,x,6	-0.022 mV
0,2,x,7	-0.033 mV

AdcBw 102400Hz, Range 0.316V Direct voltage IR <= 316mV Spec: <= ±0.316 mV Uncertainty: 4.8µV	
Chan	Value
0,1,x,0	-0.036 mV
0,1,x,1	-0.038 mV
0,1,x,2	-0.042 mV
0,1,x,3	0.000 mV
0,1,x,4	0.028 mV
0,1,x,5	0.028 mV
0,1,x,6	0.037 mV
0,1,x,7	0.038 mV
0,2,x,0	0.043 mV
0,2,x,1	0.037 mV
0,2,x,2	0.044 mV
0,2,x,3	0.035 mV
0,2,x,4	-0.007 mV
0,2,x,5	-0.045 mV
0,2,x,6	-0.032 mV
0,2,x,7	-0.045 mV

AdcBw 102400Hz, Range 3.16V Direct voltage 1V < IR <= 3.16V Spec: <= ±3.160 mV Uncertainty: 8µV	
Chan	Value
0,1,x,0	-0.040 mV
0,1,x,1	-0.026 mV
0,1,x,2	-0.028 mV
0,1,x,3	-0.013 mV
0,1,x,4	0.039 mV
0,1,x,5	0.029 mV
0,1,x,6	0.038 mV
0,1,x,7	0.027 mV
0,2,x,0	0.049 mV
0,2,x,1	0.029 mV
0,2,x,2	0.046 mV
0,2,x,3	0.018 mV
0,2,x,4	0.013 mV
0,2,x,5	-0.040 mV
0,2,x,6	-0.022 mV
0,2,x,7	-0.039 mV

AdcBw 51200Hz, Range 100mV Direct voltage IR <= 316mV Spec: <= ±0.100 mV Uncertainty: 4.8µV	
Chan	Value
0,1,x,0	-0.026 mV
0,1,x,1	-0.026 mV
0,1,x,2	-0.028 mV
0,1,x,3	0.004 mV
0,1,x,4	0.022 mV
0,1,x,5	0.017 mV
0,1,x,6	0.028 mV
0,1,x,7	0.027 mV
0,2,x,0	0.037 mV
0,2,x,1	0.026 mV
0,2,x,2	0.032 mV
0,2,x,3	0.027 mV
0,2,x,4	-0.003 mV
0,2,x,5	-0.033 mV
0,2,x,6	-0.023 mV
0,2,x,7	-0.034 mV

AdcBw 51200Hz, Range 1V Direct voltage 316mV < IR <= 1V Spec: <= ±1.000 mV Uncertainty: 5.2µV	
Chan	Value
0,1,x,0	-0.021 mV
0,1,x,1	-0.023 mV
0,1,x,2	-0.022 mV
0,1,x,3	0.002 mV
0,1,x,4	0.022 mV
0,1,x,5	0.016 mV
0,1,x,6	0.026 mV
0,1,x,7	0.022 mV
0,2,x,0	0.027 mV
0,2,x,1	0.023 mV
0,2,x,2	0.032 mV
0,2,x,3	0.021 mV
0,2,x,4	-0.001 mV
0,2,x,5	-0.029 mV
0,2,x,6	-0.023 mV
0,2,x,7	-0.031 mV

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AdcBw 51200Hz, Range 3.16V Direct voltage 1V < IR <= 3.16V Spec: <= ±3.160 mV Uncertainty: 8µV	
Chan	Value
0,1,x,0	-0.023 mV
0,1,x,1	-0.028 mV
0,1,x,2	-0.017 mV
0,1,x,3	0.003 mV
0,1,x,4	0.036 mV
0,1,x,5	0.021 mV
0,1,x,6	0.028 mV
0,1,x,7	0.021 mV
0,2,x,0	0.021 mV
0,2,x,1	0.030 mV
0,2,x,2	0.036 mV
0,2,x,3	0.019 mV
0,2,x,4	0.000 mV
0,2,x,5	-0.029 mV
0,2,x,6	-0.018 mV
0,2,x,7	-0.024 mV

AdcBw 25600Hz, Range 100mV Direct voltage IR <= 316mV Spec: <= ±0.100 mV Uncertainty: 4.8µV	
Chan	Value
0,1,x,0	-0.017 mV
0,1,x,1	-0.021 mV
0,1,x,2	-0.019 mV
0,1,x,3	0.004 mV
0,1,x,4	0.013 mV
0,1,x,5	0.019 mV
0,1,x,6	0.022 mV
0,1,x,7	0.021 mV
0,2,x,0	0.026 mV
0,2,x,1	0.018 mV
0,2,x,2	0.023 mV
0,2,x,3	0.019 mV
0,2,x,4	-0.001 mV
0,2,x,5	-0.026 mV
0,2,x,6	-0.019 mV
0,2,x,7	-0.024 mV

AdcBw 25600Hz, Range 1V Direct voltage 316mV < IR <= 1V Spec: <= ±1.000 mV Uncertainty: 5.2µV	
Chan	Value
0,1,x,0	-0.015 mV
0,1,x,1	-0.018 mV
0,1,x,2	-0.014 mV
0,1,x,3	0.001 mV
0,1,x,4	0.012 mV
0,1,x,5	0.019 mV
0,1,x,6	0.018 mV
0,1,x,7	0.018 mV
0,2,x,0	0.026 mV
0,2,x,1	0.019 mV
0,2,x,2	0.024 mV
0,2,x,3	0.016 mV
0,2,x,4	-0.003 mV
0,2,x,5	-0.023 mV
0,2,x,6	-0.021 mV
0,2,x,7	-0.020 mV

AdcBw 25600Hz, Range 10V Direct voltage 3.16V < IR <= 10V Spec: <= ±10.000 mV Uncertainty: 21µV	
Chan	Value
0,1,x,0	0.021 mV
0,1,x,1	0.007 mV
0,1,x,2	-0.011 mV
0,1,x,3	-0.045 mV
0,1,x,4	0.043 mV
0,1,x,5	0.028 mV
0,1,x,6	0.018 mV
0,1,x,7	0.006 mV
0,2,x,0	0.040 mV
0,2,x,1	0.044 mV
0,2,x,2	0.061 mV
0,2,x,3	0.017 mV
0,2,x,4	0.013 mV
0,2,x,5	-0.063 mV
0,2,x,6	-0.004 mV
0,2,x,7	-0.018 mV

AdcBw 51200Hz, Range 10V Direct voltage 3.16V < IR <= 10V Spec: <= ±10.000 mV Uncertainty: 21µV	
Chan	Value
0,1,x,0	-0.014 mV
0,1,x,1	-0.047 mV
0,1,x,2	-0.023 mV
0,1,x,3	-0.008 mV
0,1,x,4	0.054 mV
0,1,x,5	0.024 mV
0,1,x,6	0.019 mV
0,1,x,7	0.005 mV
0,2,x,0	0.044 mV
0,2,x,1	0.048 mV
0,2,x,2	0.074 mV
0,2,x,3	0.017 mV
0,2,x,4	0.011 mV
0,2,x,5	-0.039 mV
0,2,x,6	-0.019 mV
0,2,x,7	-0.028 mV

AdcBw 25600Hz, Range 0.316V Direct voltage IR <= 316mV Spec: <= ±0.316 mV Uncertainty: 4.8µV	
Chan	Value
0,1,x,0	-0.016 mV
0,1,x,1	-0.017 mV
0,1,x,2	-0.018 mV
0,1,x,3	0.005 mV
0,1,x,4	0.012 mV
0,1,x,5	0.016 mV
0,1,x,6	0.021 mV
0,1,x,7	0.019 mV
0,2,x,0	0.026 mV
0,2,x,1	0.019 mV
0,2,x,2	0.021 mV
0,2,x,3	0.019 mV
0,2,x,4	-0.001 mV
0,2,x,5	-0.024 mV
0,2,x,6	-0.019 mV
0,2,x,7	-0.024 mV

AdcBw 25600Hz, Range 3.16V Direct voltage 1V < IR <= 3.16V Spec: <= ±3.160 mV Uncertainty: 8µV	
Chan	Value
0,1,x,0	-0.010 mV
0,1,x,1	-0.013 mV
0,1,x,2	-0.020 mV
0,1,x,3	-0.011 mV
0,1,x,4	0.015 mV
0,1,x,5	0.029 mV
0,1,x,6	0.019 mV
0,1,x,7	0.017 mV
0,2,x,0	0.029 mV
0,2,x,1	0.027 mV
0,2,x,2	0.035 mV
0,2,x,3	0.016 mV
0,2,x,4	0.007 mV
0,2,x,5	-0.018 mV
0,2,x,6	-0.014 mV
0,2,x,7	-0.019 mV

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5.3 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: <= -84.0dB** **Uncertainty: 2.6µV**	
Chan	Value
0,1,x,0	36.622 µV, -100.8dB
0,1,x,1	35.992 µV, -100.9dB
0,1,x,2	35.525 µV, -101.0dB
0,1,x,3	33.854 µV, -101.4dB
0,1,x,4	35.742 µV, -101.0dB
0,1,x,5	34.835 µV, -101.2dB
0,1,x,6	37.716 µV, -100.5dB
0,1,x,7	34.399 µV, -101.3dB
0,2,x,0	34.579 µV, -101.3dB
0,2,x,1	33.535 µV, -101.5dB
0,2,x,2	34.808 µV, -101.2dB
0,2,x,3	34.715 µV, -101.2dB
0,2,x,4	34.490 µV, -101.3dB
0,2,x,5	31.981 µV, -101.9dB
0,2,x,6	34.863 µV, -101.2dB
0,2,x,7	33.132 µV, -101.6dB

Range 0.1V **Not in Scope** **Spec: <= -87.00dB**	
Chan	Value
0,1,x,0	-89.203dB
0,1,x,1	-89.051dB
0,1,x,2	-88.437dB
0,1,x,3	-88.741dB
0,1,x,4	-88.957dB
0,1,x,5	-88.812dB
0,1,x,6	-88.691dB
0,1,x,7	-88.678dB
0,2,x,0	-88.385dB
0,2,x,1	-88.699dB
0,2,x,2	-88.663dB
0,2,x,3	-88.690dB
0,2,x,4	-88.525dB
0,2,x,5	-89.050dB
0,2,x,6	-88.628dB
0,2,x,7	-88.741dB

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5.4 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: < 310.8100µVrms

Chan	Value
0,1,x,0	220.6675µVrms
0,1,x,1	217.3819µVrms
0,1,x,2	217.7036µVrms
0,1,x,3	218.1614µVrms
0,1,x,4	217.9281µVrms
0,1,x,5	220.3957µVrms
0,1,x,6	221.5960µVrms
0,1,x,7	217.4676µVrms
0,2,x,0	216.8222µVrms
0,2,x,1	220.2675µVrms
0,2,x,2	215.1022µVrms
0,2,x,3	218.7329µVrms
0,2,x,4	224.1327µVrms
0,2,x,5	219.8326µVrms
0,2,x,6	220.1368µVrms
0,2,x,7	232.7214µVrms

Range 10V, Bw 40kHz
Not in Scope
Spec: < 51.4400µVrms

Chan	Value
0,1,x,0	35.3682µVrms
0,1,x,1	35.5294µVrms
0,1,x,2	35.7212µVrms
0,1,x,3	35.1128µVrms
0,1,x,4	35.0599µVrms
0,1,x,5	35.0845µVrms
0,1,x,6	35.5788µVrms
0,1,x,7	35.4097µVrms
0,2,x,0	35.4926µVrms
0,2,x,1	36.2474µVrms
0,2,x,2	35.2704µVrms
0,2,x,3	35.9327µVrms
0,2,x,4	36.2173µVrms
0,2,x,5	34.9887µVrms
0,2,x,6	35.4972µVrms
0,2,x,7	37.5537µVrms

Range 10V, Bw 20kHz
Noise 3.16V < IR <= 10V
Spec: <= 34.760 µV
Uncertainty: 3.4nV

Chan	Value
0,1,x,0	24.434 µV
0,1,x,1	24.410 µV
0,1,x,2	24.547 µV
0,1,x,3	24.527 µV
0,1,x,4	24.626 µV
0,1,x,5	24.091 µV
0,1,x,6	24.198 µV
0,1,x,7	24.768 µV
0,2,x,0	24.570 µV
0,2,x,1	24.404 µV
0,2,x,2	24.336 µV
0,2,x,3	24.659 µV
0,2,x,4	24.932 µV
0,2,x,5	24.173 µV
0,2,x,6	24.380 µV
0,2,x,7	24.536 µV

Range 0.1V, Bw 80kHz
Not in Scope
Spec: < 8.3400µVrms

Chan	Value
0,1,x,0	5.9843µVrms
0,1,x,1	6.0118µVrms
0,1,x,2	6.0031µVrms
0,1,x,3	6.0483µVrms
0,1,x,4	6.0325µVrms
0,1,x,5	6.0168µVrms
0,1,x,6	6.0204µVrms
0,1,x,7	5.9912µVrms
0,2,x,0	5.9769µVrms
0,2,x,1	5.9973µVrms
0,2,x,2	5.9937µVrms
0,2,x,3	5.9933µVrms
0,2,x,4	6.0133µVrms
0,2,x,5	6.0103µVrms
0,2,x,6	6.0326µVrms
0,2,x,7	6.0268µVrms

Range 0.1V, Bw 40kHz
Not in Scope
Spec: < 5.6900µVrms

Chan	Value
0,1,x,0	4.0033µVrms
0,1,x,1	4.0270µVrms
0,1,x,2	4.0273µVrms
0,1,x,3	4.0522µVrms
0,1,x,4	4.0380µVrms
0,1,x,5	4.0183µVrms
0,1,x,6	4.0318µVrms
0,1,x,7	4.0083µVrms
0,2,x,0	4.0045µVrms
0,2,x,1	4.0144µVrms
0,2,x,2	4.0175µVrms
0,2,x,3	3.9978µVrms
0,2,x,4	4.0405µVrms
0,2,x,5	4.0092µVrms
0,2,x,6	4.0386µVrms
0,2,x,7	4.0002µVrms

Range 0.1V, Bw 20kHz
Noise IR <= 316mV
Spec: <= 4.220 µV
Uncertainty: 2.0nV

Chan	Value
0,1,x,0	2.843 µV
0,1,x,1	2.858 µV
0,1,x,2	2.853 µV
0,1,x,3	2.877 µV
0,1,x,4	2.865 µV
0,1,x,5	2.851 µV
0,1,x,6	2.862 µV
0,1,x,7	2.844 µV
0,2,x,0	2.841 µV
0,2,x,1	2.859 µV
0,2,x,2	2.848 µV
0,2,x,3	2.846 µV
0,2,x,4	2.886 µV
0,2,x,5	2.856 µV
0,2,x,6	2.861 µV
0,2,x,7	2.842 µV

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5.5 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: < 38.1000µV

Chan	Value
0,1,x,0	21.1850µV
0,1,x,1	18.5473µV
0,1,x,2	18.4589µV
0,1,x,3	16.7350µV
0,1,x,4	22.1695µV
0,1,x,5	18.3014µV
0,1,x,6	19.4939µV
0,1,x,7	20.7419µV
0,2,x,0	18.3370µV
0,2,x,1	17.2406µV
0,2,x,2	18.4153µV
0,2,x,3	20.0543µV
0,2,x,4	17.9125µV
0,2,x,5	18.4839µV
0,2,x,6	20.5611µV
0,2,x,7	20.0907µV

Range 10V, Bw 40kHz
Not in Scope
Spec: < 3.5000µV

Chan	Value
0,1,x,0	1.6754µV
0,1,x,1	1.7925µV
0,1,x,2	1.6789µV
0,1,x,3	1.5581µV
0,1,x,4	2.1757µV
0,1,x,5	1.6368µV
0,1,x,6	1.6973µV
0,1,x,7	2.3862µV
0,2,x,0	2.0351µV
0,2,x,1	2.0599µV
0,2,x,2	1.9031µV
0,2,x,3	2.1143µV
0,2,x,4	2.1925µV
0,2,x,5	1.8371µV
0,2,x,6	1.8516µV
0,2,x,7	2.0196µV

Range 10V, Bw 20kHz
Spurious 3.16V < IR <= 10V
Spec: <= 2.500 µV
Uncertainty: 3.4nV

Chan	Value
0,1,x,0	1.651 µV
0,1,x,1	1.642 µV
0,1,x,2	1.722 µV
0,1,x,3	1.239 µV
0,1,x,4	1.560 µV
0,1,x,5	1.386 µV
0,1,x,6	1.663 µV
0,1,x,7	1.326 µV
0,2,x,0	1.723 µV
0,2,x,1	1.510 µV
0,2,x,2	1.641 µV
0,2,x,3	1.156 µV
0,2,x,4	1.465 µV
0,2,x,5	1.314 µV
0,2,x,6	1.490 µV
0,2,x,7	1.367 µV

ICP
Not in Scope
Spec: < 3.5000µVp

Chan	Value
0,1,x,0	0.1280µVp
0,1,x,1	0.1196µVp
0,1,x,2	0.1111µVp
0,1,x,3	0.1225µVp
0,1,x,4	0.1112µVp
0,1,x,5	0.1213µVp
0,1,x,6	0.1207µVp
0,1,x,7	0.1306µVp
0,2,x,0	0.1275µVp
0,2,x,1	0.1119µVp
0,2,x,2	0.1244µVp
0,2,x,3	0.1266µVp
0,2,x,4	0.1202µVp
0,2,x,5	0.1221µVp
0,2,x,6	0.1167µVp
0,2,x,7	0.1294µVp

Range 0.1V, Bw 80kHz
Not in Scope
Spec: < 0.6000µV

Chan	Value
0,1,x,0	0.2548µV
0,1,x,1	0.2419µV
0,1,x,2	0.2875µV
0,1,x,3	0.2434µV
0,1,x,4	0.2747µV
0,1,x,5	0.2431µV
0,1,x,6	0.2319µV
0,1,x,7	0.2501µV
0,2,x,0	0.2808µV
0,2,x,1	0.2527µV
0,2,x,2	0.2719µV
0,2,x,3	0.2895µV
0,2,x,4	0.2490µV
0,2,x,5	0.2567µV
0,2,x,6	0.2623µV
0,2,x,7	0.2428µV

Range 0.1V, Bw 40kHz
Not in Scope
Spec: < 0.4000µV

Chan	Value
0,1,x,0	0.1668µV
0,1,x,1	0.1752µV
0,1,x,2	0.1550µV
0,1,x,3	0.1586µV
0,1,x,4	0.1483µV
0,1,x,5	0.1518µV
0,1,x,6	0.1838µV
0,1,x,7	0.1670µV
0,2,x,0	0.1565µV
0,2,x,1	0.1721µV
0,2,x,2	0.1630µV
0,2,x,3	0.1447µV
0,2,x,4	0.1488µV
0,2,x,5	0.1649µV
0,2,x,6	0.1743µV
0,2,x,7	0.1541µV

Range 0.1V, Bw 20kHz
Spurious IR <= 316mV
Spec: <= 0.300 µV
Uncertainty: 2.0nV

Chan	Value
0,1,x,0	0.108 µV
0,1,x,1	0.106 µV
0,1,x,2	0.117 µV
0,1,x,3	0.109 µV
0,1,x,4	0.102 µV
0,1,x,5	0.109 µV
0,1,x,6	0.110 µV
0,1,x,7	0.114 µV
0,2,x,0	0.129 µV
0,2,x,1	0.109 µV
0,2,x,2	0.108 µV
0,2,x,3	0.114 µV
0,2,x,4	0.113 µV
0,2,x,5	0.104 µV
0,2,x,6	0.125 µV
0,2,x,7	0.104 µV

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5.6 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 0.1V, F 1K5 **Not in Scope** **Spec: <= -94.00dB**	
Chan	Value
0,1,x,0	-107.615dB
0,1,x,1	-107.175dB
0,1,x,2	-107.265dB
0,1,x,3	-107.360dB
0,1,x,4	-107.302dB
0,1,x,5	-107.262dB
0,1,x,6	-107.349dB
0,1,x,7	-107.740dB
0,2,x,0	-107.670dB
0,2,x,1	-107.194dB
0,2,x,2	-107.181dB
0,2,x,3	-107.303dB
0,2,x,4	-107.220dB
0,2,x,5	-107.170dB
0,2,x,6	-107.262dB
0,2,x,7	-107.654dB

Range 0.1V, F 15K **Not in Scope** **Spec: <= -74.00dB**	
Chan	Value
0,1,x,0	-87.103dB
0,1,x,1	-86.858dB
0,1,x,2	-86.749dB
0,1,x,3	-86.771dB
0,1,x,4	-86.802dB
0,1,x,5	-86.772dB
0,1,x,6	-86.815dB
0,1,x,7	-87.184dB
0,2,x,0	-87.057dB
0,2,x,1	-86.755dB
0,2,x,2	-86.705dB
0,2,x,3	-86.795dB
0,2,x,4	-86.804dB
0,2,x,5	-86.814dB
0,2,x,6	-86.753dB
0,2,x,7	-87.258dB

Range 10V, F 1K5 **Crosstalk 3.16V < IR <= 10V** **Spec: <= -92.0dB** **Uncertainty: 1.3µV**	
Chan	Value
0,1,x,0	2.817 µV, -105.0dB
0,1,x,1	1.932 µV, -108.3dB
0,1,x,2	3.035 µV, -104.3dB
0,1,x,3	2.296 µV, -106.8dB
0,1,x,4	3.174 µV, -103.9dB
0,1,x,5	2.309 µV, -106.7dB
0,1,x,6	2.885 µV, -104.8dB
0,1,x,7	1.932 µV, -108.3dB
0,2,x,0	2.863 µV, -104.8dB
0,2,x,1	2.286 µV, -106.8dB
0,2,x,2	2.771 µV, -105.1dB
0,2,x,3	2.387 µV, -106.4dB
0,2,x,4	3.149 µV, -104.0dB
0,2,x,5	2.138 µV, -107.4dB
0,2,x,6	3.591 µV, -102.9dB
0,2,x,7	2.537 µV, -105.9dB

Range 10V, F 15K **Crosstalk 3.16V < IR <= 10V** **Spec: <= -73.0dB** **Uncertainty: 1.3µV**	
Chan	Value
0,1,x,0	22.625 µV, -86.9dB
0,1,x,1	24.099 µV, -86.3dB
0,1,x,2	24.951 µV, -86.0dB
0,1,x,3	24.755 µV, -86.1dB
0,1,x,4	24.570 µV, -86.2dB
0,1,x,5	24.853 µV, -86.1dB
0,1,x,6	24.307 µV, -86.3dB
0,1,x,7	22.909 µV, -86.8dB
0,2,x,0	22.672 µV, -86.9dB
0,2,x,1	24.384 µV, -86.2dB
0,2,x,2	24.804 µV, -86.1dB
0,2,x,3	24.288 µV, -86.3dB
0,2,x,4	24.430 µV, -86.2dB
0,2,x,5	24.290 µV, -86.3dB
0,2,x,6	24.956 µV, -86.0dB
0,2,x,7	22.742 µV, -86.8dB

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5.7 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: < 0.4000°**	
Chan	Value
0,1,x,0	0.0576°
0,1,x,1	0.0849°
0,1,x,2	0.0654°
0,1,x,3	0.0585°
0,1,x,4	0.1078°
0,1,x,5	0.0947°
0,1,x,6	0.0929°
0,1,x,7	0.0619°
0,2,x,0	0.0832°
0,2,x,1	0.0756°
0,2,x,2	0.0700°
0,2,x,3	0.0945°
0,2,x,4	0.0760°
0,2,x,5	0.0767°
0,2,x,6	0.1078°
0,2,x,7	0.0641°

Range 10V, F 19k9 **Not in Scope** **Spec: < 0.5500°**	
Chan	Value
0,1,x,0	0.1154°
0,1,x,1	0.1881°
0,1,x,2	0.1126°
0,1,x,3	0.1288°
0,1,x,4	0.2237°
0,1,x,5	0.2103°
0,1,x,6	0.1958°
0,1,x,7	0.1223°
0,2,x,0	0.1644°
0,2,x,1	0.1466°
0,2,x,2	0.1303°
0,2,x,3	0.1657°
0,2,x,4	0.1305°
0,2,x,5	0.1608°
0,2,x,6	0.2237°
0,2,x,7	0.1443°

Range 0.1V, F 9k9 **Not in Scope** **Spec: < 0.4000°**	
Chan	Value
0,1,x,0	0.0660°
0,1,x,1	0.0620°
0,1,x,2	0.0699°
0,1,x,3	0.0621°
0,1,x,4	0.1215°
0,1,x,5	0.0823°
0,1,x,6	0.0724°
0,1,x,7	0.0703°
0,2,x,0	0.0856°
0,2,x,1	0.0842°
0,2,x,2	0.0851°
0,2,x,3	0.0852°
0,2,x,4	0.0827°
0,2,x,5	0.0831°
0,2,x,6	0.1215°
0,2,x,7	0.0629°

Range 0.1V, F 19k9 **Not in Scope** **Spec: < 0.5500°**	
Chan	Value
0,1,x,0	0.1476°
0,1,x,1	0.1310°
0,1,x,2	0.1265°
0,1,x,3	0.1287°
0,1,x,4	0.2458°
0,1,x,5	0.1869°
0,1,x,6	0.1519°
0,1,x,7	0.1303°
0,2,x,0	0.1662°
0,2,x,1	0.1578°
0,2,x,2	0.1542°
0,2,x,3	0.1438°
0,2,x,4	0.1400°
0,2,x,5	0.1703°
0,2,x,6	0.2458°
0,2,x,7	0.1414°

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West Caldwell Calibration Laboratories Inc.

Certificate of Calibration

for

MICROPHONE UNIT

Manufactured by:	BRUEL & KJAER
Model No:	4189-A-021 (ID#00359)
Serial No:	2622169
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 -2

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.

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 Microphone Unit

Model No.: 4189-A-021 — **Serial No.: 2622169**
Mic. Model No.: 4189 — **Serial No.: 2625417**
Preamp. Model No.: 2671 — **Serial No.: 2614900**
Company: Aercoustics Engineering Ltd. — **I. D. No.: 00359**

Calibration results:

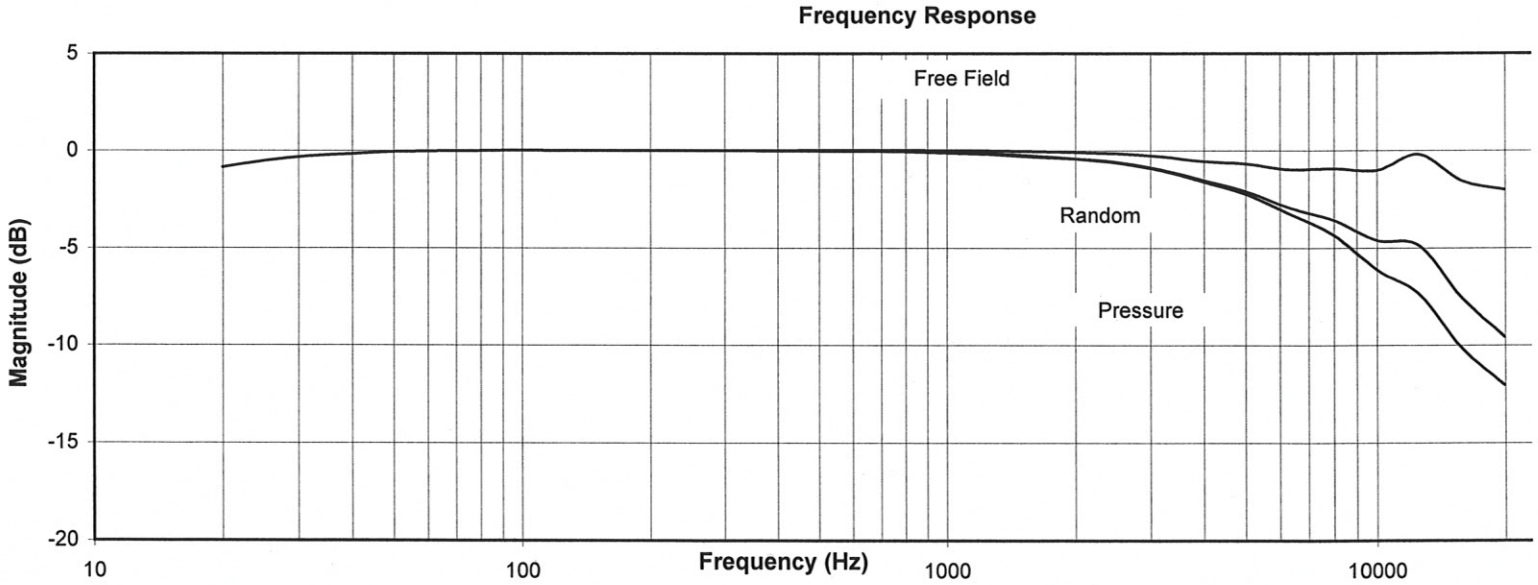
Before & after data same: ...X...

Combined Sensitivity @ 250 Hz and pressure of 100.08 kPa
(Sens. with mic. and preamp.) **0** Volts Polarization voltage (External):
-26.48 dB re.1V/Pascal
47.42 mV/Pascal
0.48 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 -2	
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.



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.: 2622169**
Company: Aercoustics Engineering Ltd. **I. D. No.: 00359**

Frequency Response (Reference = 0 dB @ 250Hz)

Frequency [Hz]	Pressure [dB]	Free Field (dB)	Random (dB)
19.95	-0.84	-0.84	-0.84
25.12	-0.51	-0.51	-0.51
31.62	-0.27	-0.27	-0.27
39.81	-0.17	-0.17	-0.17
50.12	-0.05	-0.05	-0.05
63.10	-0.02	-0.02	-0.02
79.43	0.00	0.00	0.00
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	-0.03	0.01	-0.03
794.33	-0.05	0.02	-0.05
1000.00	-0.10	0.00	-0.12
1258.93	-0.15	0.00	-0.18
1584.89	-0.25	-0.03	-0.31
1995.26	-0.41	-0.08	-0.41
2511.89	-0.62	-0.14	-0.58
3162.28	-1.01	-0.29	-0.97
3981.07	-1.61	-0.54	-1.52
5011.87	-2.24	-0.66	-2.10
6309.57	-3.24	-0.96	-2.92
7943.28	-4.30	-0.92	-3.55
10000.00	-6.13	-1.01	-4.60
12589.25	-7.39	-0.20	-4.88
15848.93	-10.15	-1.56	-7.56
19952.62	-12.04	-1.99	-9.56

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

Rev. 7.0 Jan. 24, 2014 Doc. # 1038 P4189A021B&K

West Caldwell Calibration Laboratories Inc.

Certificate of Calibration

for

ICP SENSOR SIGNAL CONDITIONER

Manufactured by:	**PCB PIEZOTRONICS**
Model No:	**480E09**
Serial No:	**34208**
Calibration Recall No:	**30781**

Submitted By:

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

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

West Caldwell Calibration Laboratories Procedure No. 480E09 PCB PI

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

Within (X)

tolerance of the indicated specification. See attached Report of Calibration.
The information supplied relates to the calibrated item listed above.
West Caldwell Calibration Laboratories' calibration control system meets the following requirements, ISO 10012-1 MIL STD 45662A, ANSI/NCSL Z540-1, IEC Guide 25, ISO 9001:2015 and ISO 17025

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

Approved by:

James Zhu

Quality Manager
ISO/IEC 17025:2005

Calibration Date: **16-Mar-20**

Certificate No: **30781 - 2**

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.

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

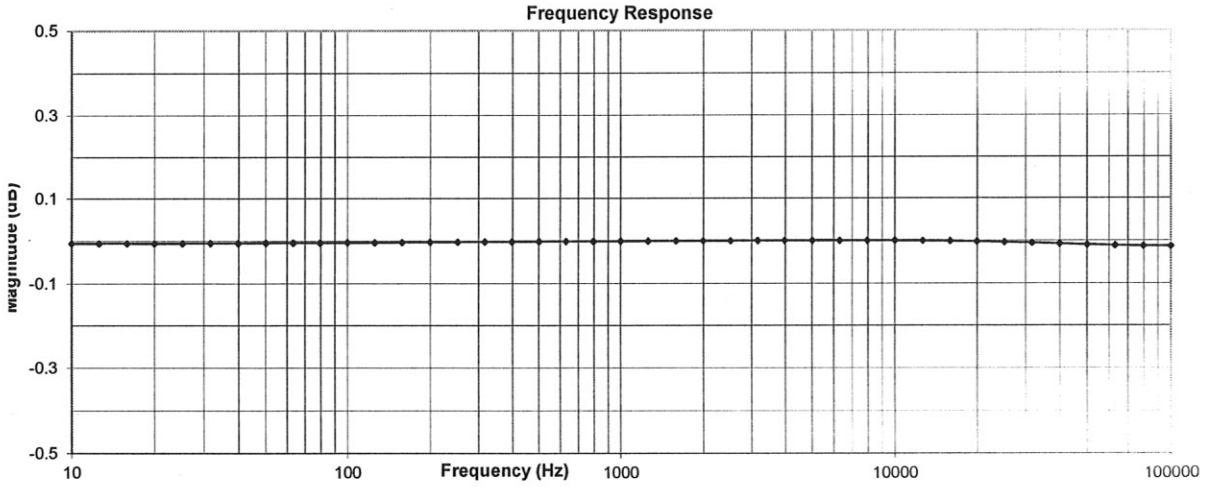
PCB Piezotronics ICP Signal Conditioner **Model No.: 480E09** **Serial No.: 34208**
Company: Aercoustics Enginering Ltd. **ID No.: XXXX**

Calibration results:

Before & after data same:	...X...	Laboratory Environment:		
DC Current and voltage:	**Pass**	Ambient Temperature:	20.4	°C
Gain:	**Pass**	Ambient Humidity:	28.8	% RH
Noise:	**Pass**	Ambient Pressure:	101.031	kPa
Distortion:	**Pass**	Calibration Date:	16-Mar-2020	
Freq. Response:	**Pass**	Calibration Due:	16-Mar-2021	
All tests:	**Pass**	Report Number:	30781 -2	
		Control Number:	30781	

The above listed instrument meets or exceeds the tested manufacturer's specifications.
This Calibration is traceable through NIST test numbers: ,1010733
The absolute uncertainty of calibration: See last page. Unless otherwise noted, the reported values are both "as found" and "as left" data.

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



The above listed instrument was checked using calibration procedure documented in West Caldwell Calibration Laboratories Inc. procedure : **Rev. 7.0 Jan. 24, 2014 Doc. # 1038 480E09PCB**
Calibration was performed by West Caldwell Calibration Laboratories Inc. under Operating Procedures intended to implement the requirements of ISO10012-1, IEC Guide 25, ANSI/NCSL Z540-1, (MIL-STD-45662A), ISO 9001:2015 and ISO 17025

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

PCB Piezotronics ICP Signal Conditioner **Model No.: 480E09** **Serial No.: 34208**
Company: Aercoustics Enginering Ltd.

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

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

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

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

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

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

Cal. Date: 16-Mar-2020 **Tested by: Matthew Smith**

Calibrated on WCCL system type 9700

West Caldwell Calibration Laboratories Inc.

Certificate of Conformance

for

ACOUSTICAL CALIBRATOR

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

Submitted By:

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

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

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

Approved by:

James Zhu

Quality Manager
ISO/IEC 17025:2017

Calibration Date: 14-Aug-20

Certificate No: 31157 - 1

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

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

ACCREDITED

Calibration Lab. Cert. # 1533.01

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

ISO/IEC 17025: 2017
ACCREDITED
Calibration Lab. Cert. # 1533.01

REPORT OF CALIBRATION

for

Brüel & Kjær Acoustical Calibrator **Model No.: 4231** **Serial No.: 2053016**
Company: Aercoustics Engineering Ltd. **ID No.: XXXX**

Calibration results:

Before data: ..... **After data:** .....
Before & after data same: ...X.....
Sound Pressure Level at 999.9 Hz and pressure of 1013 hPa (mbar)
was 113.98 dB re 20 µPa
(Calibrator tested with ½" adaptor UC 0210)
IEC 1094-4 Type WS 2 P Microphone was used for measurement.

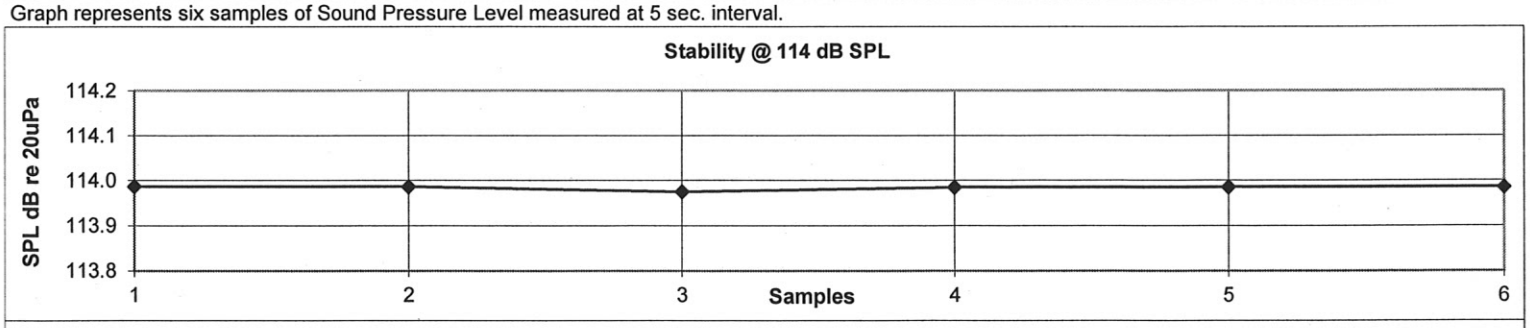
	114 dB	94 dB
Sound Pressure Level:	Pass	Pass
Frequency:	Pass	Pass
Distortion:	Pass	Pass
Stability:	Pass	Pass
All tested parameters:		Pass

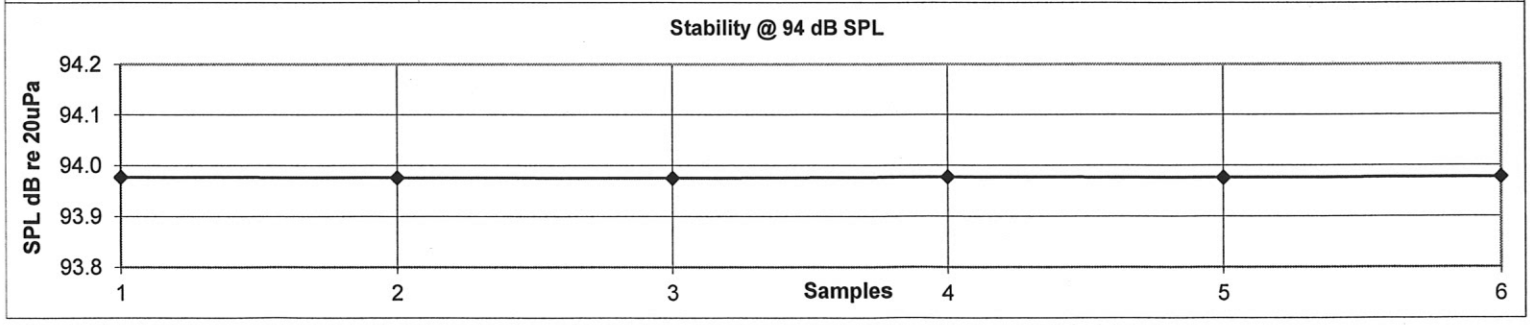
Laboratory Environment:

Ambient Temperature:	23.5	°C
Ambient Humidity:	41.4	% RH
Ambient Pressure:	99.684	kPa
Calibration Date:	14-Aug-2020	
Calibration Due:	14-Aug-2021	
Report Number:	31157 -1	
Control Number:	31157	

The above listed instrument meets or exceeds the tested manufacturer's specifications
The IEC 942:1998 Class 1 specifications, passed.
The ANSI S1.40-1984 specifications, passed.
This Calibration is traceable through NIST test numbers: 684.07/O-0000001126-20
The absolute uncertainty of calibration: See last page. Unless otherwise noted, the reported values are both "as found" and "as left" data.

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





The above listed instrument was checked using calibration procedure documented in West Caldwell Calibration Laboratories Inc. procedure : **Rev. 7.0 Jan. 24, 2014 Doc. # 1038 4231B&K**

Calibration was performed by West Caldwell Calibration Laboratories Inc. under Operating Procedures intended to implement the requirements of ISO10012-1, IEC Guide 25, ANSI/NCSL Z540-1, (MIL-STD-45662A), ISO 9001:2015 and ISO 17025

Cal. Date: 14-Aug-2020 Measurements performed by: .....
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 Acoustical Calibrator **Model No.: 4231** **Serial No.: 2053016**
Company: Aercoustics Engineering Ltd.

All tested parameters: Pass

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

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

Frequency measured (Three samples at 30 sec. Interval)

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

Distortion measured	-53.1 dB	-49.1 dB	Spec. ≤-40 dB

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

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

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

Cal. Date: 14-Aug-2020 **Tested by: Matthew Smith**

Calibrated on WCCL system type 9700

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

SOH Wind Engineering LLC

141 Leroy Road · Williston, VT 05495 · USA

Tel 802.316.4368 · Fax 802.735.9106 · www.sohwind.com

CERTIFICATE FOR CALIBRATION OF SONIC ANEMOMETER

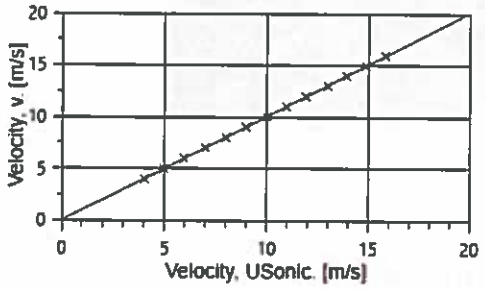
Certificate number: 18.US1.02882 **Date of issue:** July 02, 2018
Type: Vaisala Weather Transmitter, WXT520 **Serial number:** K2420011
Manufacturer: Vaisala, Oyj, Pl 26, FIN-00421 Helsinki, Finland
Client: Aercoustics Engineering Ltd., 1004 Middlegate RD, Suite 1100, S.Tower, Mississauga, ON L4Y 1M4, Canada

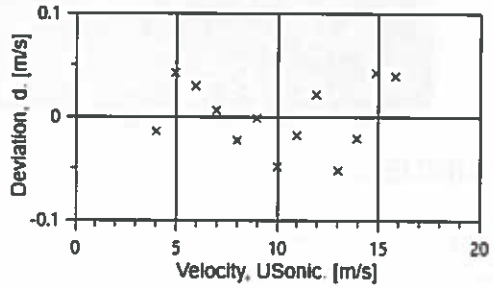
Anemometer received: June 29, 2018 **Anemometer calibrated:** June 29, 2018
Calibrated by: MEJ **Procedure:** MEASNET, IEC 61400-12-1:2017 Annex F
Certificate prepared by: EJF **Approved by:** Calibration engineer, EJF

Calibration equation obtained: v [m/s] = 1.00630 · f [m/s] + -0.03633

Standard uncertainty, slope: 0.00256 **Standard uncertainty, offset:** -0.75225
Covariance: -0.0000659 (m/s)²/m/s **Coefficient of correlation:** ρ = 0.999964
Absolute maximum deviation: -0.052 m/s at 12.990 m/s
Barometric pressure: 999.8 hPa **Relative humidity:** 51.4%

Succession	Velocity pressure, q. [Pa]	Temperature in wind tunnel [°C]	d.p. box [°C]	Wind velocity, v. [m/s]	Anemometer Output, f. [m/s]	Deviation, d. [m/s]	Uncertainty u_c (k=2) [m/s]
2	9.08	27.6	27.5	3.974	4.0000	-0.015	0.021
4	14.29	27.6	27.5	4.985	4.9483	0.042	0.023
6	20.56	27.6	27.5	5.980	5.9500	0.029	0.026
8	28.15	27.6	27.5	6.997	6.9833	0.006	0.029
10	36.71	27.6	27.5	7.991	8.0000	-0.023	0.033
12	46.59	27.6	27.5	9.002	8.9833	-0.002	0.037
13-last	57.24	27.6	27.5	9.978	10.0000	-0.049	0.041
11	69.32	27.6	27.5	10.981	10.9667	-0.018	0.045
9	82.45	27.6	27.5	11.976	11.9167	0.021	0.049
7	96.99	27.6	27.5	12.990	12.9967	-0.052	0.053
5	112.02	27.6	27.5	13.960	13.9300	-0.021	0.057
3	128.74	27.6	27.5	14.966	14.8667	0.042	0.061
1-first	146.05	27.5	27.5	15.939	15.8367	0.039	0.065





AC-1746

EQUIPMENT USED

Serial Number	Description
Njord1	Wind tunnel, blockage factor = 1.0035
2254	Control cup anemometer
-	Mounting tube, D = 19 mm
TT002	Summit Electronics, 1XPT100, 0-10V Output, wind tunnel temp.
TP001	PR Electronics 5102, 0-10V Output, differential pressure box temp.
DP005	Setra Model 239, 0-1inWC, differential pressure transducer
HY003	Dwyer RHP-2D20, 0-10V Output, humidity transmitter
BP003	Setra M278, 0-5VDC Output, barometer
PL8	Pitot tube
XB002	Computer Board. 16 bit A/D data acquisition board
9PRZRW1	PC dedicated to data acquisition

Traceable calibrations of the equipment are carried out by external accredited institutions: Atlantic Scale, Essco Calibration Labs & Furness Controls. A real-time analysis module within the data acquisition software detects pulse frequency.

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 calibrated at 0°.

Certificate number: 18.US1.02882

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

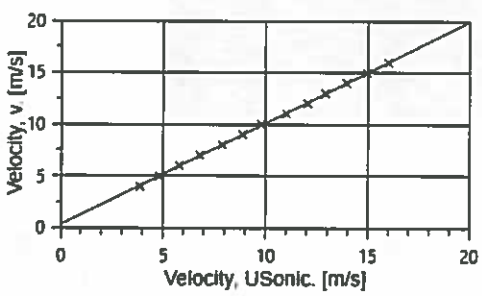
Certificate number: 18.US1.02885 **Date of issue:** July 02, 2018
Type: Vaisala Weather Transmitter, WXT520 **Serial number:** K2420011
Manufacturer: Vaisala, Oyj, Pl 26, FIN-00421 Helsinki, Finland
Client: Aercoustics Engineering Ltd., 1004 Middlegate RD, Suite 1100, S.Tower, Mississauga, ON L4Y 1M4, Canada

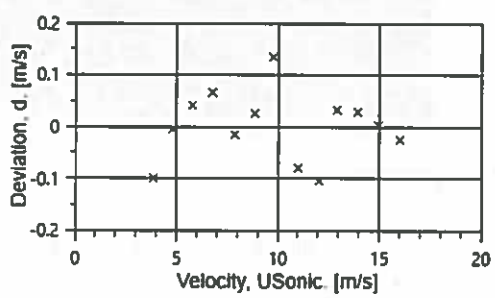
Anemometer received: June 29, 2018 **Anemometer calibrated:** July 02, 2018
Calibrated by: MEJ **Procedure:** MEASNET, IEC 61400-12-1:2017 Annex F
Certificate prepared by: EJF **Approved by:** Calibration engineer, EJF

Calibration equation obtained: v [m/s] = 0.98052 · f [m/s] + 0.27919

Standard uncertainty, slope: 0.00524 **Standard uncertainty, offset:** 0.19513
Covariance: -0.0002612 $(m/s)^2/m/s$ **Coefficient of correlation:** $\rho = 0.999849$
Absolute maximum deviation: 0.135 m/s at 9.993 m/s
Barometric pressure: 1003.0 hPa **Relative humidity:** 54.2%

Succession	Velocity pressure, q. [Pa]	Temperature in wind tunnel [°C]	d.p. box [°C]	Wind velocity, v. [m/s]	Anemometer Output, f. [m/s]	Deviation, d. [m/s]	Uncertainty u_c (k=2) [m/s]
2	9.07	28.3	28.1	3.971	3.8667	-0.100	0.021
4	14.27	28.3	28.1	4.981	4.8000	-0.005	0.023
6	20.64	28.3	28.1	5.991	5.7833	0.041	0.026
8	28.17	28.3	28.1	6.999	6.7867	0.066	0.029
10	36.71	28.3	28.1	7.990	7.8800	-0.016	0.033
12	46.53	28.3	28.1	8.995	8.8633	0.025	0.037
13-last	57.42	28.3	28.1	9.993	9.7690	0.135	0.041
11	69.47	28.3	28.1	10.992	11.0067	-0.080	0.045
9	82.65	28.3	28.1	11.990	12.0500	-0.104	0.049
7	96.85	28.3	28.1	12.980	12.9200	0.032	0.053
5	112.44	28.3	28.1	13.986	13.9500	0.028	0.057
3	128.54	28.3	28.1	14.954	14.9633	0.003	0.061
1-first	146.43	28.2	28.1	15.959	16.0167	-0.025	0.065





AC-1746

EQUIPMENT USED

Serial Number	Description
Njord1	Wind tunnel, blockage factor = 1.0035
2254	Control cup anemometer
-	Mounting tube, D = 19 mm
TT002	Summit Electronics, 1XPT100, 0-10V Output, wind tunnel temp.
TP001	PR Electronics 5102, 0-10V Output, differential pressure box temp.
DP005	Setra Model 239, 0-1inWC, differential pressure transducer
HY003	Dwyer RHP-2D20, 0-10V Output, humidity transmitter
BP003	Setra M278, 0-5VDC Output, barometer
PL8	Pitot tube
XB002	Computer Board. 16 bit A/D data acquisition board
9PRZRW1	PC dedicated to data acquisition

Traceable calibrations of the equipment are carried out by external accredited institutions: Atlantic Scale, Essco Calibration Labs & Furness Controls. A real-time analysis module within the data acquisition software detects pulse frequency.

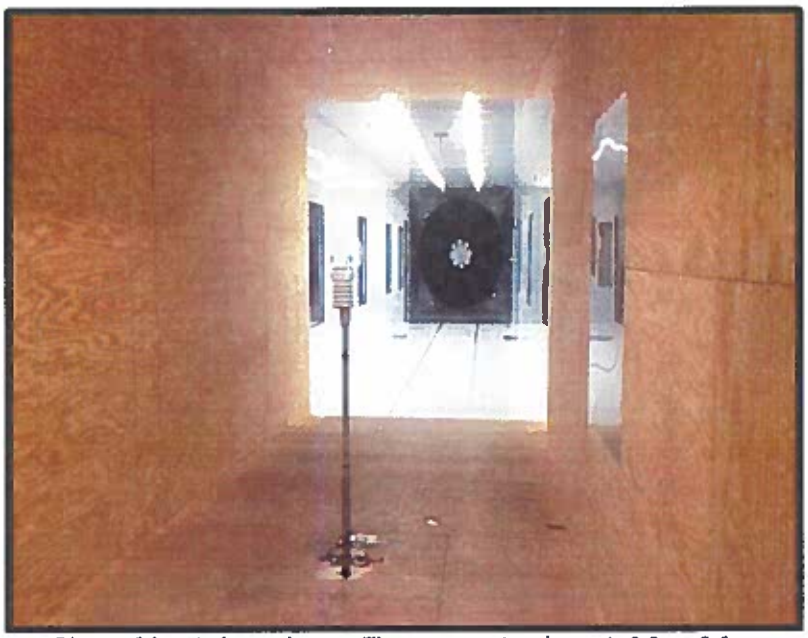


Photo of the wind tunnel setup. The cross-sectional area is 2.5m x 2.5m.

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 calibrated at 90°.

Certificate number: 18.US1.02885

TRANSCAT CANADA
Trust in every measure

CERTIFICATE OF CALIBRATION

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

SCC Accredited LAB / LAB Accrédité CCN
SCC Lab No 22
CLAS NRC·CNRC CLAS 2000-03
ilac-MRA

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

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

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

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

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

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

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

Transcat documents the traceability of measurements to the SI units through the National Institute of Standards and Technology(NIST), or the National Research Council of Canada (NRC), or other national measurement institutes (NMI) that are signatories to the CIPM Mutual Recognition Arrangement, or accepted fundamental and/or natural physical constants, or by the use of specified methods, consensus standards or ratio type measurements. Documentation supporting traceability information is available for review upon written request at a Transcat facility. The measured quantity and the measurement uncertainty are required for further dissemination 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 (R2019) as follows:
-The acceptance zone is defined as: less than or equal to the high limit, and/or greater than or equal to the low limit. The rejection zones are defined as greater than the high limit and/or less than the low limit.
-Single measurement results in the acceptance zone are 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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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	4.001 mA		1.6e-004	1.2e-003	mA	100.0 : 1
	25%	±(0.1% Span)	7.984	8.016	7.998 mA		2.6e-004	1.2e-003	mA	61.5 : 1
	50%	±(0.1% Span)	11.984	12.016	12.002 mA		1.1e-003	1.6e-003	mA	14.5 : 1
	75%	±(0.1% Span)	15.984	16.016	16.000 mA		1.3e-003	1.8e-003	mA	12.3 : 1
	100%	±(0.1% Span)	19.984	20.016	20.000 mA		1.4e-003	1.8e-003	mA	11.4 : 1
DC Current % Source - 4-20mA Ch #2										
4 - 20mA	0%	±(0.1% Span)	3.984	4.016	3.997 mA		1.6e-004	1.2e-003	mA	100.0 : 1
	25%	±(0.1% Span)	7.984	8.016	7.997 mA		2.6e-004	1.2e-003	mA	61.5 : 1
	50%	±(0.1% Span)	11.984	12.016	11.997 mA		1.1e-003	1.6e-003	mA	14.5 : 1
	75%	±(0.1% Span)	15.984	16.016	16.002 mA		1.3e-003	1.8e-003	mA	12.3 : 1
	100%	±(0.1% Span)	19.984	20.016	20.000 mA		1.4e-003	1.8e-003	mA	11.4 : 1
DC Current % Source - 4-20mA Ch #3										
4 - 20mA	0%	±(0.1% Span)	3.984	4.016	3.998 mA		1.6e-004	1.2e-003	mA	100.0 : 1
	25%	±(0.1% Span)	7.984	8.016	8.001 mA		2.6e-004	1.2e-003	mA	61.5 : 1
	50%	±(0.1% Span)	11.984	12.016	12.000 mA		1.1e-003	1.6e-003	mA	14.5 : 1
	75%	±(0.1% Span)	15.984	16.016	15.998 mA		1.3e-003	1.8e-003	mA	12.3 : 1
	100%	±(0.1% Span)	19.984	20.016	20.000 mA		1.4e-003	1.8e-003	mA	11.4 : 1
DC Current % Source - 4-20mA Ch #4										
4 - 20mA	0%	±(0.1% Span)	3.984	4.016	4.003 mA		1.6e-004	1.2e-003	mA	100.0 : 1
	25%	±(0.1% Span)	7.984	8.016	8.001 mA		2.6e-004	1.2e-003	mA	61.5 : 1
	50%	±(0.1% Span)	11.984	12.016	12.000 mA		1.1e-003	1.6e-003	mA	14.5 : 1
	75%	±(0.1% Span)	15.984	16.016	16.004 mA		1.3e-003	1.8e-003	mA	12.3 : 1
	100%	±(0.1% Span)	19.984	20.016	20.000 mA		1.4e-003	1.8e-003	mA	11.4 : 1

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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	1.2e-003	mA	100.0 : 1
	25%	±(0.1% Span)	4.980	5.020	5.001 mA		1.9e-004	1.2e-003	mA	100.0 : 1
	50%	±(0.1% Span)	9.980	10.020	10.001 mA		3.1e-004	1.2e-003	mA	64.5 : 1
	75%	±(0.1% Span)	14.980	15.020	14.999 mA		1.2e-003	1.7e-003	mA	16.7 : 1
	100%	±(0.1% Span)	19.980	20.020	20.000 mA		1.4e-003	1.8e-003	mA	14.3 : 1
DC Current % Source - 0-20mA Ch #2										
0 - 20mA	0%	±(0.1% Span)	-0.020	0.020	0.000 mA		9.2e-007	1.2e-003	mA	100.0 : 1
	25%	±(0.1% Span)	4.980	5.020	4.999 mA		1.9e-004	1.2e-003	mA	100.0 : 1
	50%	±(0.1% Span)	9.980	10.020	9.997 mA		3.1e-004	1.2e-003	mA	64.5 : 1
	75%	±(0.1% Span)	14.980	15.020	15.000 mA		1.2e-003	1.7e-003	mA	16.7 : 1
	100%	±(0.1% Span)	19.980	20.020	20.000 mA		1.4e-003	1.8e-003	mA	14.3 : 1
DC Current % Source - 0-20mA Ch #3										
0 - 20mA	0%	±(0.1% Span)	-0.020	0.020	0.000 mA		9.2e-007	1.2e-003	mA	100.0 : 1
	25%	±(0.1% Span)	4.980	5.020	4.999 mA		1.9e-004	1.2e-003	mA	100.0 : 1
	50%	±(0.1% Span)	9.980	10.020	10.001 mA		3.1e-004	1.2e-003	mA	64.5 : 1
	75%	±(0.1% Span)	14.980	15.020	15.001 mA		1.2e-003	1.7e-003	mA	16.7 : 1
	100%	±(0.1% Span)	19.980	20.020	20.000 mA		1.4e-003	1.8e-003	mA	14.3 : 1
DC Current % Source - 0-20mA Ch #4										
0 - 20mA	0%	±(0.1% Span)	-0.020	0.020	0.000 mA		9.2e-007	1.2e-003	mA	100.0 : 1
	25%	±(0.1% Span)	4.980	5.020	5.000 mA		1.9e-004	1.2e-003	mA	100.0 : 1
	50%	±(0.1% Span)	9.980	10.020	10.003 mA		3.1e-004	1.2e-003	mA	64.5 : 1
	75%	±(0.1% Span)	14.980	15.020	15.000 mA		1.2e-003	1.7e-003	mA	16.7 : 1
	100%	±(0.1% Span)	19.980	20.020	20.000 mA		1.4e-003	1.8e-003	mA	14.3 : 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 - 0-5V Ch#1										
0 -5V	0%	±(0.1% Span)	-0.0050	0.0050	0.0010 V		5.8e-007	1.2e-004	V	100.0 : 1
	20%	±(0.1% Span)	0.9950	1.0050	1.0000 V		5.6e-006	1.2e-004	V	100.0 : 1
	40%	±(0.1% Span)	1.9950	2.0050	1.9991 V		1.1e-005	1.2e-004	V	100.0 : 1
	60%	±(0.1% Span)	2.9950	3.0050	3.0012 V		1.6e-005	1.2e-004	V	100.0 : 1
	80%	±(0.1% Span)	3.9950	4.0050	4.0010 V		2.1e-005	1.2e-004	V	100.0 : 1
	100%	±(0.1% Span)	4.9950	5.0050	5.0005 V		2.6e-005	1.2e-004	V	100.0 : 1
DC Voltage % Source - 0-5V Ch#2										
0 -5V	0%	±(0.1% Span)	-0.0050	0.0050	0.0015 V		5.8e-007	1.2e-004	V	100.0 : 1
	20%	±(0.1% Span)	0.9950	1.0050	1.0005 V		5.6e-006	1.2e-004	V	100.0 : 1
	40%	±(0.1% Span)	1.9950	2.0050	1.9992 V		1.1e-005	1.2e-004	V	100.0 : 1
	60%	±(0.1% Span)	2.9950	3.0050	3.0012 V		1.6e-005	1.2e-004	V	100.0 : 1
	80%	±(0.1% Span)	3.9950	4.0050	4.0005 V		2.1e-005	1.2e-004	V	100.0 : 1
	100%	±(0.1% Span)	4.9950	5.0050	4.9999 V		2.6e-005	1.2e-004	V	100.0 : 1
DC Voltage % Source - 0-5V Ch#3										
0 -5V	0%	±(0.1% Span)	-0.0050	0.0050	0.0021 V		5.8e-007	1.2e-004	V	100.0 : 1
	20%	±(0.1% Span)	0.9950	1.0050	0.9999 V		5.6e-006	1.2e-004	V	100.0 : 1
	40%	±(0.1% Span)	1.9950	2.0050	1.9998 V		1.1e-005	1.2e-004	V	100.0 : 1
	60%	±(0.1% Span)	2.9950	3.0050	3.0002 V		1.6e-005	1.2e-004	V	100.0 : 1
	80%	±(0.1% Span)	3.9950	4.0050	4.0010 V		2.1e-005	1.2e-004	V	100.0 : 1
	100%	±(0.1% Span)	4.9950	5.0050	5.0015 V		2.6e-005	1.2e-004	V	100.0 : 1
DC Voltage % Source - 0-5V Ch#4										
0 -5V	0%	±(0.1% Span)	-0.0050	0.0050	0.0006 V		5.8e-007	1.2e-004	V	100.0 : 1
	20%	±(0.1% Span)	0.9950	1.0050	1.0017 V		5.6e-006	1.2e-004	V	100.0 : 1
	40%	±(0.1% Span)	1.9950	2.0050	2.0008 V		1.1e-005	1.2e-004	V	100.0 : 1
	60%	±(0.1% Span)	2.9950	3.0050	3.0004 V		1.6e-005	1.2e-004	V	100.0 : 1
	80%	±(0.1% Span)	3.9950	4.0050	4.0003 V		2.1e-005	1.2e-004	V	100.0 : 1
	100%	±(0.1% Span)	4.9950	5.0050	5.0001 V		2.6e-005	1.2e-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	0.001 V		5.8e-007	1.2e-003	V	100.0 : 1
	20%	±(0.1% Span)	1.990	2.010	1.999 V		1.1e-005	1.2e-003	V	100.0 : 1
	40%	±(0.1% Span)	3.990	4.010	4.001 V		2.1e-005	1.2e-003	V	100.0 : 1
	60%	±(0.1% Span)	5.990	6.010	6.000 V		3.1e-005	1.2e-003	V	100.0 : 1
	80%	±(0.1% Span)	7.990	8.010	8.002 V		4.1e-005	1.2e-003	V	100.0 : 1
	100%	±(0.1% Span)	9.990	10.010	9.999 V		5.2e-005	1.2e-003	V	100.0 : 1
DC Voltage % Source - 0-10V Ch#2										
0 - 10V	0%	±(0.1% Span)	-0.010	0.010	0.001 V		5.8e-007	1.2e-003	V	100.0 : 1
	20%	±(0.1% Span)	1.990	2.010	1.999 V		1.1e-005	1.2e-003	V	100.0 : 1
	40%	±(0.1% Span)	3.990	4.010	4.000 V		2.1e-005	1.2e-003	V	100.0 : 1
	60%	±(0.1% Span)	5.990	6.010	6.002 V		3.1e-005	1.2e-003	V	100.0 : 1
	80%	±(0.1% Span)	7.990	8.010	8.000 V		4.1e-005	1.2e-003	V	100.0 : 1
	100%	±(0.1% Span)	9.990	10.010	10.000 V		5.2e-005	1.2e-003	V	100.0 : 1
DC Voltage % Source - 0-10V Ch#3										
0 - 10V	0%	±(0.1% Span)	-0.010	0.010	0.002 V		5.8e-007	1.2e-003	V	100.0 : 1
	20%	±(0.1% Span)	1.990	2.010	2.000 V		1.1e-005	1.2e-003	V	100.0 : 1
	40%	±(0.1% Span)	3.990	4.010	4.001 V		2.1e-005	1.2e-003	V	100.0 : 1
	60%	±(0.1% Span)	5.990	6.010	6.002 V		3.1e-005	1.2e-003	V	100.0 : 1
	80%	±(0.1% Span)	7.990	8.010	8.000 V		4.1e-005	1.2e-003	V	100.0 : 1
	100%	±(0.1% Span)	9.990	10.010	10.000 V		5.2e-005	1.2e-003	V	100.0 : 1
DC Voltage % Source - 0-10V Ch#4										
0 - 10V	0%	±(0.1% Span)	-0.010	0.010	0.001 V		5.8e-007	1.2e-003	V	100.0 : 1
	20%	±(0.1% Span)	1.990	2.010	2.001 V		1.1e-005	1.2e-003	V	100.0 : 1
	40%	±(0.1% Span)	3.990	4.010	4.000 V		2.1e-005	1.2e-003	V	100.0 : 1
	60%	±(0.1% Span)	5.990	6.010	6.000 V		3.1e-005	1.2e-003	V	100.0 : 1
	80%	±(0.1% Span)	7.990	8.010	8.002 V		4.1e-005	1.2e-003	V	100.0 : 1
	100%	±(0.1% Span)	9.990	10.010	10.000 V		5.2e-005	1.2e-003	V	100.0 : 1

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Field not applicable.

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Traceable Standards

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

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

Environmental Data

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

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Legend

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

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	Aug 04, 2020
Calibration Technician	09:54:15 -04:00

Reviewed By:
Electronically Signed By:
Sean Hastings

Sean Hastings	Aug 04, 2020
Lab Manager	13:31:31 -04:00

Unit Barcode: 901B0165859

Date Received: July 20, 2020
Service Level : R9

Customer Number: 9-322110-000

Appendix F.02
Compliance Statement

1 Summary of Measurement Results

Sound power and tonal audibility levels from 17283.03.T4.RP3 are summarized in Table F1 and Table F2. Sound power levels are compared to the maximum sound power level in the proposed Noise Abatement Action Plan (NAAP) for the North Kent Wind Project. The NAAP is detailed in the DNV GL report *10207028-HOU-L-01-B Proposed Noise Abatement Action Plan (NAAP) for the North Kent Wind Project*, dated May 11th, 2020.

Table F1: Apparent Sound Power values from Table 11 of 17283.03.T4.RP3

Wind Speed (m/s)	Apparent L_{WA}, (dBA)	Maximum Sound Power Level (dBA)* NAAP
7.5	101.1	103.5
8.0	102.0	103.5
8.5	101.8	103.5
9.0	101.6	103.5
9.5	101.7	103.5
10.0	101.6	103.5
10.5	101.3	103.5
11.0	101.5	103.5
11.5	101.6	103.5
12.0	101.5	103.5
12.5	101.5	103.5

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

Table F2: Tonal Audibility values from Table 14 of 17283.03.T4.RP3

Wind Speed (m/s)	Frequency (Hz)	Tonal audibility, ΔL_a (dB)
7.5	65	-0.7
8	67	-1.0
8.5	66	-0.5
9	66	-0.7
9	132	-2.8
9.5	66	0.0
9.5	131	-2.3
10	65	-0.7
10.5	66	-1.2
10.5	131	-2.2
11	66	-1.0
11	131	-2.1
11.5	67	-0.4
11.5	132	-0.8
12	66	-0.1

Wind Speed (m/s)	Frequency (Hz)	Tonal audibility, ΔL_a (dB)
12	132	-0.9
12.5	66	-1.2
12.5	132	-2.0

2 Statement of Compliance

Based on the results presented in Table F1, the maximum apparent sound power level of T04 operating in its 2.628 MW reduced noise emission (-3 dB) mode is less than the maximum sound power level in the proposed NAAP. Therefore, based on the guidance in Section E3.1.1 and E3.1.3 of the Protocol, the measured sound power levels of North Kent Turbine T04 are considered acceptable and are compliant with the maximum allowable turbine emission levels in the proposed NAAP.

Appendix F.03
E-audit Checklist

Appendix F.03 - (2017 Compliance Protocol Appendix F6): E-Audit checklist for IEC 61400-11:2013

Wind Energy Project – Screening Document – Acoustic Audit Report – Emission IEC61400-11:2013 Standard

Information Required in the Acoustic Audit Report – Emission

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

End of Report