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REPORT ID: **17283.01.T33.RP1**

North Kent Wind 1 LP – Turbine T33
IEC 61400-11 Edition 3.0 Measurement Report

Prepared for:

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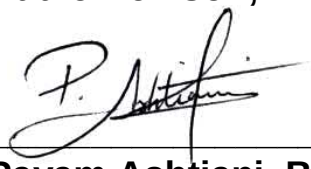

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19 July 2019 – Revision 2

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Revision History

Revision Number	Description	Date
1	Issued test report	22 March 2019
2	Corrections to Table B.01, Figure B.01 and Table 1	19 July 2019

This report in its entirety, including appendices contains 124 pages.

Statement Qualifications and Limitations

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

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

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

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

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

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1 Introduction

Aercoustics Engineering Limited ("Aercoustics") was retained by North Kent Wind 1 LP to conduct testing per the IEC 61400-11 test standard on one of the wind turbines, designated as T33, located in the North Kent Wind 1 LP. The measurements were carried out in accordance with IEC 61400-11:2012, "*Wind turbine generator systems – Part 11: Acoustic noise measurement techniques*". This report is specific only to turbine T33.

Aercoustics is accredited by the Standards Council of Canada under ISO/IEC 17025 to perform testing according to the IEC 61400-11 test standard.

2 Wind Turbine Information

2.1 Wind Turbine Equipment Details

Equipment information specific to turbine T33 was provided by the manufacturer and is summarized in Tables 1 to 5.

Table 1 – Wind Turbine Details

Wind Turbine Details	
Manufacturer	Siemens Gamesa Renewable Energy
Model Number	SWT 2.942-113
Turbine ID	T33
Serial number	3200874

Table 2 – Operating Details

Operating Details	
Vertical or Horizontal axis wind turbine	Horizontal
Upwind or downwind rotor	Upwind rotor
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
Passive stall, active stall, or pitch controlled turbine	Pitch controlled turbine
Constant or variable speed	Variable speed
Power curve	Rev 0
Rotational speed at each integer standardised wind speed	Max speed, 13.8 rpm
Rated power output	2942 kW
Control software version	133.0.0.6

Table 3 – Rotor Details

Rotor Details	
Rotor control devices	Pitch control
Presence of aerodynamic add-ons, such as vortex generators, stall strips, serrated trailing edges, etc.	Vortex generators and Dinotails
Blade type	B55
Serial number	Blade A: 550275501 Blade B: 550276301 Blade C: 550274901
Number of blades	3

Table 4 – Gearbox Details

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

Table 5 – Generator Details

Generator Details	
Manufacturer	Siemens
Model number	DD22_02
Serial number	5100245233

2.2 Wind Turbine Location

Turbine T33 is located in the municipality of Chatham-Kent near the town of Wallaceburg, approximately 630m northwest of Bush Line, and 1120m northeast of St. Clair Road. The area surrounding T33 is flat and consists primarily of farmland. The UTM coordinates of the turbine are 391381 m E and 4709440 m N (Zone 17T).

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

3 Measurement Details

3.1 Measurement Equipment

3.1.1 Acoustic Measurement Equipment

Details regarding the acoustic measurement equipment utilized for the test is summarized in Table 6.

Table 6 – Acoustic Measurement Equipment

Equipment	Manufacturer Name & Model	Serial Number
Acoustic Data acquisition system	LMS SCADA Mobile SCR202	22143211
Microphone	B&K 4189	2625197
Pre-amplifier	B&K 2671	2614901
Signal Conditioner	PCB Model 480E09	00034219
Acoustic calibrator	B&K 4231	2513183

A field calibration of the measurement chain was performed at the beginning and end of each measurement day.

3.1.2 Non-Acoustic Measurement Equipment

Non-acoustic measurement equipment includes an anemometer installed 10 meters above ground level ("10-m AGL") as well any sensing equipment utilized by the wind turbine to measure and record operational parameters. The 10-m AGL anemometer is provided by Aercoustics while the turbine sensing equipment is a part of the turbine installation.

Details regarding the non-acoustic measurement equipment utilized and controlled by Aercoustics is summarized in Table 7. Equipment used to measure turbine parameters, such as yaw angle and power output, are outside of Aercoustics' control and are not reported here.

Table 7 – Meteorological Measurement Equipment

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

3.2 Measurement Setup

3.2.1 Microphone Placement

The measurement microphone was setup 156 meters from the base of the turbine in a downwind position (Position 1, per IEC 61400-11), at an elevation of 0 meters relative to the base of T33. The slant distance (R_1) from microphone location to rotor centre includes

the distance from rotor center to tower axis (R_1 = 189.7 m). The microphone was placed in the centre of a circular, acoustically reflective board.

During the measurement period, data points were used only when the microphone was within 15 degrees of the downwind direction from the turbine. The microphone position relative to downwind is monitored via the turbine yaw angle provided from the turbine SCADA system (discussed further in Section 3.5).

During the test, the land surrounding the turbine was a plowed field. No crops or vegetation were in the nearby area which would influence the results of the measurement. There were no nearby reflecting surfaces (houses, barns etc.); as such the influence from reflecting surfaces is negligible.

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

3.2.2 Double Windscreen Setup

A double windscreen setup was utilized. Documentation of how the secondary windscreen affects the overall sound pressure level and 1/3 Octave Band spectrum in comparison to a single windscreen setup is provided in Appendix C.

The secondary windscreen used meets the performance criterion specified in Annex E (Characterization of a secondary wind screen) of IEC-61400-11:2012.

3.3 Measurement Periods

Table 8 – Summary of Measurement Periods

Date	Test Type	Start Time	Finish time
November 26, 2018	Turbine ON	5:13 pm	5:35 pm
	Background	5:37 pm	5:56 pm
	Turbine ON	6:21 pm	6:31 pm
November 27, 2018	Turbine ON	9:52 am	10:04 am
	Turbine ON	10:35 am	10:48 am
	Background	10:50 am	11:23 am
	Turbine ON	11:28 am	11:53 am
	Turbine ON	12:27 pm	12:39 pm
	Turbine ON	12:43 pm	1:05 pm
	Background	1:10 pm	1:37 pm
	Turbine ON	1:41 pm	2:39 pm
	Background	2:54 pm	4:03 pm
	Turbine ON	4:19 pm	4:38 pm
	Background	4:43 pm	4:53 pm
November 28, 2018	Background	8:26 am	8:48 am
	Turbine ON	8:55 am	9:04 am

3.4 Meteorological Conditions

The normalised hub height wind speed during Turbine ON periods is either derived directly using the turbine power curve and measured power output (Section 8.2.1.1 of [1]) or indirectly using the measured wind speed from the nacelle anemometer and applying a correction factor (Section 8.2.1.2 of [1]). Wind speeds during Background periods are measured using the 10-m AGL anemometer and corrected to hub-height using a correction factor (Section 8.2.2 of [1]). The downwind direction is determined using the turbine yaw angle output, also known as the nacelle position (Section 8.3 of [1]).

Other atmospheric conditions, including ambient temperature and atmospheric pressure, are measured by the 10-m AGL anemometer during the measurement periods.

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

3.5 Turbine operational information

Turbine operational parameters – including electrical power, nacelle position (yaw angle), rotational speed, and nacelle wind speed – are acquired from the turbine controller simultaneously with the acoustic and weather measurement data using Aercoustics' data acquisition system.

4 Measurement Results

4.1 Deviations from IEC-61400-11 Edition 3.0

No deviations.

4.2 Special Notes & Considerations

No adjacent turbines were parked during the test.

4.3 Analysis Methodology

The following section outlines any corrections applied to the acoustic or weather measurement data, per IEC 61400-11. Transient events, such as vehicle traffic, wildlife, or air traffic, are excluded from the measurement data set.

4.3.1 Double Windscreen Adjustment

As previously mentioned, a double wind screen was used, as such; the measurement data was adjusted to account for its influence. All 1/3 Octave Band spectrum and overall level data presented in this report includes the adjustment for the influence of the secondary windscreen.

FFT spectral data used for the tonality assessment was not adjusted. However, it should be noted that the effect of the windscreen on the tonality assessment is considered to be negligible.

4.3.2 Wind Speed Correction

Following the methodology described in Section 8.2 of [1] and summarized in Section 3.4 of this report, two correction factors are derived from the measurement data and used to determine the normalized hub-height wind speed in certain conditions. The first correction factor (k_nac) is used to correct nacelle wind speeds measured for intervals that fall outside of the allowable power curve range. The second correction factor (k_Z) is used to correct 10m-AGL wind speeds measured during Background measurement periods up to hub-height.

The k-factors for this measurement set are provided in Table 9.

Table 9 – Calculated nacelle anemometer (k_nac) and 10m (k_Z) wind speed k-factor

k_nac	k_Z
0.98	1.18

4.4 Type B uncertainties

Type B uncertainties were obtained through interpretation of the information provided in Annex C of [1]. A summary of Type B uncertainties is provided in Table 10, while detailed information, including uncertainties by 1/3 octave band, is provided in Appendix C.

Table 10 – Summary of Type B uncertainties

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

4.5 Sound Pressure Level Measurements

Average overall sound pressure levels in each wind bin for Turbine ON and Background periods are summarized in Table 11. Average sound levels and uncertainties by 1/3 octave band are provided in Appendix C. A copy of the measurement data used for analysis is provided in Appendix E.

Table 11 – Summary of Sound Pressure Level Measurements

Wind Speed (m/s)	Turbine ON		Background		Turbine ON, Background adjusted L_{eq}, (dBA)
	L_{eq}, (dBA)	# of data pts	L_{eq}, (dBA)	# of data pts	
8	52.9	15	42.5	56	52.4
8.5	53.9	24	42.6	77	53.6
9	54.2	42	42.6	133	53.8
9.5	54.3	96	42.6	129	54.0
10	54.1	105	43	156	53.8
10.5	53.9	100	43.2	122	53.5
11	53.8	115	43.2	104	53.3
11.5	53.7	98	43.4	53	53.2
12	53.5	69	44.0	29	53.0
12.5	53.5	47	44.0	12	53.0
13	53.6	27	45.9*	5*	52.8

* Less than 10 data points collected in 13 m/s bin. For the purposes of MECP review, an alternative, conservative data analysis has been conducted separately. A summary of the alternative data analysis has been included in Appendix F.02 – Summary of Measurement Results for the regulator.

4.6 Sound Power Level of Turbine

The calculated apparent sound power level at hub height is summarized in Table 12. Corresponding sound power levels for 10-meter height wind speeds are provided in Table 13. Wind speeds at 10 meters are calculated using the wind shear profile described in Section 9.4 of [1]. Sound power levels by 1/3 octave band are provided in Appendix C.

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

Wind Speed (m/s)	Apparent L_{WA}, (dBA)	Uncertainty (dB)
8	103.0	0.8
8.5	104.1	0.8
9	104.4	0.8
9.5	104.5	0.8
10	104.3	0.8
10.5	104.0	0.8
11	103.9	0.8
11.5	103.8	0.9
12	103.6	0.9
12.5	103.6	0.9
13	103.3	0.8

Table 13 – $L_{WA\ 10m,\,K}$ at each integer wind speed

Wind Speed (m/s)	Apparent L_{WA}, (dBA)	Uncertainty (dB)
5	100.7	1.4
6	103.9	0.7
7	104.3	0.8
8	103.8	0.8
9	103.7	0.8

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

4.7 Tonality Analysis

The tonality analysis for turbine T33 is summarized in Table 14, while plots of narrow band spectra at each wind speed are provided in Appendix D. All ΔL_{tn} and ΔL_a values reported represent the energy average of all data points with an identified tone that fall within the same frequency of origin (Section 9.5.8 of [1]).

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

Table 14 – Tonality Assessment Summary

Wind Speed (m/s)	Frequency (Hz)	Tonality, ΔL_{tn} (dB)	Tonal audibility, ΔL_a (dB)	FFT's with tones	Total # of FFT's	Presence (%)
9	99	-3.8	-1.8	9	42	21%
9.5	82	-4.3	-2.3	39	96	41%
10	86	-3.1	-1.1	22	105	21%
10.5	75	-4.8	-2.7	94	115	82%
11.5	76	-2.7	-0.7	81	98	83%
12	76	-4.1	-2.1	58	69	84%
12.5	75	-4.1	-2.1	36	47	77%
13	75	-3.7	-1.7	17	27	63%

5 Closure

Measurements and analyses per IEC 61400-11:2012 (Edition 3.0) were performed on turbine T33 of the North Kent Wind 1 LP, located in the municipality of Chatham-Kent, Ontario. The test turbine was found to have a maximum apparent sound power level of 104.5 dBA and a maximum tonal audibility of -0.7 dB.

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

Should you have any questions or comments please contact the authors of this report.

6 References

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

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Appendix A
Site Details

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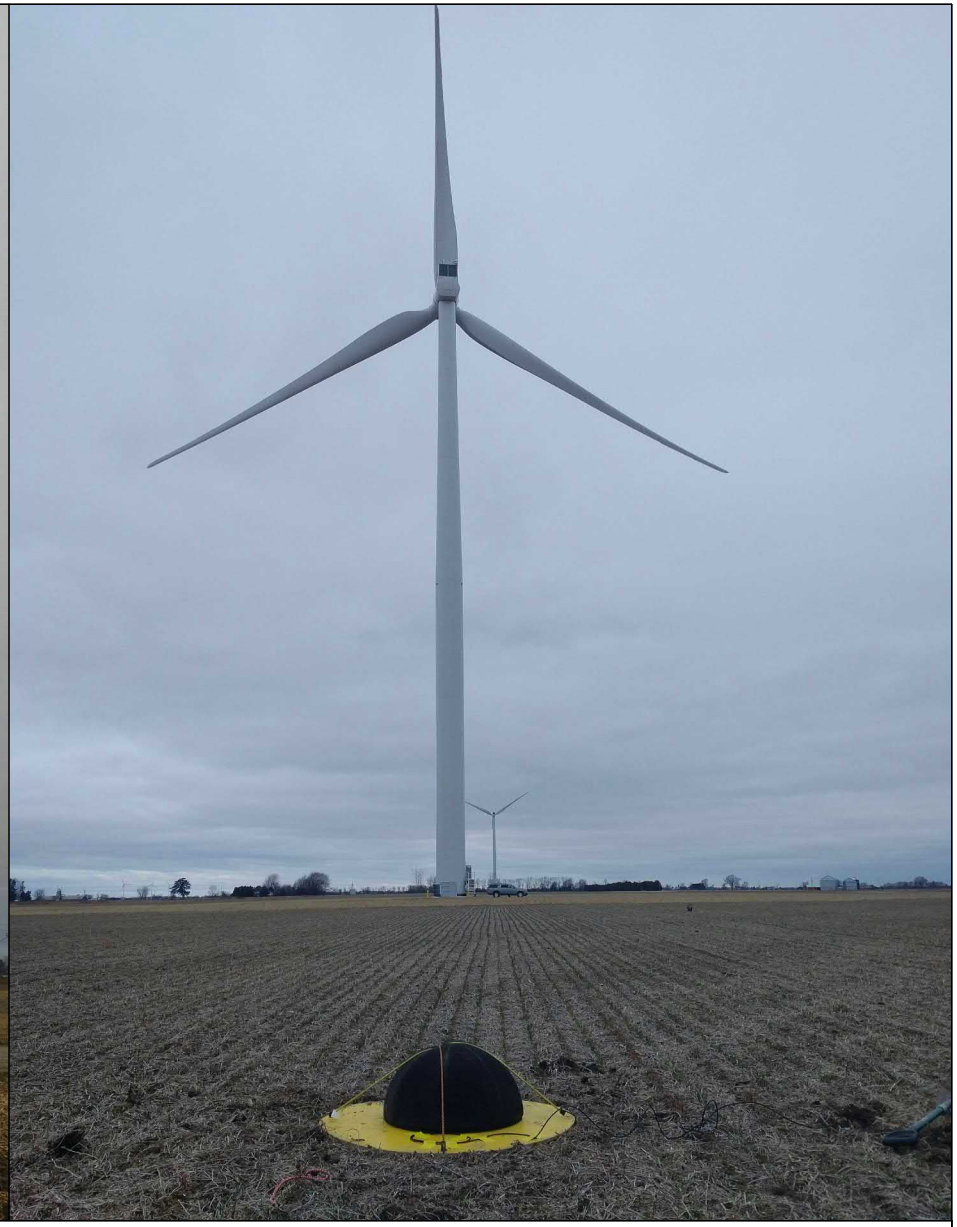
	Scale: NTS Drawn by: IK Reviewed by: MAD Date: Jan 2019 Revision: 1	North Kent Wind 1 LP - IEC 61400-11 Edition 3.0 - Turbine T33
		Figure Title Site Plan
		Figure A.01



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17283.01.T33.RP2	
Scale:	NTS
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Reviewed by:	MAD
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Revision:	1

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North Kent Wind 1 LP - IEC 61400-11 Edition 3.0 - Turbine T33

Figure Title

Site Photo

Figure A.02

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Appendix B
Turbine Information

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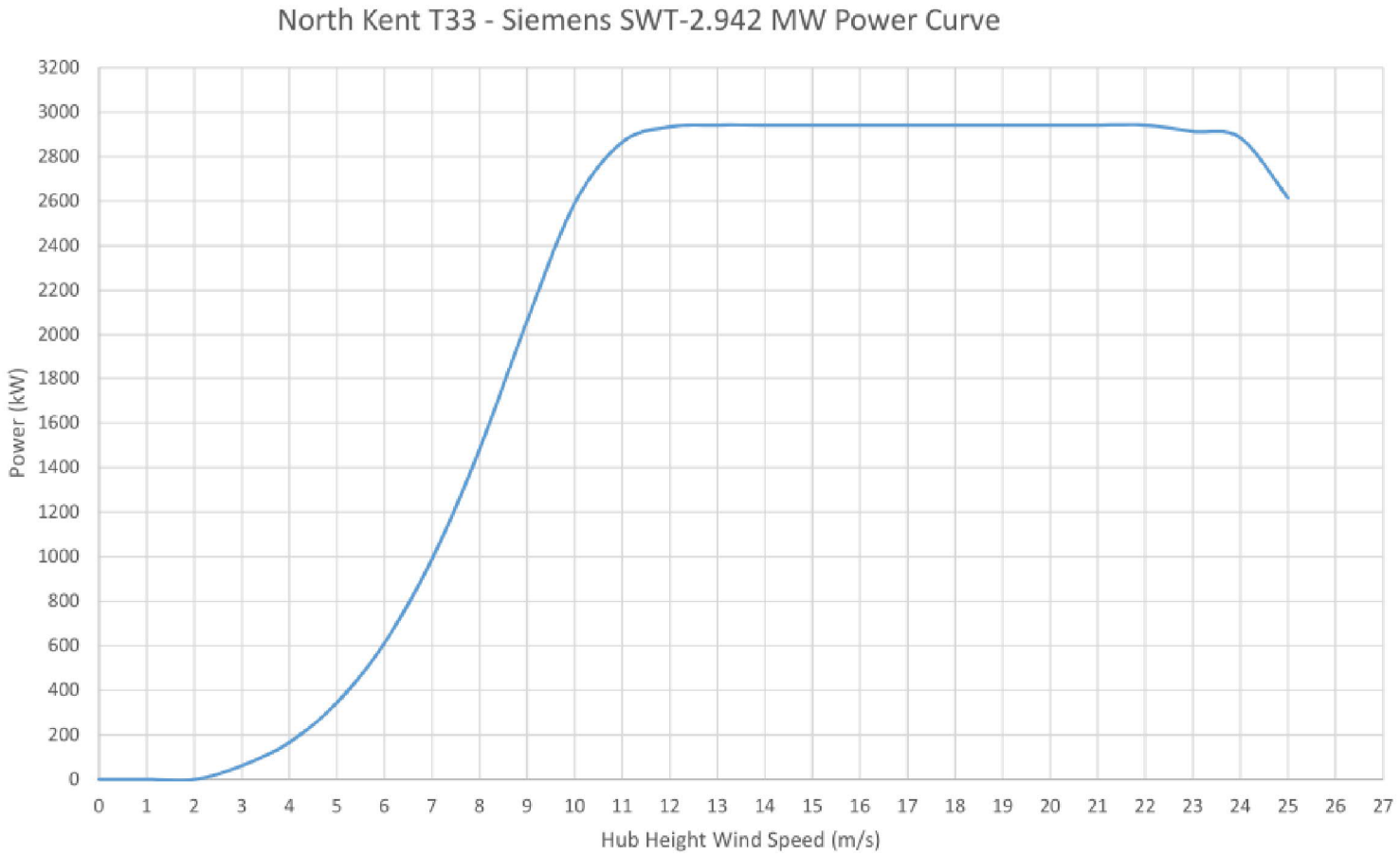
Table B.01 Allowed range of power curve and required wind speeds

Project: North Kent Wind Farm - Turbine T33 - IEC 61400-11 Measurement
Report ID: 17283.01.T33.RP2

Created on: 7/19/2019

Power Curve & Required Wind Speeds		
Power Curve Tolerance	3%	
Power Curve Range, minimum wind bin	4	m/s
Power Curve Range, maximum wind bin	10	m/s
Maximum Power Output	2942	kW
85% of Maximum Power	2500.7	kW
Hub Height Wind Speed at 85% Power	9.83	m/s
Minimum reportable wind bin	8.0	m/s
Maximum reportable wind bin	13.0	m/s

Power Curve (+ value = acceptable)		
Hub Wind Speed (m/s)	Power [kW]	Slope of Power Curve
0	**0**	-176.52
1	0	-176.52
2	0	-114.52
3	62	-71.52
4	167	1.48
5	345	92.48
6	614	199.48
7	990	316.48
8	1483	405.48
9	2065	349.48
10	2591	97.48
11	2865	-107.52
12	2934	-168.52
13	2942	-176.52
14	2942	-176.52
15	2942	-176.52
16	2942	-176.52
17	2942	-176.52
18	2942	-176.52
19	2942	-176.52
20	2942	-176.52
21	2942	-176.52
22	2942	-205.52
23	2913	-205.52
24	2884	-445.52
25	2615	



Power Curve	
Hub Wind Speed (m/s)	Power [kW]
0	0
1	0
2	0
3	62
4	167
5	345
6	614
7	990
8	1483
9	2065
10	2591
11	2865
12	2934
13	2942
14	2942
15	2942
16	2942
17	2942
18	2942
19	2942
20	2942
21	2942
22	2942
23	2913
24	2884
25	2615

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Date: July 2019
Revision: 1

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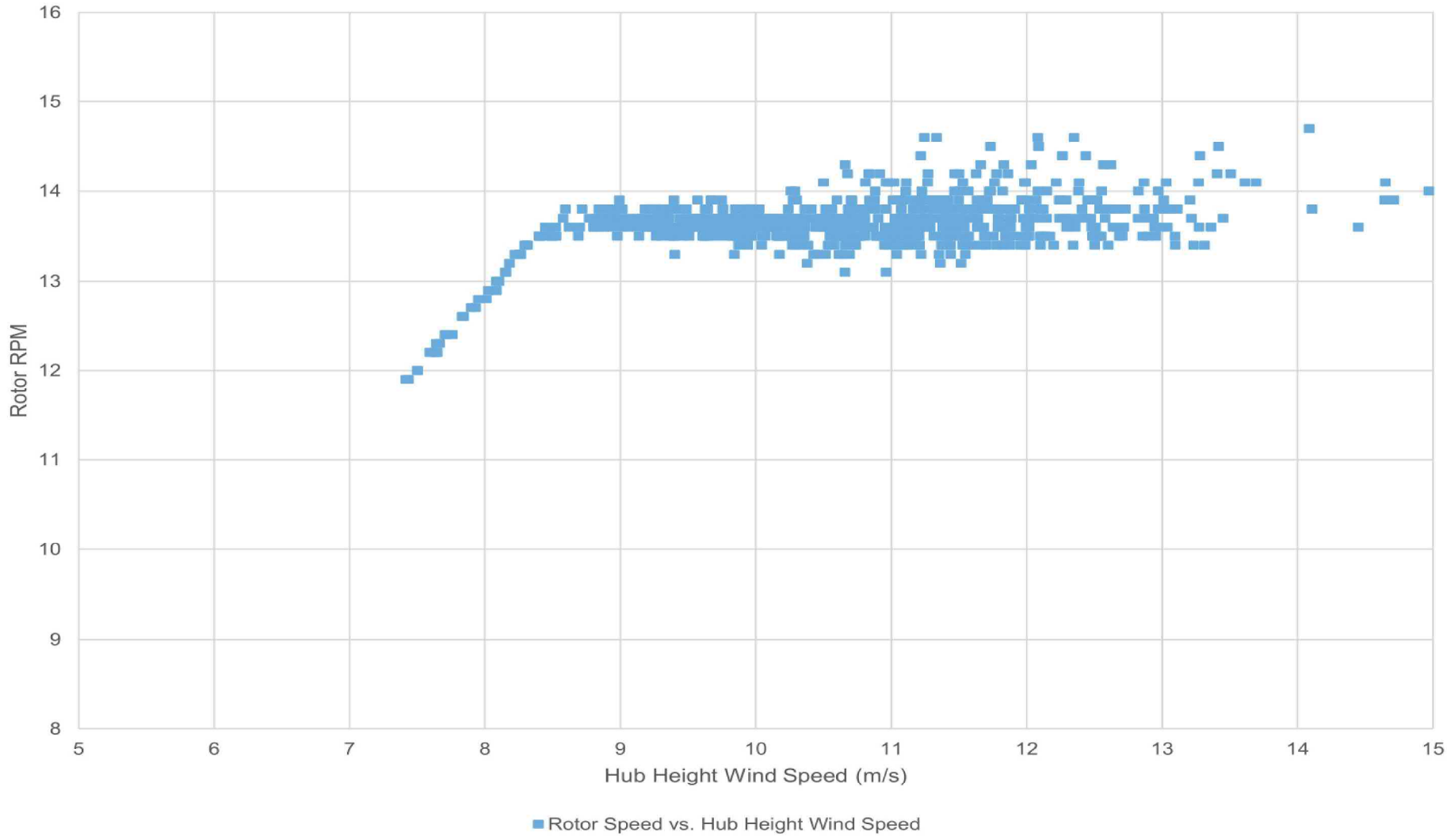
North Kent Wind Farm - IEC 61400-11 Edition 3.0 - Turbine T33

Figure Title

Power Curve

Figure B.01



aercoustics	17283.01.T33.RP2 Scale: NTS Drawn by: IK Reviewed by: MAD Date: Jan 2019 Revision: 1	**Project Name** North Kent Wind 1 LP - IEC 61400-11 Edition 3.0 - Turbine T33 **Figure Title** Rotor RPM vs. Wind Speed

Figure B.02

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Appendix C
Apparent Sound Power Level

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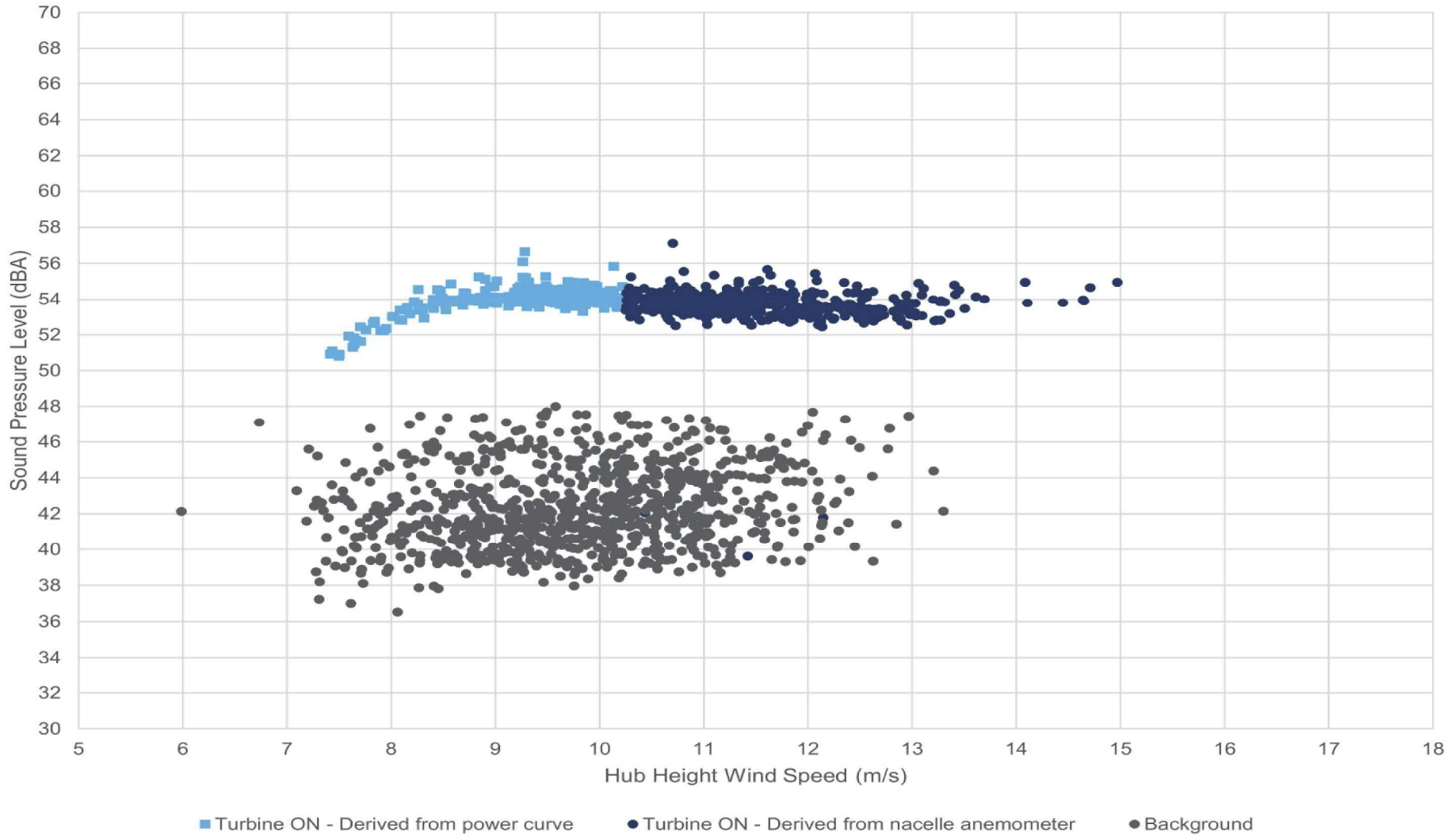

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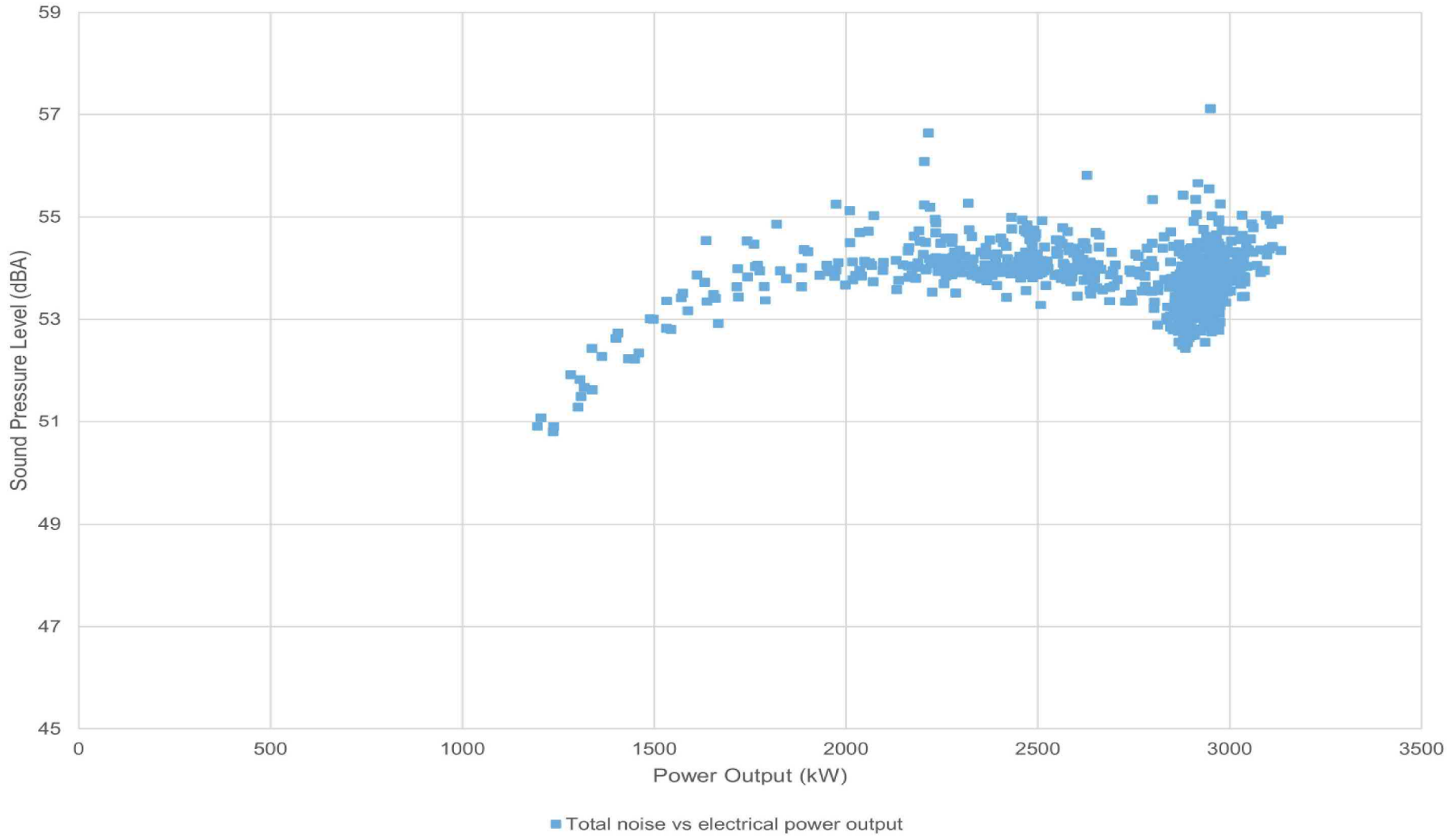
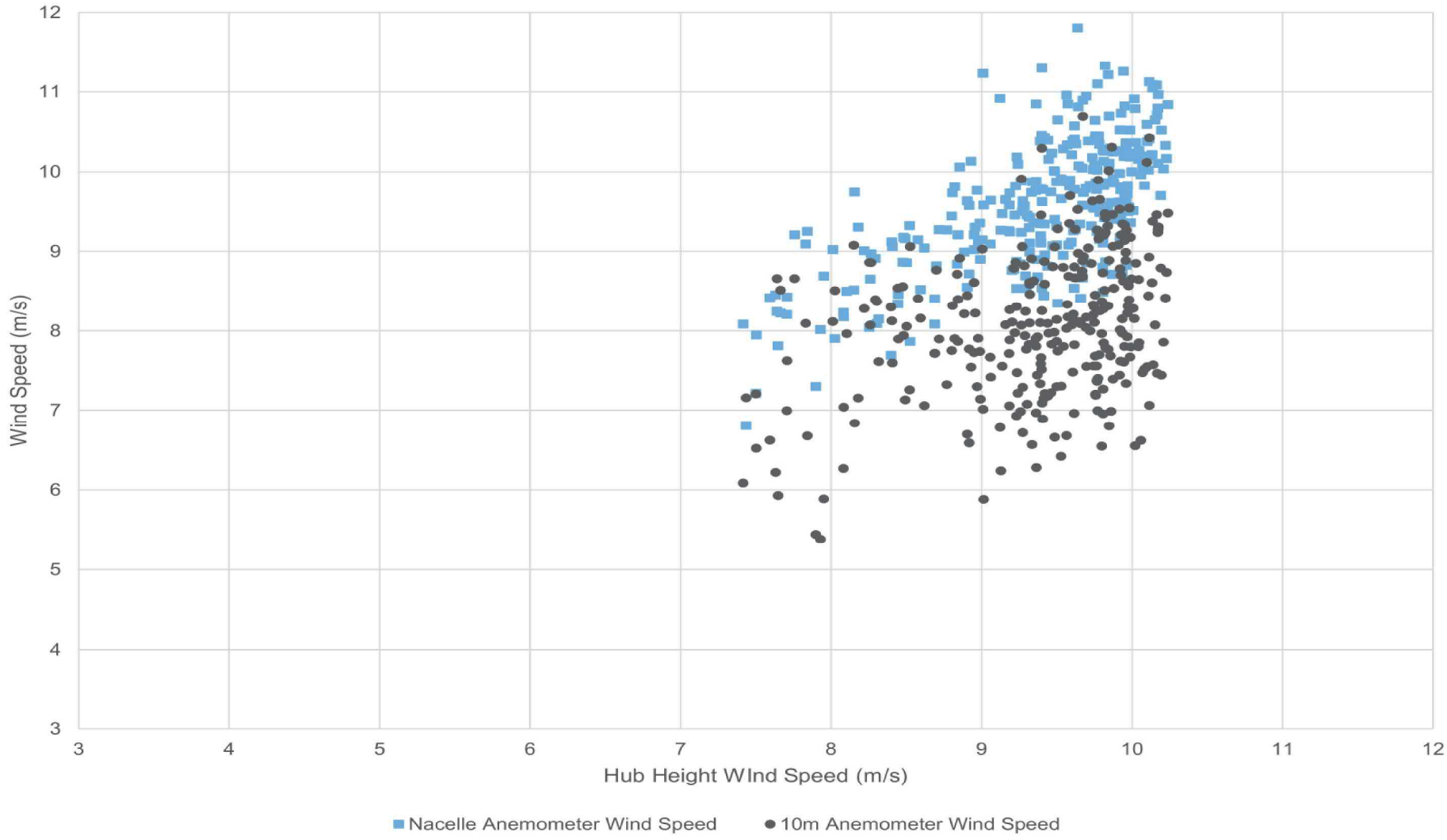
17283.01.T33.RP2	**Project Name**
Scale: NTS Drawn by: IK Reviewed by: MAD Date: Jan 2019 Revision: 1	North Kent Wind 1 LP - IEC 61400-11 Edition 3.0 - Turbine T33
	Figure Title Plot of overall measurement data pairs at Position 1 (Turbine ON & Background)

Figure C.01

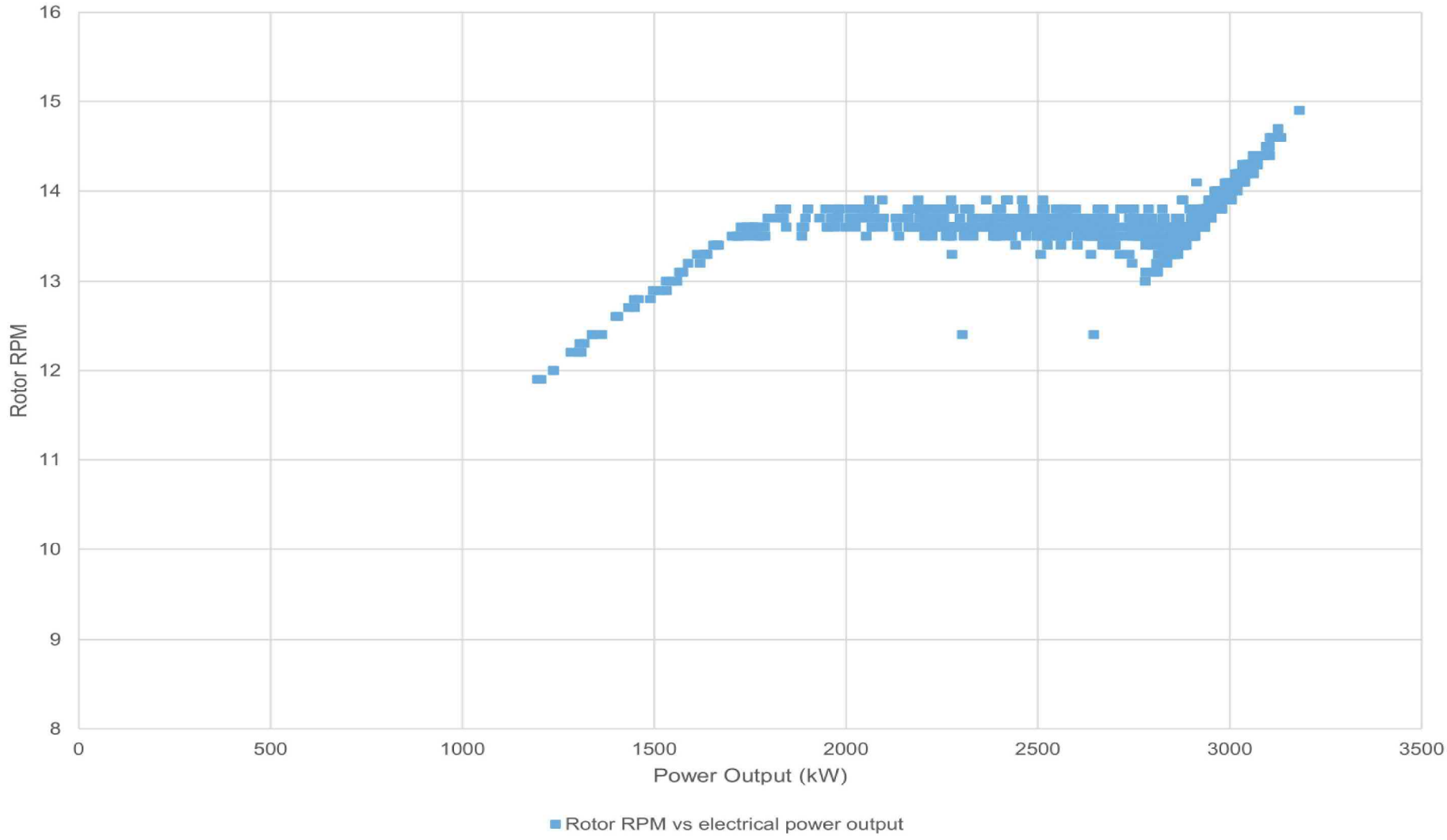


aercoustics	17283.01.T33.RP2 Scale: NTS Drawn by: IK Reviewed by: MAD Date: Jan 2019 Revision: 1	**Project Name** North Kent Wind 1 LP - IEC 61400-11 Edition 3.0 - Turbine T33 **Figure Title** Plot of measured total noise vs. electrical power output

Figure C.02

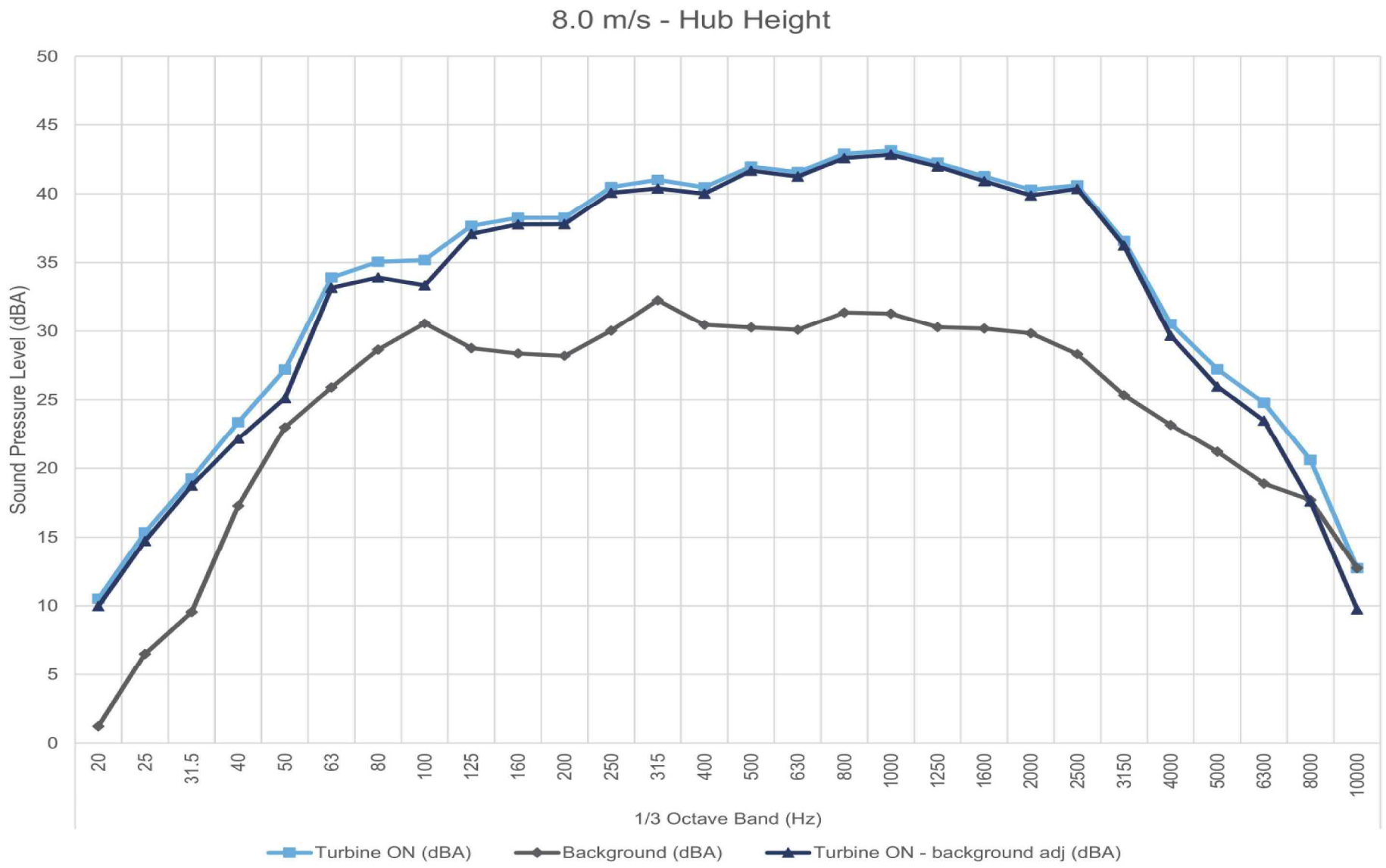


aercoustics	17283.01.T33.RP2	**Project Name**
	Scale: NTS Drawn by: IK Reviewed by: MAD Date: Jan 2019 Revision: 1	North Kent Wind 1 LP - IEC 61400-11 Edition 3.0 - Turbine T33
		Figure Title Plot of power curve relative to nacelle anemometer and 10 m anemometer
		Figure C.03



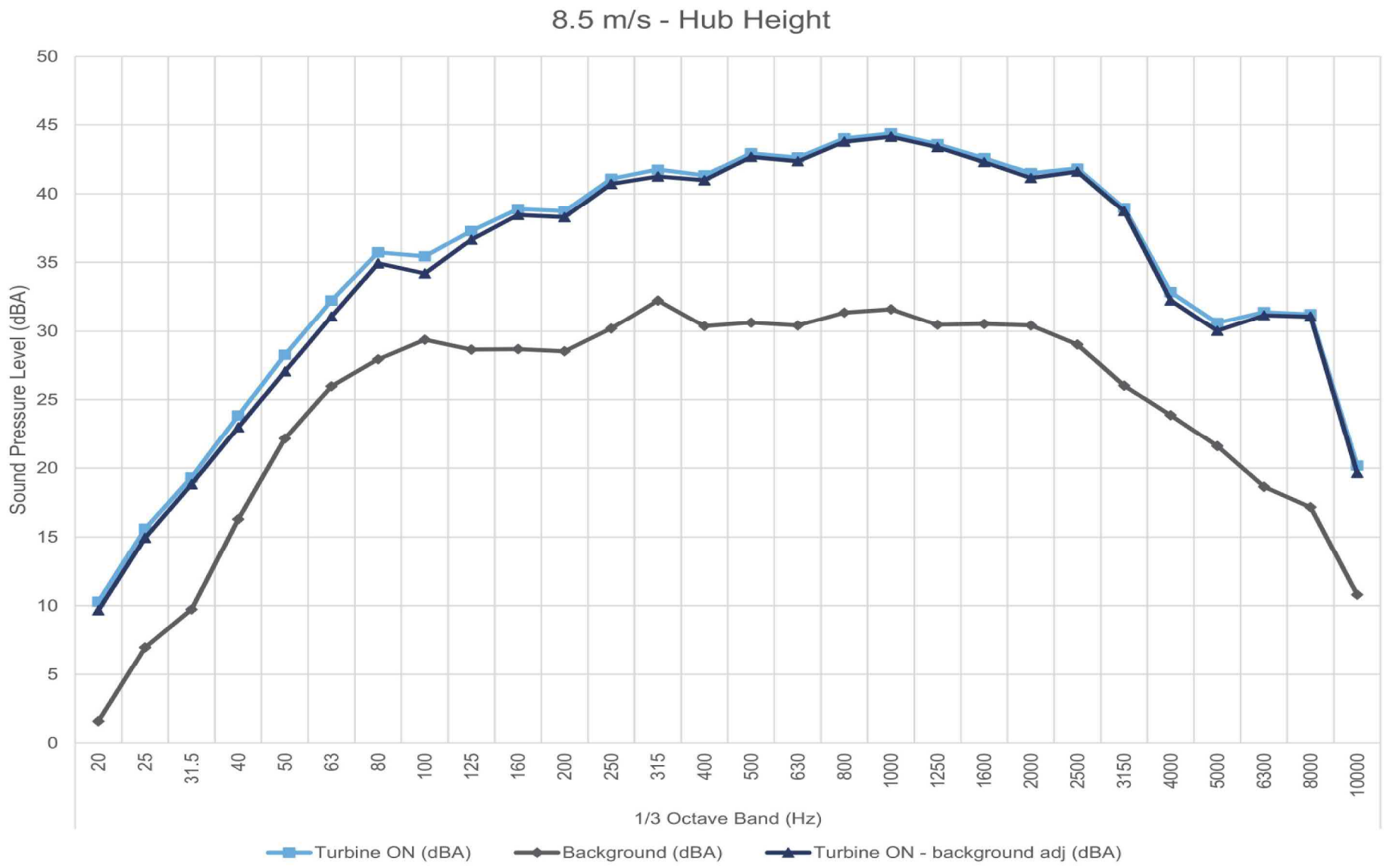
aercoustics	17283.01.T33.RP2 Scale: NTS Drawn by: IK Reviewed by: MAD Date: Jan 2019 Revision: 1	**Project Name** North Kent Wind 1 LP - IEC 61400-11 Edition 3.0 - Turbine T33 **Figure Title** Plot of rotor RPM vs. electrical power output

Figure C.04



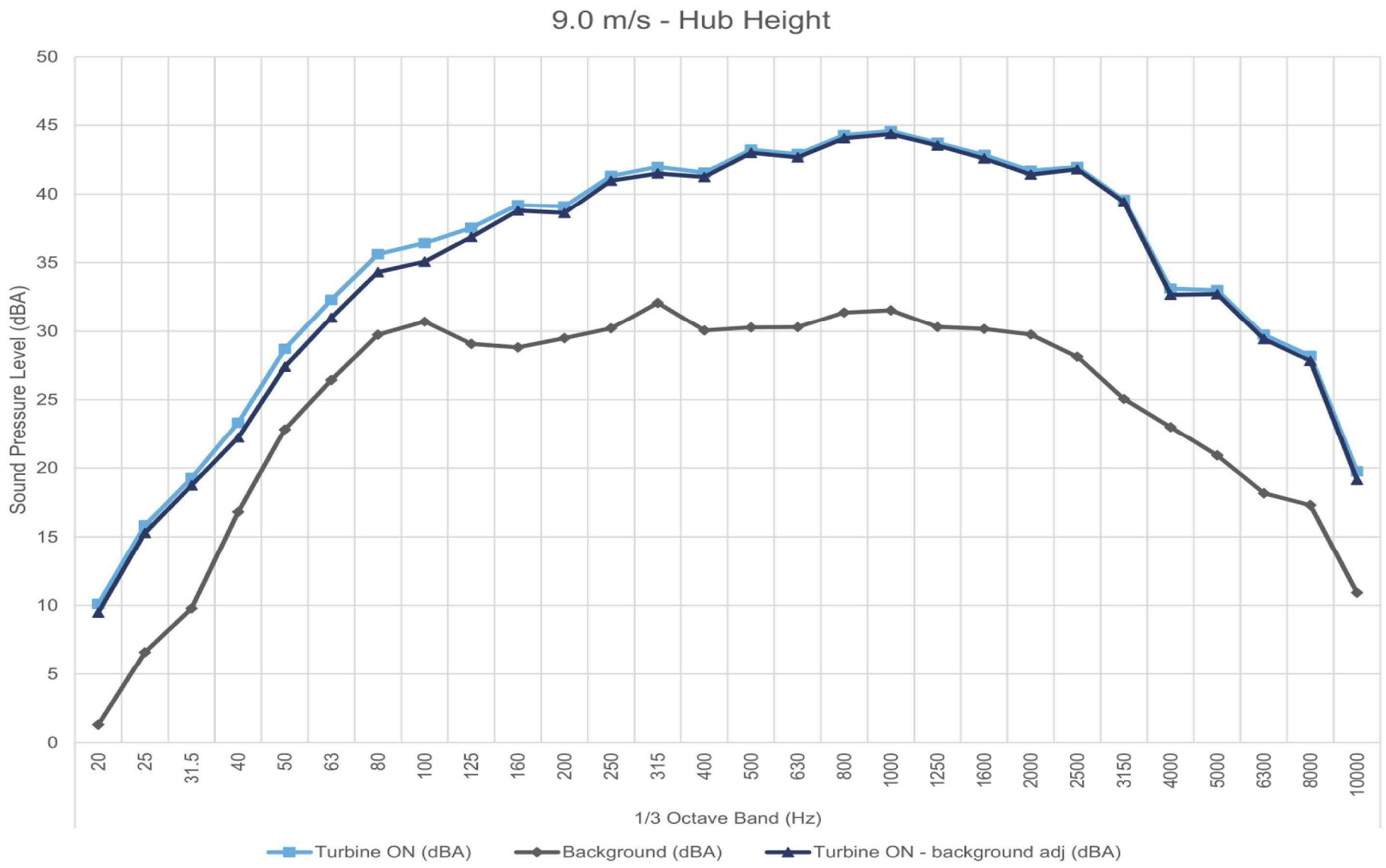
aercoustics	17283.01.T33.RP2 Scale: NTS Drawn by: IK Reviewed by: MAD Date: Jan 2019 Revision: 1	**Project Name** North Kent Wind 1 LP - IEC 61400-11 Edition 3.0 - Turbine T33 **Figure Title** Plot of sound pressure spectrum in 1/3 Octave at 8 m/s

Figure C.05



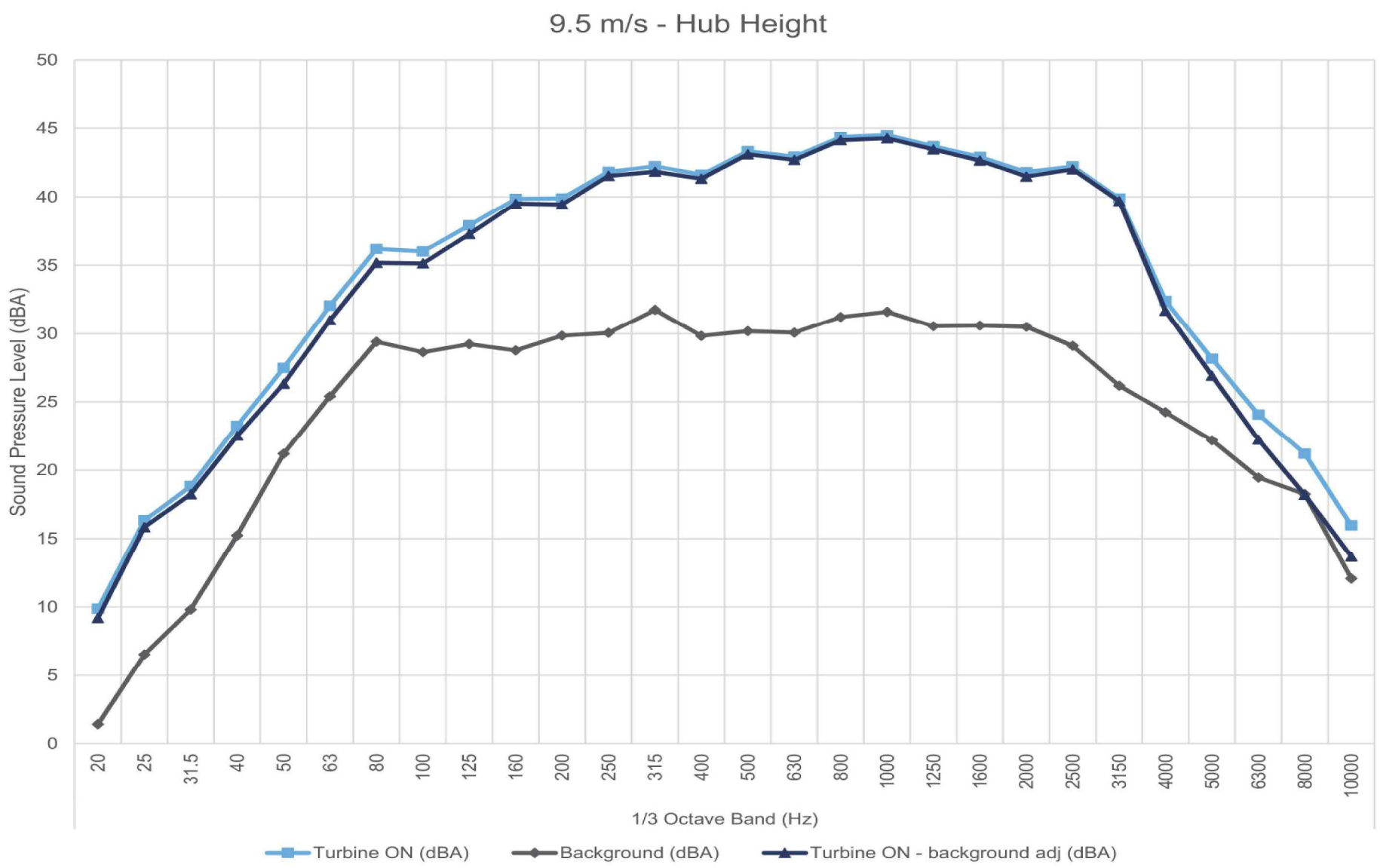
aercoustics	17283.01.T33.RP2 Scale: NTS Drawn by: IK Reviewed by: MAD Date: Jan 2019 Revision: 1	**Project Name** North Kent Wind 1 LP - IEC 61400-11 Edition 3.0 - Turbine T33 **Figure Title** Plot of sound pressure spectrum in 1/3 Octave at 8.5 m/s

Figure C.06



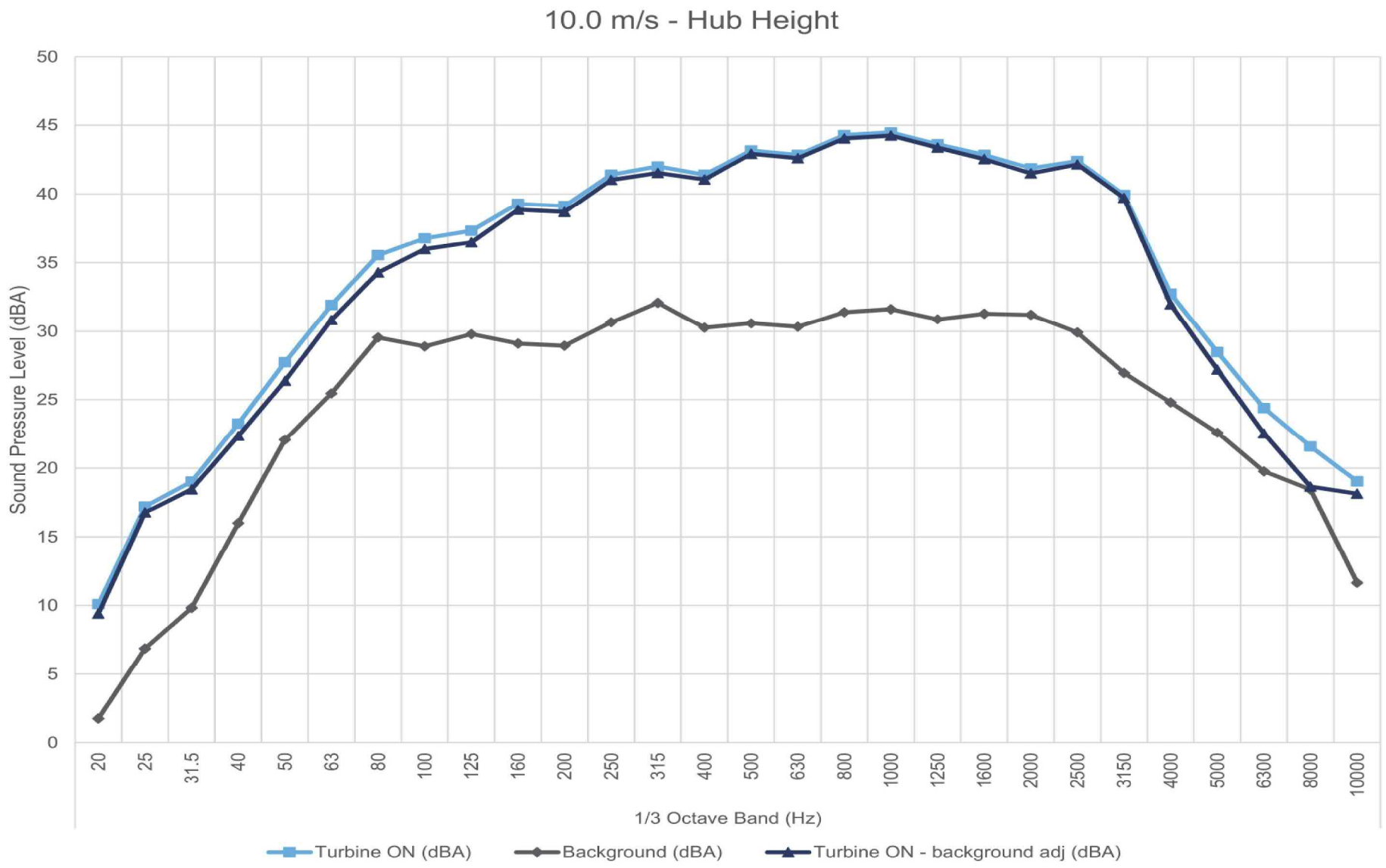
aercoustics	17283.01.T33.RP2 Scale: NTS Drawn by: IK Reviewed by: MAD Date: Jan 2019 Revision: 1	**Project Name** North Kent Wind 1 LP - IEC 61400-11 Edition 3.0 - Turbine T33 **Figure Title** Plot of sound pressure spectrum in 1/3 Octave at 9 m/s

Figure C.07



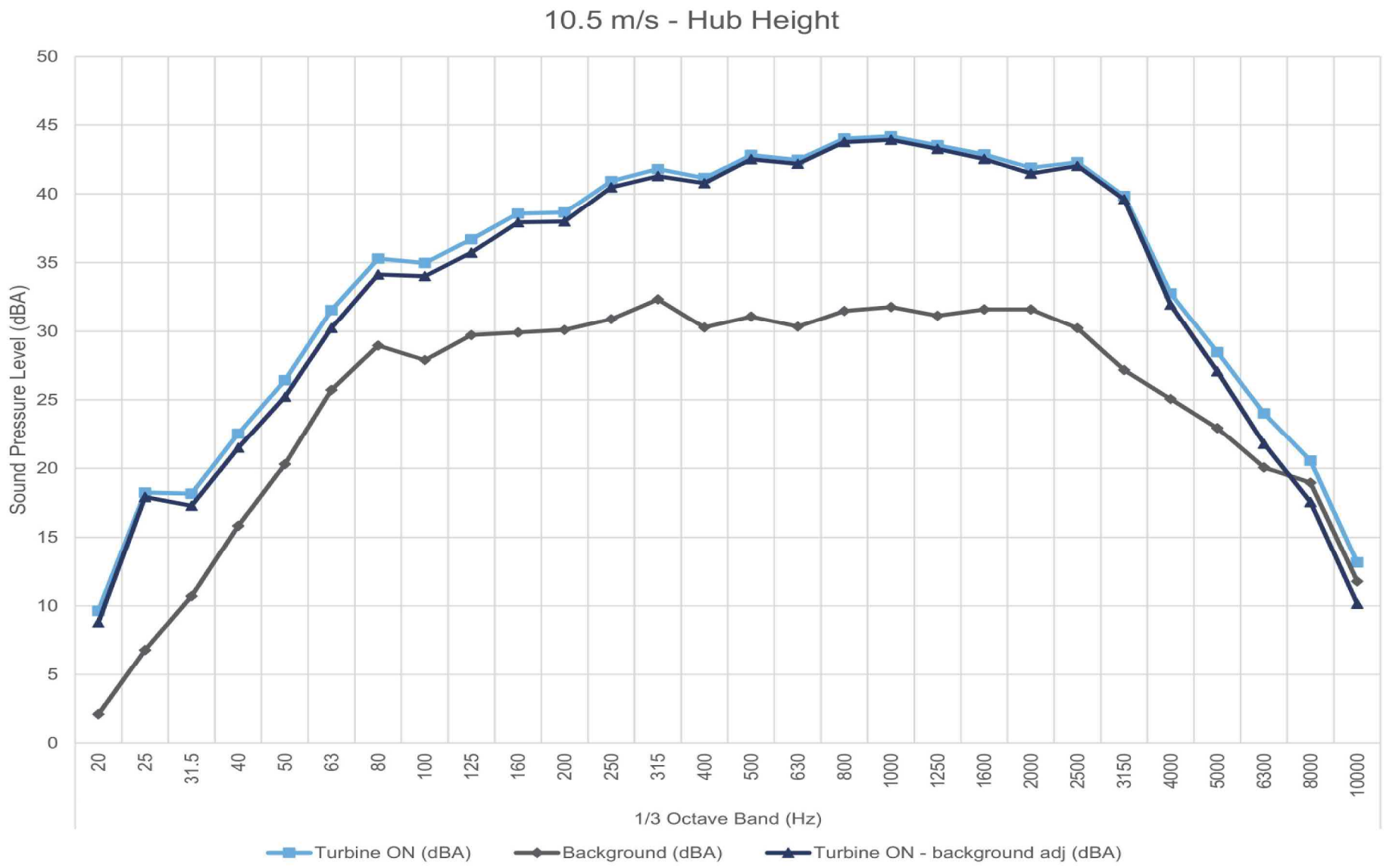
aercoustics	17283.01.T33.RP2 Scale: NTS Drawn by: IK Reviewed by: MAD Date: Jan 2019 Revision: 1	**Project Name** North Kent Wind 1 LP - IEC 61400-11 Edition 3.0 - Turbine T33 **Figure Title** Plot of sound pressure spectrum in 1/3 Octave at 9.5 m/s

Figure C.08



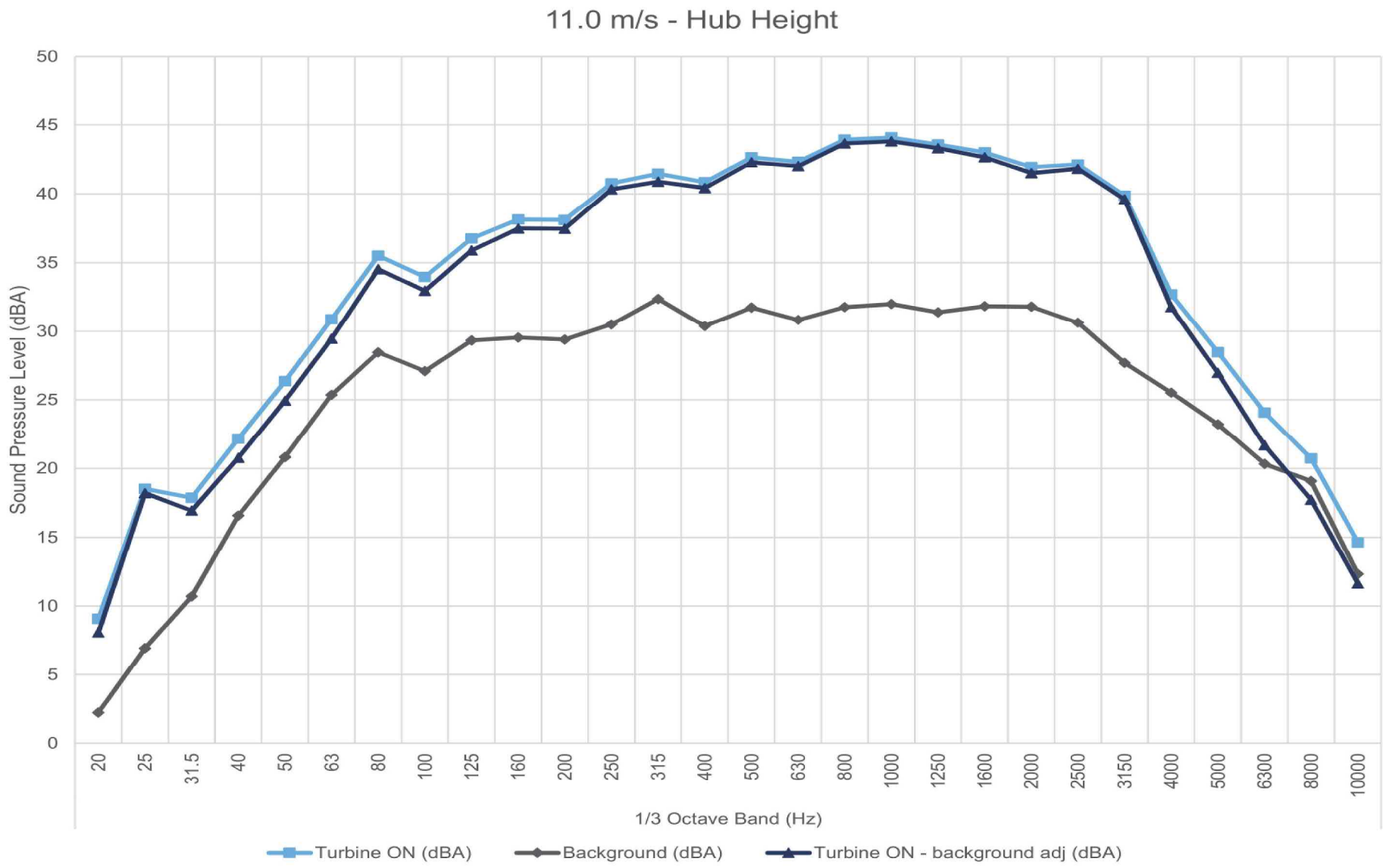
aercoustics	17283.01.T33.RP2 Scale: NTS Drawn by: IK Reviewed by: MAD Date: Jan 2019 Revision: 1	**Project Name** North Kent Wind 1 LP - IEC 61400-11 Edition 3.0 - Turbine T33 **Figure Title** Plot of sound pressure spectrum in 1/3 Octave at 10 m/s

Figure C.09



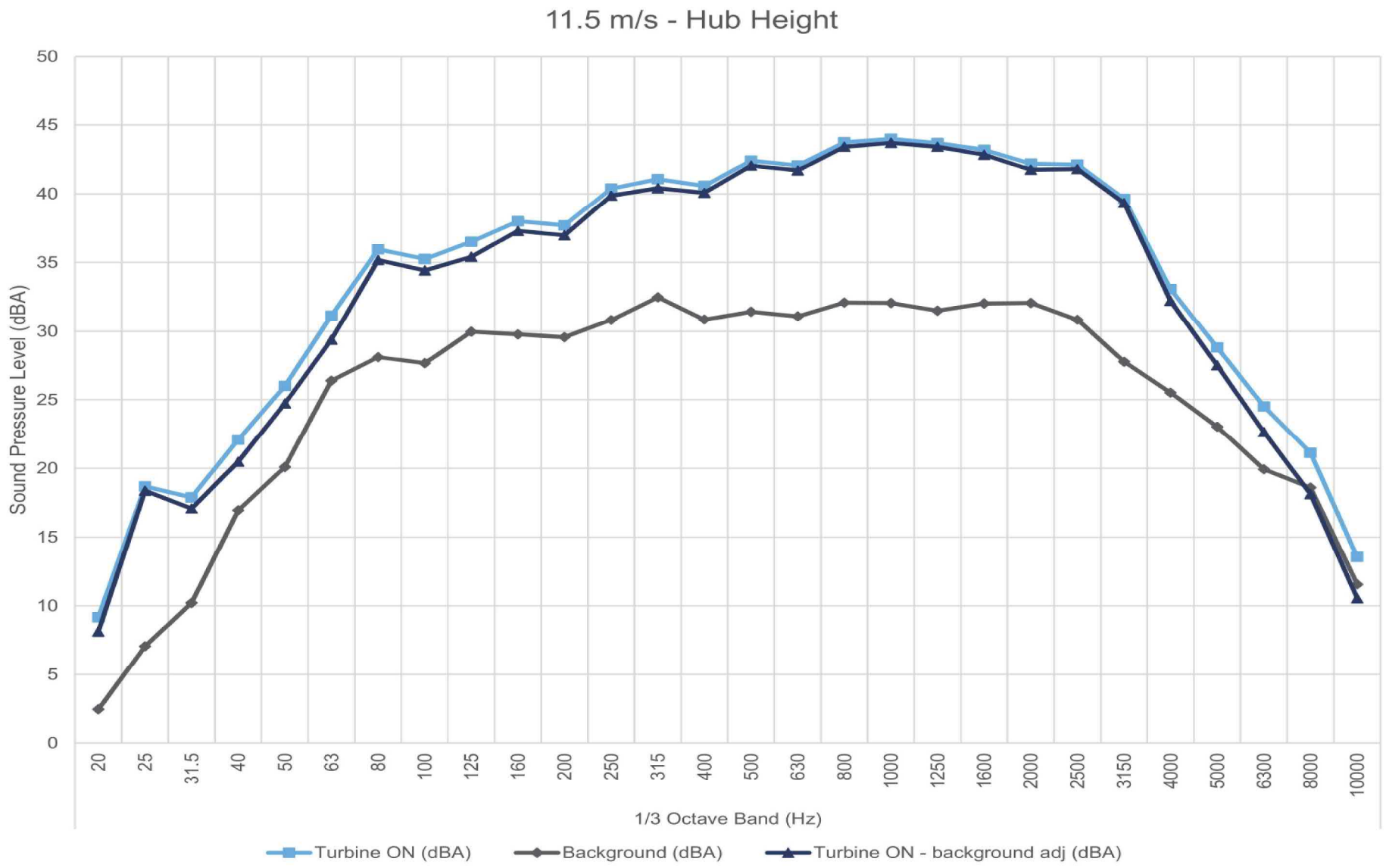
aercoustics	17283.01.T33.RP2 Scale: NTS Drawn by: IK Reviewed by: MAD Date: Jan 2019 Revision: 1	**Project Name** North Kent Wind 1 LP - IEC 61400-11 Edition 3.0 - Turbine T33 **Figure Title** Plot of sound pressure spectrum in 1/3 Octave at 10.5 m/s

Figure C.10



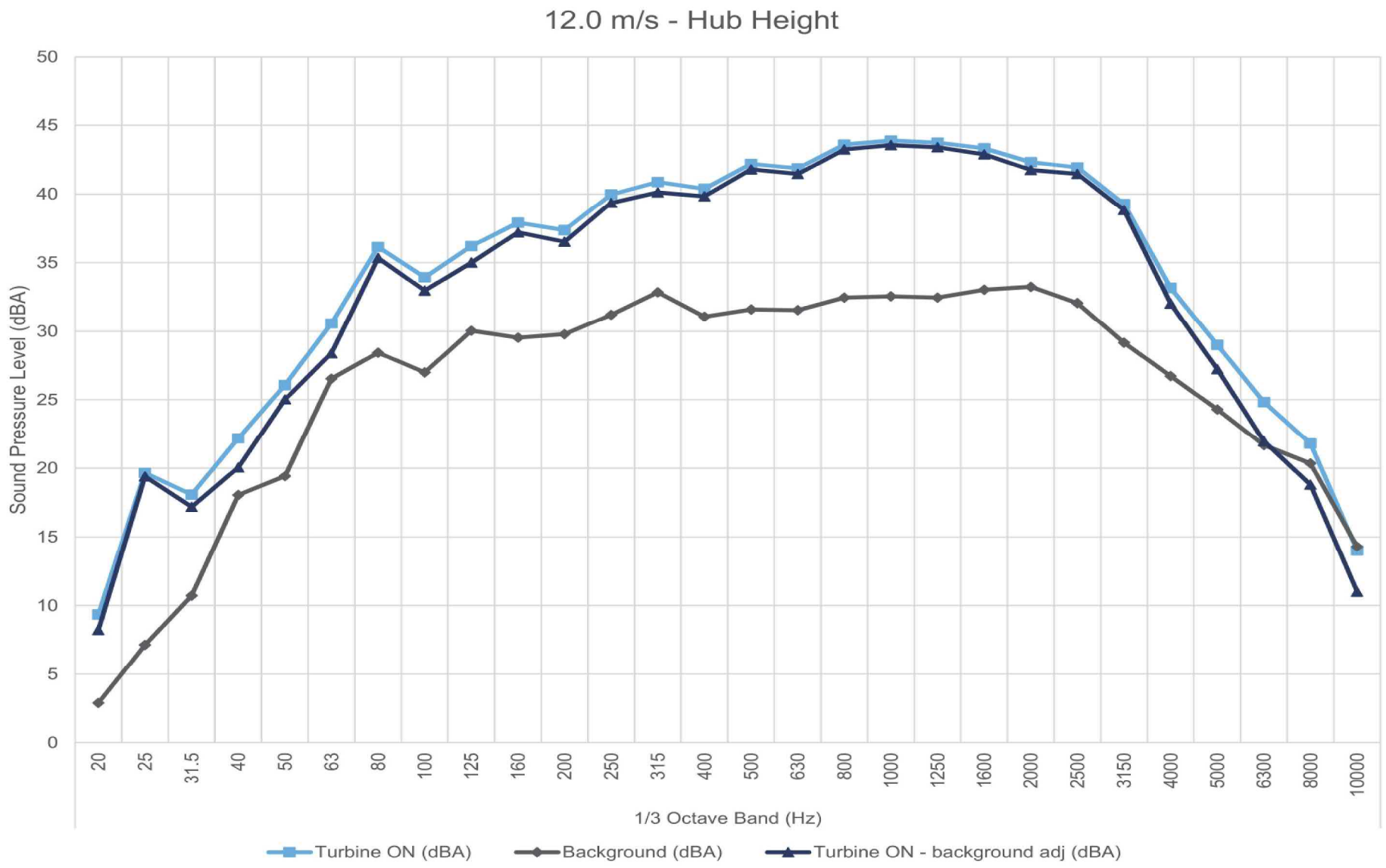
aercoustics	17283.01.T33.RP2 Scale: NTS Drawn by: IK Reviewed by: MAD Date: Jan 2019 Revision: 1	**Project Name** North Kent Wind 1 LP - IEC 61400-11 Edition 3.0 - Turbine T33 **Figure Title** Plot of sound pressure spectrum in 1/3 Octave at 11 m/s

Figure C.11



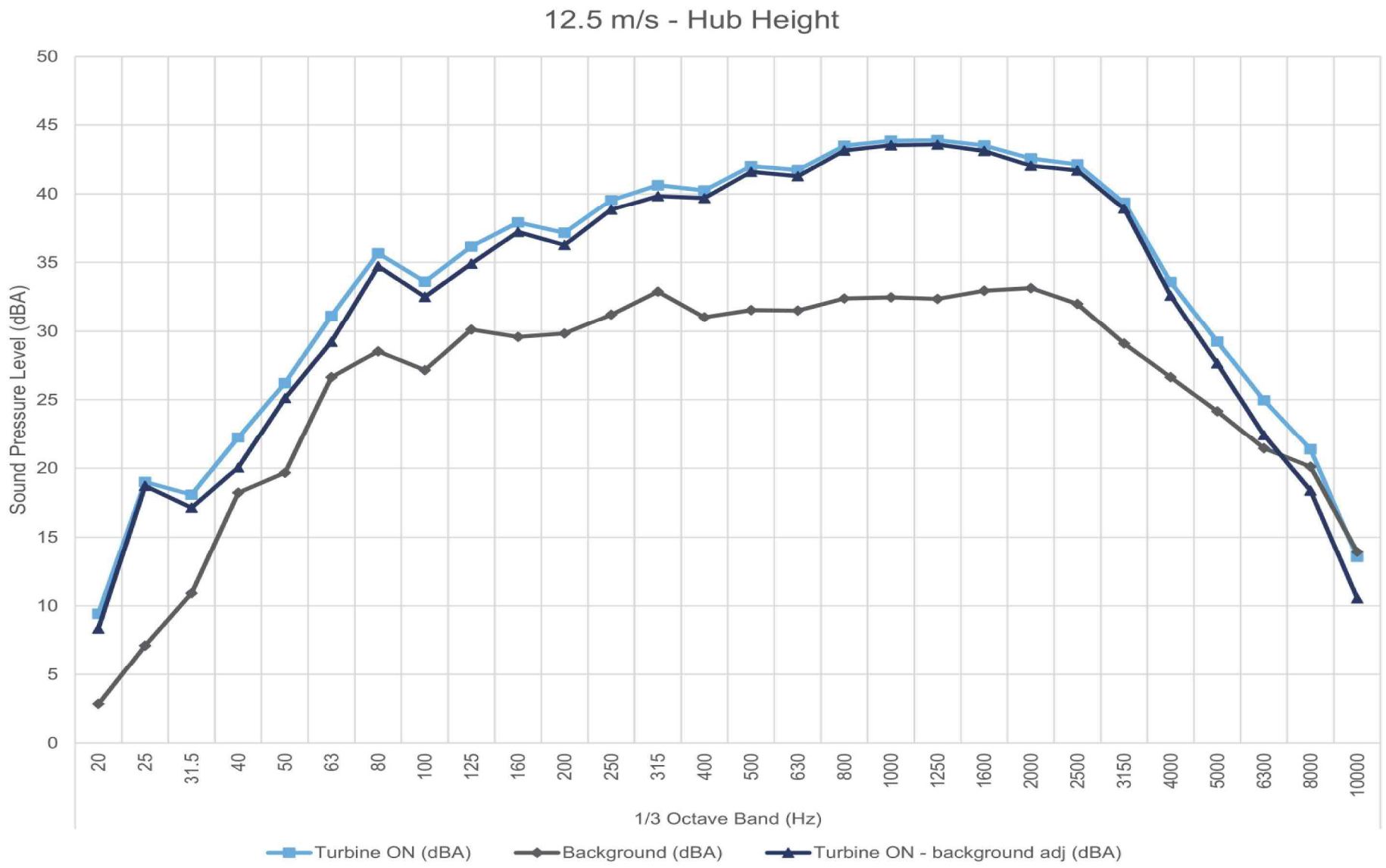
aercoustics	17283.01.T33.RP2 Scale: NTS Drawn by: IK Reviewed by: MAD Date: Jan 2019 Revision: 1	**Project Name** North Kent Wind 1 LP - IEC 61400-11 Edition 3.0 - Turbine T33 **Figure Title** Plot of sound pressure spectrum in 1/3 Octave at 11.5 m/s

Figure C.12



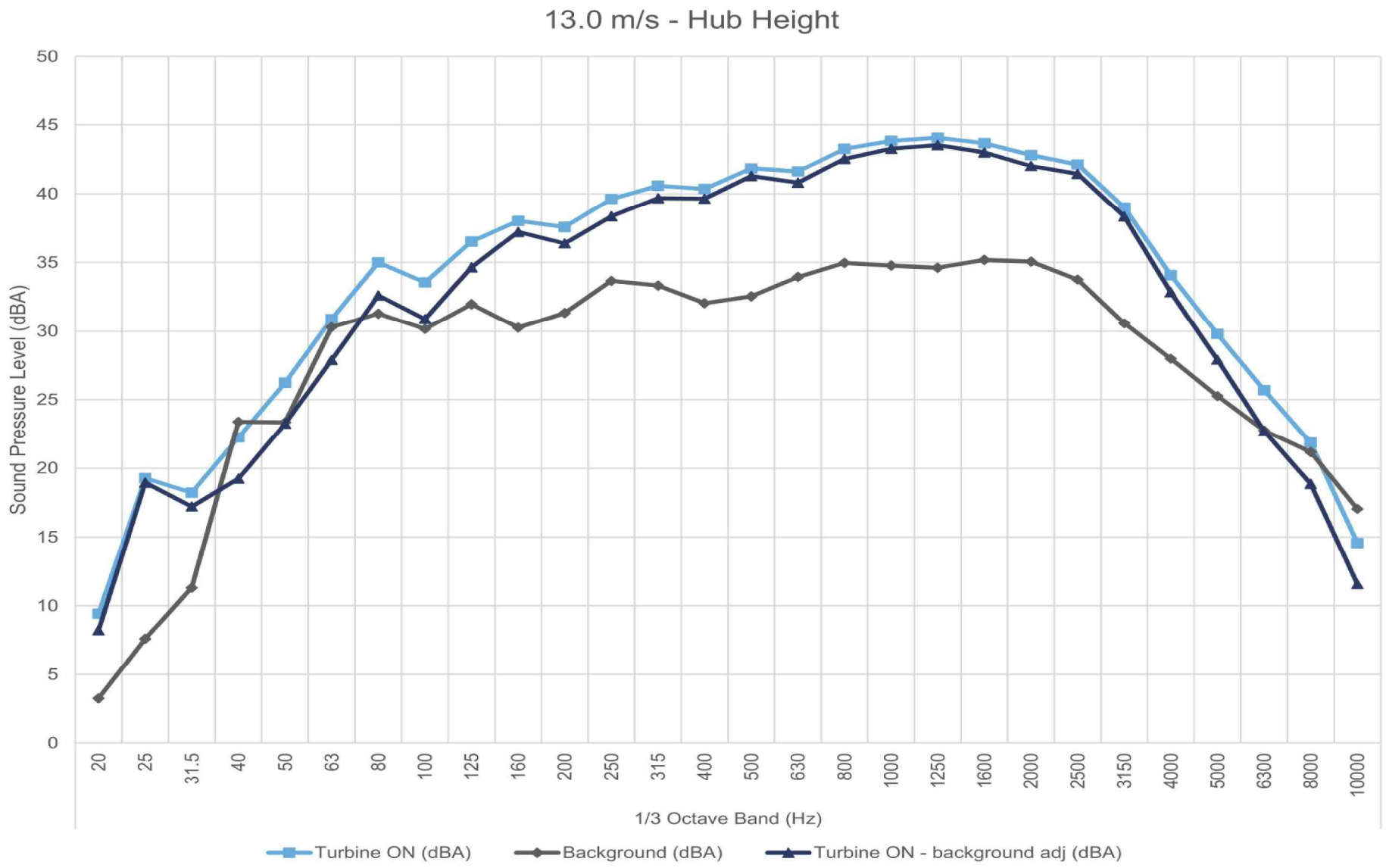
aercoustics	17283.01.T33.RP2 Scale: NTS Drawn by: IK Reviewed by: MAD Date: Jan 2019 Revision: 1	**Project Name** North Kent Wind 1 LP - IEC 61400-11 Edition 3.0 - Turbine T33 **Figure Title** Plot of sound pressure spectrum in 1/3 Octave at 12 m/s

Figure C.13



aercoustics	17283.01.T33.RP2 Scale: NTS Drawn by: IK Reviewed by: MAD Date: Jan 2019 Revision: 1	**Project Name** North Kent Wind 1 LP - IEC 61400-11 Edition 3.0 - Turbine T33 **Figure Title** Plot of sound pressure spectrum in 1/3 Octave at 12.5 m/s

Figure C.14



aercoustics	17283.01.T33.RP2 Scale: NTS Drawn by: IK Reviewed by: MAD Date: Jan 2019 Revision: 1	**Project Name** North Kent Wind 1 LP - IEC 61400-11 Edition 3.0 - Turbine T33 **Figure Title** Plot of sound pressure spectrum in 1/3 Octave at 13 m/s

Figure C.15

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

Project: North Kent Wind 1 LP - Turbine T33 - IEC 61400-11 Measurement

Report ID: 17283.01.T33.RP2

Created on: 2019-03-21

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	
8.0	Turbine ON (dBA)	10.5	15.3	19.2	23.4	27.2	33.9	35.1	35.2	37.7	38.2	38.2	40.5	41.0	40.5	42.0	41.6	42.9	43.1	42.3	41.3	40.3	40.6	36.6	30.5	27.2	24.8	20.6	12.7	52.9
	Background (dBA)	1.2	6.5	9.6	17.3	23.0	25.9	28.7	30.6	28.8	28.4	28.2	30.0	32.3	30.5	30.3	30.1	31.4	31.3	30.3	30.2	29.8	28.3	25.3	23.2	21.2	18.9	17.7	12.7	42.5
	Turbine ON - background adj (dBA)	10.0	14.7	18.7	22.1	25.1	33.2	33.9	33.3	37.1	37.8	37.8	40.1	40.4	40.0	41.7	41.3	42.6	42.9	42.0	40.9	39.9	40.4	36.2	29.7	26.0	23.5	[17.6]	[9.7]	52.4
	Signal to noise (dB)	9.3	8.8	9.7	6.1	4.2	8.0	6.4	4.6	8.9	9.9	10.0	10.4	8.7	10.0	11.7	11.5	11.5	11.8	12.0	11.1	10.5	12.3	11.2	7.4	6.0	5.9	2.9	0.0	10.4
	Uncertainty (dB)	2.2	1.9	1.2	2.0	1.9	1.1	1.2	1.5	0.9	0.9	0.8	0.8	0.8	0.8	0.7	0.8	0.7	0.8	0.8	0.8	0.8	0.9	1.2	1.4	1.7	2.4	4.7	4.2	0.8
	PWL (dBA)	60.5	65.3	69.3	72.7	75.7	83.7	84.5	83.9	87.6	88.3	88.3	90.6	90.9	90.6	92.2	91.8	93.2	93.4	92.5	91.5	90.4	90.9	86.8	80.2	76.5	74.0	[68.1]	[60.3]	103.0
8.5	Turbine ON (dBA)	10.3	15.6	19.3	23.8	28.3	32.3	35.7	35.4	37.3	38.9	38.7	41.1	41.8	41.3	42.9	42.6	44.0	44.4	43.6	42.6	41.5	41.8	39.0	32.9	30.6	31.4	31.2	20.2	53.9
	Background (dBA)	1.6	7.0	9.7	16.3	22.2	26.0	27.9	29.4	28.7	28.7	28.5	30.2	32.2	30.4	30.6	30.4	31.4	31.6	30.5	30.5	30.4	29.0	26.0	23.9	21.6	18.7	17.2	10.8	42.6
	Turbine ON - background adj (dBA)	9.7	15.0	18.8	23.0	27.1	31.1	34.9	34.2	36.6	38.4	38.3	40.7	41.3	41.0	42.7	42.4	43.8	44.1	43.4	42.3	41.1	41.6	38.7	32.3	30.0	31.2	31.1	19.7	53.6
	Signal to noise (dB)	8.7	8.6	9.6	7.5	6.1	6.3	7.8	6.1	8.6	10.2	10.2	10.9	9.5	11.0	12.3	12.2	12.6	12.8	13.1	12.1	11.1	12.8	12.9	9.0	9.0	12.7	14.1	9.4	11.3
	Uncertainty (dB)	2.2	1.9	1.2	1.8	1.5	1.3	1.0	1.1	0.9	0.9	0.7	0.8	0.8	0.8	0.7	0.7	0.7	0.8	0.8	0.8	0.8	0.8	1.1	1.3	1.5	2.3	3.4	2.9	0.8
	PWL (dBA)	60.2	65.5	69.4	73.5	77.6	81.6	85.5	84.8	87.2	89.0	88.8	91.3	91.8	91.5	93.2	92.9	94.3	94.7	93.9	92.9	91.7	92.2	89.3	82.8	80.6	81.7	81.6	70.2	104.1
9.0	Turbine ON (dBA)	10.1	15.8	19.3	23.3	28.7	32.3	35.6	36.4	37.5	39.2	39.1	41.3	42.0	41.6	43.2	42.9	44.3	44.6	43.7	42.8	41.7	42.0	39.6	33.1	33.0	29.7	28.2	19.8	54.2
	Background (dBA)	1.3	6.6	9.8	16.8	22.8	26.4	29.7	30.7	29.1	28.8	29.5	30.2	32.1	30.0	30.3	30.3	31.4	31.5	30.3	30.2	29.8	28.1	25.1	23.0	20.9	18.2	17.3	10.9	42.6
	Turbine ON - background adj (dBA)	9.5	15.3	18.7	22.2	27.4	31.0	34.3	35.1	36.9	38.8	38.6	41.0	41.5	41.2	43.0	42.7	44.0	44.3	43.5	42.6	41.4	41.8	39.4	32.7	32.7	29.4	27.8	19.1	53.8
	Signal to noise (dB)	8.8	9.2	9.5	6.5	5.9	5.9	5.9	5.7	8.4	10.4	9.6	11.1	9.9	11.5	12.9	12.6	12.9	13.0	13.4	12.7	11.9	13.8	14.5	10.1	12.1	11.6	10.9	8.8	11.5
	Uncertainty (dB)	2.2	1.8	1.2	1.9	1.5	1.3	1.1	1.2	0.9	0.9	0.8	0.8	0.8	0.7	0.7	0.7	0.7	0.8	0.8	0.8	0.7	0.8	1.1	1.2	1.4	1.6	2.2	2.3	0.8
	PWL (dBA)	60.1	65.8	69.3	72.8	78.0	81.6	84.9	85.6	87.4	89.3	89.2	91.5	92.1	91.8	93.5	93.2	94.6	94.9	94.1	93.1	92.0	92.3	90.0	83.2	83.3	80.0	78.4	69.7	104.4
9.5	Turbine ON (dBA)	9.9	16.3	18.8	23.3	27.5	32.1	36.2	36.0	37.9	39.9	39.9	41.8	42.2	41.6	43.3	42.9	44.3	44.5	43.7	42.9	41.8	42.2	39.9	32.4	28.2	24.1	21.2	16.0	54.3
	Background (dBA)	1.4	6.5	9.8	15.2	21.2	25.4	29.4	28.6	29.2	28.8	29.8	30.1	31.7	29.8	30.2	30.1	31.2	31.6	30.5	30.6	30.5	29.1	26.2	24.2	22.2	19.4	18.2	12.1	42.6
	Turbine ON - background adj (dBA)	9.2	15.8	18.2	22.5	26.3	31.0	35.2	35.1	37.3	39.5	39.4	41.5	41.8	41.3	43.1	42.7	44.1	44.3	43.5	42.6	41.5	42.0	39.7	31.7	26.9	22.2	[18.2]	13.7	54.0
	Signal to noise (dB)	8.5	9.8	9.0	8.0	6.3	6.6	6.8	7.4	8.7	11.1	10.0	11.8	10.5	11.8	13.2	12.9	13.1	12.9	13.1	12.3	11.3	13.1	13.7	8.2	6.0	4.6	3.0	3.9	11.7
	Uncertainty (dB)	2.3	1.9	1.2	1.8	1.4	1.3	1.1	1.1	1.0	0.9	0.8	0.8	0.8	0.8	0.7	0.8	0.7	0.8	0.8	0.8	0.8	0.9	1.1	1.3	1.4	1.7	3.2	3.2	0.8
	PWL (dBA)	59.8	66.4	68.8	73.1	76.9	81.5	85.7	85.7	87.8	90.1	90.0	92.1	92.4	91.9	93.7	93.3	94.7	94.8	94.0	93.2	92.0	92.6	90.3	82.2	77.5	72.8	[68.7]	64.2	104.5
10.0	Turbine ON (dBA)	10.1	17.2	19.0	23.2	27.7	31.9	35.5	36.8	37.3	39.3	39.1	41.4	42.0	41.4	43.2	42.8	44.3	44.5	43.6	42.8	41.9	42.4	39.9	32.7	28.5	24.4	21.6	19.0	54.1
	Background (dBA)	1.7	6.9	9.8	16.0	22.1	25.5	29.5	28.9	29.8	29.1	28.9	30.7	32.1	30.3	30.6	30.3	31.4	31.6	30.9	31.3	31.2	29.9	27.0	24.8	22.6	19.8	18.4	11.6	43.0
	Turbine ON - background adj (dBA)	9.4	16.8	18.5	22.3	26.4	30.8	34.3	36.0	36.5	38.8	38.7	41.0	41.5	41.0	42.9	42.6	44.0	44.2	43.4	42.5	41.5	42.1	39.7	32.0	27.2	22.5	18.7	18.1	53.8
	Signal to noise (dB)	8.4	10.3	9.2	7.3	5.7	6.5	6.0	7.9	7.5	10.2	10.2	10.7	9.9	11.1	12.6	12.5	12.9	12.8	12.7	11.6	10.7	12.5	13.0	7.9	5.9	4.6	3.1	7.4	11.2
	Uncertainty (dB)	2.1	1.7	1.1	1.7	1.4	1.1	1.1	1.0	0.9	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	1.0	1.2	1.3	1.6	2.8	2.1	0.8
	PWL (dBA)	60.0	67.3	69.0	72.9	76.9	81.4	84.8	86.5	87.0	89.4	89.2	91.6	92.1	91.6	93.5	93.2	94.6	94.8	93.9	93.1	92.0	92.7	90.3	82.5	77.8	73.1	69.2	68.7	104.3
10.5	Turbine ON (dBA)	9.6	18.2	18.2	22.5	26.4	31.6	35.3	35.0	36.7	38.6	38.6	40.9	41.8	41.1	42.8	42.5	44.0	44.2	43.5	42.9	41.9	42.3	39.8	32.8	28.5	24.0	20.6	13.2	53.9
	Background (dBA)	2.1	6.8	10.7	15.8	20.3	25.7	29.0	27.9	29.7	29.9	30.1	30.9	32.3	30.3	31.1	30.3	31.5	31.8	31.2	31.6	31.6	30.2	27.2	25.1	22.9	20.1	19.0	11.8	43.2
	Turbine ON - background adj (dBA)	8.8	17.9	17.3	21.5	25.2	30.3	34.1	34.0	35.7	37.9	38.0	40.5	41.3	40.8	42.5	42.2	43.8	43.9	43.3	42.5	41.5	42.0	39.6	32.0	27.1	21.8	[17.6]	[10.2]	53.5
	Signal to noise (dB)	7.5	11.4	7.5	6.7	6.1	5.8	6.3	7.1	7.0	8.6	8.5	10.0	9.5	10.9	11.7	12.1	12.5	12.4	12.4	11.3	10.3	12.1	12.7	7.7	5.6	4.0	1.6	1.4	10.7
	Uncertainty (dB)	2.4	1.8	1.3	2.0	1.4	1.3	1.1	1.1	1.1	1.0	0.8	0.8	0.8	0.8	0.8	0.8	0.7	0.8	0.8	0.8	0.8	0.9	1.1	1.3	1.4	1.9	3.1	3.8	0.8
	PWL (dBA)	59.4	68.5	67.8	72.0	75.8	80.8	84.7	84.6	86.3	88.5	88.5	91.0	91.8	91.3	93.1	92.7	94.3	94.5	93.8	93.1	92.0	92.6	90.2	82.5	77.6	72.3	[68.1]	[60.7]	104.0
11.0	Turbine ON (dBA)	9.1	18.5	17.9	22.2	26.4	30.9	35.5	34.0	36.8	38.1	38.1	40.8	41.5	40.8	42.7	42.3	43.9	44.1	43.6	43.0	42.0	42.1	39.9	32.7	28.5	24.1	20.7	14.6	53.8
	Background (dBA)	2.2	6.9	10.7	16.6	20.8	25.4	28.5	27.1	29.3	29.5	29.4	30.5	32.4	30.4	31.7	30.8	31.8	32.0	31.4	31.8	31.8	30.6	27.7	25.5	23.2	20.3	19.1	12.3	43.2
	Turbine ON - background adj (dBA)	8.1	18.2	16.9	20.8	24.9	29.5	34.5	33.0	35.9	37.5	37.5	40.3	40.9	40.4	42.3	42.0	43.7	43.8	43.3	42.7	41.5	41.8	39.6	31.8	27.0	21.7	[17.7]	[11.6]	53.3
	Signal to noise (dB)	6.8	11.6	7.2	5.6	5.5	5.5	7.0	6.9	7.4	8.6	8.7	10.3	9.1	10.4	10.9	11.5	12.2	12.1	12.2	11.2	10.1	11.5	12.2	7.2	5.3	3.7	1.7	2.3	10.5
	Uncertainty (dB)	2.5	1.8	1.3	2.2	1.5	1.4	1.1	1.1	1.0	1.0	0.8	0.8	0.8	0.8	0.8	0.8	0.7	0.8	0.8	0.8	0.8	0.9	1.1	1.3	1.5	2.0	3.1	3.8	0.8
	PWL (dBA)	58.6	68.8	67.5	71.3	75.5	80.0	85.1	83.5	86.4	88.0	88.0	90.9	91.4	91.0	92.9	92.6	94.2	94.4	93.9	93.2	92.1	92.4	90.2	82.3	77.5	72.2	[68.3]	[62.2]	103.9
11.5	Turbine ON (dBA)	9.2	18.7	17.9	22.1	26.0	31.2	36.0	35.3	36.5	38.0	37.7	40.4	41.1	40.6	42.4	42.1	43.7	44.0	43.7	43.2	42.2	42.1	39.6	33.1	28.8	24.5	21.1	13.5	53.7
	Background (dBA)	2.5	7.1	10.2	17.0	20.1	26.4	28.1	27.7	30.0	29.8	29.6	30.8	32.5	30.9	31.4	31.1	32.1	32.1	31.5	32.0	32.1	30.8	27.8	25.5	23.0	19.9	18.6	11.6	43.4
	Turbine ON - background adj (dBA)	8.1	18.4	17.1	20.5	24.7	29.4	35.2	34.4	35.4	37.3	37.0	39.9	40.4	40.1	42.1	41.7	43.4	43.7	43.4	42.8	41.7	41.8	39.3	32.2	27.5	22.6	[18.1]	[10.5]	53.2
	Signal to noise (dB)	6.7	11.6	7.7	5.1	5.9	4.8	7.8	7.6	6.5	8.2	8.1	9.5	8.6	9.7	11.0	11.0	11.6	11.9	12.2	11.2	10.1	11.3	11.9	7.6	5.8	4.6	2.5	2.0	10.3
	Uncertainty (dB)	2.5	1.7	1.3	2.3	1.5	1.5	1.0	1.1	1.1	1.0	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.9	0.8	0.8	0.9	1.1	1.3	1.4	1.8	3.1	3.8	0.9
	PWL (dBA)	58.7	68.9	67.6	71.0	75.3	79.9	85.7	85.0	86.0	87.9	87.5	90.4	91.0	90.6	92.6	92.3	94.0	94.2	94.0	93.4	92.3	92.3	89.9	82.8	78.1	73.2	[68.7]	[61.1]	103.8

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

Project: North Kent Wind 1 LP - Turbine T33 - IEC 61400-11 Measurement
Report ID: 17283.01.T33.RP2

Created on: 2019-03-21

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	
12.0	Turbine ON (dBA)	9.3	19.6	18.1	22.2	26.1	30.6	36.1	34.0	36.2	37.9	37.4	40.0	40.9	40.4	42.2	41.9	43.6	43.9	43.7	43.3	42.3	41.9	39.3	33.2	29.0	24.8	21.8	14.0	53.5
	Background (dBA)	2.9	7.1	10.7	18.0	19.4	26.5	28.4	27.0	30.0	29.5	29.8	31.2	32.8	31.1	31.6	31.6	32.5	32.6	32.5	33.0	33.3	32.1	29.2	26.7	24.3	21.7	20.3	14.3	44.0
	Turbine ON - background adj (dBA)	8.2	19.4	17.2	20.0	25.0	28.4	35.3	33.0	35.0	37.2	36.5	39.4	40.1	39.8	41.8	41.5	43.2	43.5	43.4	42.9	41.7	41.5	38.8	32.0	27.2	21.9	[18.8]	[11]	53.0
	Signal to noise (dB)	6.4	12.5	7.4	4.1	6.7	4.0	7.7	6.9	6.2	8.4	7.6	8.8	8.0	9.3	10.6	10.3	11.1	11.3	11.3	10.3	9.1	9.9	10.1	6.4	4.7	3.2	1.4	-0.3	9.6
	Uncertainty (dB)	2.5	1.7	1.3	2.6	1.3	1.6	1.0	1.0	1.1	1.0	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.9	1.2	1.4	1.6	2.4	3.1	3.7	0.9
	PWL (dBA)	58.8	69.9	67.7	70.6	75.6	78.9	85.9	83.5	85.6	87.8	87.1	89.9	90.7	90.4	92.3	92.0	93.8	94.1	94.0	93.4	92.3	92.0	89.4	82.6	77.8	72.5	[69.3]	[61.6]	103.6
12.5	Turbine ON (dBA)	9.4	19.0	18.1	22.2	26.2	31.1	35.7	33.6	36.2	37.9	37.2	39.5	40.6	40.3	42.0	41.7	43.5	43.9	43.9	43.5	42.6	42.1	39.4	33.6	29.2	25.0	21.4	13.5	53.5
	Background (dBA)	2.8	7.1	10.9	18.2	19.7	26.6	28.5	27.2	30.1	29.6	29.8	31.2	32.9	31.0	31.6	31.5	32.4	32.5	32.4	33.0	33.2	32.0	29.1	26.6	24.2	21.4	20.1	13.9	44.0
	Turbine ON - background adj (dBA)	8.4	18.7	17.1	20.0	25.1	29.2	34.7	32.5	34.9	37.2	36.3	38.9	39.8	39.7	41.6	41.3	43.1	43.5	43.6	43.1	42.0	41.7	38.9	32.6	27.6	22.4	[18.4]	[10.5]	53.0
	Signal to noise (dB)	6.6	11.9	7.2	4.0	6.5	4.5	7.1	6.5	6.1	8.3	7.3	8.3	7.7	9.2	10.4	10.2	11.1	11.4	11.5	10.6	9.4	10.1	10.3	7.0	5.1	3.5	1.3	-0.4	9.6
	Uncertainty (dB)	2.6	1.8	1.4	2.7	1.4	1.6	1.1	1.1	1.2	1.0	0.9	0.9	0.9	0.8	0.8	0.8	0.8	0.8	0.9	0.8	0.8	0.9	1.2	1.4	1.6	2.2	3.3	3.9	0.9
	PWL (dBA)	58.9	69.3	67.7	70.6	75.7	79.8	85.3	83.1	85.5	87.8	86.8	89.4	90.4	90.3	92.2	91.8	93.7	94.1	94.1	93.7	92.6	92.3	89.5	83.2	78.2	73.0	[68.9]	[61.1]	103.6
13.0	Turbine ON (dBA)	9.4	19.3	18.2	22.2	26.2	30.9	35.0	33.6	36.5	38.0	37.6	39.6	40.6	40.4	41.8	41.6	43.2	43.8	44.1	43.7	42.8	42.1	39.0	34.1	29.8	25.7	21.9	14.6	53.6
	Background (dBA)	3.3	7.6	11.3	23.4	23.3	30.3	31.3	30.2	32.0	30.3	31.3	33.7	33.3	32.1	32.6	34.0	35.0	34.8	34.6	35.2	35.1	33.8	30.6	28.0	25.3	22.7	21.2	17.1	45.9
	Turbine ON - background adj (dBA)	8.2	19.0	17.2	[19.2]	[23.2]	[27.9]	32.6	30.9	34.7	37.2	36.4	38.3	39.7	39.7	41.3	40.8	42.5	43.3	43.5	43.0	42.0	41.4	38.3	32.9	27.9	[22.7]	[18.9]	[11.6]	52.8
	Signal to noise (dB)	6.2	11.7	6.9	-1.1	2.9	0.6	3.7	3.4	4.6	7.8	6.2	5.9	7.3	8.3	9.3	7.7	8.3	9.1	9.4	8.5	7.7	8.4	8.4	6.1	4.5	3.0	0.7	-2.5	7.7
	Uncertainty (dB)	2.7	1.8	1.4	4.6	3.2	3.6	2.7	2.4	1.6	1.0	1.0	1.1	0.9	0.9	0.8	0.9	0.9	0.9	0.9	0.9	0.9	1.0	1.3	1.6	1.8	3.0	3.7	4.9	1.0
	PWL (dBA)	58.8	69.5	67.8	[69.8]	[73.8]	[78.4]	83.2	81.5	85.2	87.8	86.9	88.9	90.2	90.2	91.8	91.4	93.1	93.8	94.1	93.6	92.6	92.0	88.9	83.4	78.5	[73.3]	[69.4]	[62.1]	103.3

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

Project: North Kent Wind 1 LP - Turbine T33 - IEC 61400-11 Measurement
Report ID: 17283.01.T33.RP2

Created on: 2019-03-21

1/3 Octave values marked with brackets [ ] denote less than 3 dB difference between Turbine ON and Background
Overall levels marked with an asterisk * denote 3 to 6 dB difference between Turbine ON and Background, while Overall values with less than 3 dB difference between Turbine ON and Background are not reported

Wind Bin (m/s)	Parameter	1/3 Octave Band (Hz)																												Overall
		20	25	31.5	40	50	63	80	100	125	160	200	250	315	400	500	630	800	1000	1250	1600	2000	2500	3150	4000	5000	6300	8000	10000	
5.0	Turbine ON (dBA)	9.3	13.7	17.7	22.1	24.5	32.7	30.8	32.9	36.5	36.2	36.5	38.9	39.4	38.6	39.8	39.5	40.7	40.8	40.0	39.1	39.1	38.7	32.4	27.4	21.3	14.9	8.1	6.2	50.8
	Background (dBA)	1.0	6.1	9.7	17.4	22.5	25.2	30.5	29.1	28.6	28.0	28.4	30.2	32.2	30.2	29.8	30.0	31.2	31.1	29.7	29.6	29.3	27.8	25.0	22.6	20.6	18.3	17.1	13.3	42.3
	Turbine ON - background adj (dBA)	8.6	12.9	16.9	20.4	[21.5]	31.8	[27.8]	30.6	35.7	35.4	35.8	38.3	38.5	38.0	39.3	39.0	40.2	40.3	39.6	38.6	38.6	38.4	31.6	25.6	[18.3]	[11.9]	[5.1]	[3.2]	50.2
	Signal to noise (dB)	8.4	7.7	8.0	4.8	2.0	7.4	0.3	3.8	7.9	8.2	8.2	8.7	7.1	8.4	10.0	9.5	9.5	9.7	10.3	9.5	9.8	10.9	7.4	4.8	0.7	-3.4	-9.0	-7.1	8.5
	Uncertainty (dB)	3.3	3.2	2.7	8.0	3.8	2.2	3.3	1.6	1.4	1.4	1.2	1.3	1.5	1.8	1.2	1.3	1.3	1.3	1.3	1.2	1.1	1.3	1.7	1.6	3.6	3.8	5.0	5.8	1.4
	PWL (dBA)	59.2	63.5	67.5	70.9	[72.1]	82.4	[78.4]	81.1	86.2	86.0	86.4	88.8	89.0	88.5	89.9	89.6	90.7	90.8	90.2	89.2	89.2	88.9	82.1	76.2	[68.9]	[62.4]	[55.7]	[53.7]	100.7
6.0	Turbine ON (dBA)	10.1	15.5	19.1	23.4	28.0	32.6	35.4	35.9	37.8	39.1	39.3	41.1	41.6	41.1	42.7	42.3	43.7	44.0	43.2	42.2	41.2	41.5	38.4	32.1	30.3	27.8	26.1	17.8	53.7
	Background (dBA)	1.4	6.7	9.7	16.7	22.6	26.2	29.1	30.3	28.9	28.7	28.9	30.1	32.1	30.2	30.4	30.3	31.3	31.5	30.3	30.2	30.0	28.4	25.4	23.3	21.2	18.4	17.3	11.1	42.6
	Turbine ON - background adj (dBA)	9.5	14.9	18.6	22.4	26.6	31.5	34.2	34.5	37.2	38.6	38.8	40.8	41.1	40.7	42.4	42.1	43.4	43.7	42.9	42.0	40.9	41.3	38.2	31.5	29.8	27.2	25.4	16.7	53.3
	Signal to noise (dB)	8.8	8.9	9.4	6.8	5.4	6.4	6.3	5.6	8.9	10.4	10.3	11.0	9.4	10.9	12.3	12.1	12.4	12.5	12.9	12.0	11.3	13.1	13.0	8.8	9.2	9.4	8.7	6.7	11.1
	Uncertainty (dB)	2.0	1.6	1.0	1.7	1.4	1.1	1.0	1.0	0.8	0.8	0.7	0.7	0.7	0.7	0.6	0.7	0.6	0.7	0.7	0.7	0.7	0.7	1.0	1.1	1.1	1.3	1.8	2.2	0.7
	PWL (dBA)	60.1	65.5	69.1	72.9	77.1	82.0	84.8	85.1	87.7	89.2	89.4	91.3	91.6	91.3	93.0	92.6	94.0	94.3	93.5	92.5	91.5	91.8	88.7	82.0	80.3	77.8	76.0	67.3	103.9
7.0	Turbine ON (dBA)	9.9	17.4	18.7	23.0	27.2	31.8	35.6	35.9	37.2	39.1	39.0	41.3	42.0	41.4	43.1	42.7	44.2	44.4	43.6	42.9	41.9	42.3	39.9	32.7	28.4	24.2	21.2	17.0	54.1
	Background (dBA)	1.8	6.8	10.2	15.7	21.2	25.5	29.3	28.5	29.6	29.3	29.7	30.6	32.1	30.1	30.7	30.3	31.4	31.7	30.9	31.3	31.2	29.9	26.9	24.8	22.6	19.8	18.6	11.9	42.9
	Turbine ON - background adj (dBA)	9.1	17.0	18.0	22.1	25.9	30.7	34.4	35.1	36.3	38.7	38.5	40.9	41.5	41.0	42.8	42.5	44.0	44.1	43.3	42.6	41.5	42.1	39.7	31.9	27.1	22.2	[18.2]	15.4	53.7
	Signal to noise (dB)	8.1	10.6	8.5	7.2	6.0	6.3	6.3	7.4	7.5	9.8	9.4	10.7	9.9	11.2	12.4	12.5	12.8	12.7	12.7	11.6	10.7	12.4	13.0	7.9	5.8	4.3	2.6	5.1	11.1
	Uncertainty (dB)	2.4	1.8	1.2	1.9	1.5	1.3	1.1	1.0	1.0	0.9	0.8	0.8	0.8	0.8	0.7	0.8	0.7	0.8	0.8	0.8	0.8	0.9	1.1	1.3	1.4	1.8	3.1	2.6	0.8
	PWL (dBA)	59.7	67.5	68.6	72.6	76.5	81.2	85.0	85.6	86.9	89.2	89.0	91.5	92.1	91.6	93.4	93.0	94.5	94.7	93.9	93.1	92.0	92.6	90.2	82.4	77.6	72.7	[68.7]	66.0	104.3
8.0	Turbine ON (dBA)	9.2	18.9	17.9	22.1	26.2	30.9	35.8	34.5	36.6	38.0	37.8	40.4	41.2	40.6	42.4	42.1	43.8	44.0	43.7	43.2	42.2	42.1	39.6	33.0	28.8	24.5	21.2	14.1	53.7
	Background (dBA)	2.4	7.0	10.5	16.9	20.4	25.8	28.4	27.2	29.6	29.6	29.5	30.7	32.5	30.6	31.6	31.0	32.0	32.1	31.6	32.1	32.2	31.0	28.0	25.7	23.4	20.5	19.2	12.6	43.4
	Turbine ON - background adj (dBA)	8.2	18.6	17.1	20.6	24.8	29.3	35.0	33.6	35.6	37.4	37.1	39.9	40.5	40.2	42.1	41.8	43.5	43.7	43.4	42.8	41.7	41.7	39.3	32.1	27.3	22.2	[18.2]	[11.1]	53.2
	Signal to noise (dB)	6.8	11.9	7.4	5.2	5.8	5.1	7.5	7.3	6.9	8.4	8.3	9.7	8.7	10.0	10.8	11.1	11.8	11.9	12.0	11.0	10.0	11.1	11.7	7.2	5.4	4.0	2.0	1.6	10.3
	Uncertainty (dB)	2.4	1.7	1.3	2.3	1.5	1.4	1.0	1.0	1.0	0.9	0.8	0.8	0.8	0.8	0.7	0.8	0.7	0.8	0.8	0.8	0.8	0.9	1.1	1.3	1.4	1.8	2.9	3.6	0.8
	PWL (dBA)	58.7	69.2	67.6	71.2	75.4	79.9	85.5	84.1	86.1	87.9	87.6	90.5	91.1	90.7	92.6	92.3	94.0	94.3	93.9	93.4	92.2	92.3	89.9	82.6	77.9	72.8	[68.7]	[61.7]	103.8
9.0	Turbine ON (dBA)	9.7	19.3	18.4	22.5	26.4	31.1	35.6	34.6	36.4	38.0	37.4	39.7	40.7	40.4	42.0	41.7	43.4	43.9	44.1	43.7	42.8	42.1	39.2	33.8	29.4	25.2	21.4	13.9	53.6
	Background (dBA)	2.6	7.0	12.0	20.8	22.4	28.6	29.9	29.0	31.0	29.9	30.4	31.9	33.3	31.0	31.5	32.0	32.8	32.6	32.4	32.9	33.0	31.9	28.9	26.3	23.5	20.4	18.9	13.0	44.3
	Turbine ON - background adj (dBA)	8.7	19.0	17.2	[19.5]	24.2	[28.1]	34.3	33.2	34.9	37.3	36.5	38.9	39.8	39.9	41.6	41.3	43.0	43.6	43.8	43.3	42.3	41.7	38.8	33.0	28.1	23.4	[18.4]	[10.9]	53.1
	Signal to noise (dB)	7.1	12.3	6.3	1.7	4.0	2.5	5.7	5.6	5.4	8.1	7.0	7.7	7.4	9.4	10.5	9.8	10.6	11.3	11.7	10.8	9.8	10.2	10.3	7.5	5.9	4.8	2.5	0.9	9.4
	Uncertainty (dB)	2.3	1.6	1.4	3.7	2.3	2.4	1.3	1.3	1.2	0.9	0.9	0.8	0.8	0.8	0.7	0.8	0.7	0.8	0.8	0.8	0.8	0.9	1.1	1.3	1.4	1.8	3.4	4.0	0.8
	PWL (dBA)	59.3	69.6	67.8	[70]	74.8	[78.7]	84.8	83.7	85.5	87.8	87.0	89.4	90.4	90.5	92.2	91.8	93.6	94.2	94.4	93.9	92.9	92.2	89.3	83.6	78.7	74.0	[69]	[61.5]	103.7

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 measruement uncertainty at hub height

Project: North Kent Wind 1 LP - Turbine T33 - IEC 61400-11 Measurement
Report ID: 17283.01.T33.RP2

Created on: 2019-02-12

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	
8.0	Turbine ON	8.02	15	Average (dBA)	10.6	15.4	19.3	23.4	27.3	34.0	35.2	35.2	37.7	38.3	38.3	40.5	41.1	40.5	42.0	41.6	43.0	43.2	42.3	41.3	40.3	40.7	36.7	30.6	27.3	25.0	20.9	12.8	52.9
				Uncertainty A (dB)	0.4	0.3	0.3	0.3	0.3	0.2	0.4	0.4	0.2	0.2	0.2	0.2	0.1	0.1	0.2	0.1	0.2	0.2	0.2	0.1	0.1	0.2	0.3	0.4	0.8	1.5	1.9	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	0.8	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	0.8	0.7	0.8	1.1	1.1	1.3	1.8	2.3	2.0		
	Background	8.01	56	Average (dBA)	1.2	6.5	9.6	17.3	23.0	25.9	28.6	30.6	28.8	28.4	28.2	30.0	32.3	30.5	30.3	30.1	31.4	31.3	30.3	30.2	29.9	28.4	25.4	23.2	21.2	18.9	17.7	12.8	42.5
				Uncertainty A (dB)	0.2	0.3	0.2	0.5	0.8	0.4	0.7	0.9	0.3	0.3	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.5	0.6	0.8	0.8	0.8	0.8	0.8	0.7	0.7	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	1.3	1.0	1.1	1.2	0.9	0.9	0.7	0.8	0.7	0.8	0.8	0.8	0.8	0.8	0.9	1.0	1.1	1.2	1.4	1.3	1.3	1.3	1.5	1.8			
8.5	Turbine ON	8.47	24	Average (dBA)	10.3	15.6	19.3	23.9	28.3	32.2	35.7	35.4	37.3	38.9	38.7	41.1	41.8	41.3	42.9	42.6	44.0	44.4	43.6	42.6	41.5	41.8	38.9	32.8	30.5	31.5	31.4	20.2	53.9
				Uncertainty A (dB)	0.3	0.3	0.2	0.3	0.4	0.3	0.2	0.3	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	0.5	0.9	2.0	3.1	2.0		
				Uncertainty B (dB)	2.0	1.6	1.1	1.5	1.1	0.9	0.8	0.8	0.8	0.8	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.8	0.8	0.8	0.8	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	0.8	0.7	0.8	1.1	1.2	1.3	2.3	3.4	2.6		
	Background	8.51	77	Average (dBA)	1.6	7.0	9.7	16.3	22.1	26.0	27.9	29.3	28.7	28.7	28.5	30.2	32.2	30.4	30.6	30.4	31.4	31.6	30.5	30.5	30.4	29.0	26.0	23.9	21.6	18.7	17.2	10.7	42.6
				Uncertainty A (dB)	0.2	0.3	0.2	0.4	0.6	0.3	0.5	0.7	0.2	0.3	0.2	0.2	0.2	0.3	0.3	0.3	0.2	0.3	0.4	0.6	0.7	0.8	0.8	0.8	0.8	0.7	0.6	0.6	0.3		
				Uncertainty B (dB)	2.0	1.6	1.1	1.5	1.1	0.9	0.8	0.8	0.8	0.8	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.8	0.8	0.8	0.7	0.8	1.1	1.1	1.0	1.1	1.4	1.7			
				Combined Uncertainty (dB)	2.0	1.7	1.1	1.6	1.2	1.0	1.0	1.1	0.9	0.9	0.7	0.7	0.7	0.8	0.8	0.8	0.7	0.8	0.9	0.9	1.0	1.2	1.3	1.3	1.2	1.2	1.5	1.7			
9.0	Turbine ON	9.03	42	Average (dBA)	10.1	15.9	19.3	23.3	28.7	32.3	35.6	36.5	37.5	39.2	39.1	41.3	42.0	41.6	43.2	42.9	44.3	44.6	43.7	42.8	41.7	42.0	39.6	33.1	33.1	29.7	28.0	19.7	54.2
				Uncertainty A (dB)	0.2	0.2	0.2	0.2	0.4	0.3	0.2	0.4	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	0.3	1.0	1.1	1.6	1.3			
				Uncertainty B (dB)	2.0	1.6	1.1	1.5	1.1	0.9	0.8	0.8	0.8	0.8	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.8	0.8	0.8	0.7	0.8	1.1	1.1	1.0	1.1	1.4	1.7			
				Combined Uncertainty (dB)	2.0	1.7	1.1	1.5	1.1	1.0	0.8	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	0.7	0.8	1.1	1.1	1.4	1.5	2.1	2.1		
	Background	9.00	133	Average (dBA)	1.3	6.6	9.8	16.8	22.8	26.4	29.7	30.7	29.1	28.8	29.5	30.2	32.1	30.1	30.3	30.3	31.4	31.5	30.3	30.2	29.7	28.1	25.0	23.0	20.9	18.2	17.3	10.9	42.6
				Uncertainty A (dB)	0.1	0.2	0.2	0.3	0.5	0.3	0.5	0.6	0.2	0.2	0.2	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.3	0.4	0.5	0.5	0.5	0.5	0.5	0.4	0.4	0.2			
				Uncertainty B (dB)	2.0	1.6	1.1	1.5	1.1	0.9	0.8	0.8	0.8	0.8	0.7	0.7	0.7	0.7	0.7	0.7	0.7	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	1.0	1.0	1.0	0.9	0.8	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.8	0.8	0.8	0.9	1.0	1.2	1.2	1.1	1.1	1.4	1.7			
9.5	Turbine ON	9.50	96	Average (dBA)	9.9	16.3	18.8	23.3	27.5	32.1	36.2	36.0	37.9	39.9	39.9	41.8	42.2	41.6	43.3	42.9	44.3	44.5	43.7	42.9	41.8	42.2	39.9	32.4	28.2	24.1	21.2	16.0	54.3
				Uncertainty A (dB)	0.2	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.2	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.2	0.4	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	0.8	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	1.0	1.1	1.4	1.8			
	Background	9.50	129	Average (dBA)	1.4	6.5	9.8	15.2	21.2	25.4	29.4	28.6	29.2	28.8	29.8	30.1	31.7	29.8	30.2	30.1	31.2	31.6	30.5	30.6	30.5	29.1	26.2	24.2	22.2	19.4	18.2	12.1	42.6
				Uncertainty A (dB)	0.1	0.2	0.2	0.2	0.4	0.2	0.5	0.4	0.2	0.2	0.2	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.3	0.4	0.4	0.5	0.5	0.5	0.5	0.4	0.4	0.3			
				Uncertainty B (dB)	2.0	1.6	1.1	1.5	1.1	0.9	0.8	0.8	0.8	0.8	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.8	0.8	0.8	0.7	0.8	1.1	1.1	1.0	1.1	1.4	1.7			
				Combined Uncertainty (dB)	2.0	1.7	1.1	1.5	1.1	1.0	1.0	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	0.8	1.0	1.2	1.2	1.1	1.1	1.4	1.7			
10.0	Turbine ON	9.94	105	Average (dBA)	10.2	17.1	19.1	23.3	27.9	32.0	35.6	37.0	37.4	39.4	39.2	41.4	42.0	41.4	43.2	42.9	44.3	44.5	43.6	42.8	41.9	42.4	40.0	32.7	28.5	24.4	21.7	19.7	54.2
				Uncertainty A (dB)	0.2	0.1	0.1	0.1	0.2	0.1	0.1	0.3	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.2	0.4	0.8			
				Uncertainty B (dB)	2.0	1.6	1.1	1.5	1.1	0.9	0.8	0.8	0.8	0.8	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.8	0.8	0.8	0.7	0.8	1.1	1.1	1.0	1.1	1.4	1.7			
				Combined Uncertainty (dB)	2.0	1.7	1.1	1.5	1.1	1.0	0.8	0.9	0.8	0.8	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	1.9			
	Background	10.01	156	Average (dBA)	1.8	6.9	9.8	16.0	22.1	25.5	29.5	28.9	29.8	29.1	28.9	30.7	32.1	30.3	30.6	30.3	31.4	31.6	30.9	31.3	31.2	29.9	27.0	24.8	22.6	19.8	18.5	11.6	43.0
				Uncertainty A (dB)	0.1	0.2	0.1	0.3	0.4	0.2	0.4	0.4	0.2	0.2	0.1	0.2	0.1	0.2	0.2	0.2	0.1	0.2	0.3	0.3	0.4	0.5	0.5	0.5	0.4	0.4	0.4	0.2			
				Uncertainty B (dB)	2.0	1.6	1.1	1.5	1.1	0.9	0.8	0.8	0.8	0.8	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.8	0.8	0.8	0.7	0.8	1.1	1.1	1.0	1.1	1.4	1.7			
				Combined Uncertainty (dB)	2.0	1.7	1.1	1.5	1.1	1.0	0.9	0.9	0.9	0.8	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.8	0.8	0.8	0.8	1.0	1.2	1.2	1.1	1.1	1.4	1.7			
10.5	Turbine ON	10.51	100	Average (dBA)	9.6	18.3	18.1	22.5	26.4	31.6	35.3	34.9	36.7	38.6	38.6	40.9	41.8	41.1	42.8	42.5	44.0	44.2	43.5	42.9	41.9	42.3	39.8	32.8	28.5	24.0	20.5	13.1	53.9
				Uncertainty A (dB)	0.2	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.2	0.2	0.1	0.2	0.2	0.2	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.2	0.2	0.3	0.2			
				Uncertainty B (dB)	2.0	1.6	1.1	1.5	1.1	0.9	0.8	0.8	0.8	0.8	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.8	0.8	0.8	0.8	0.7	0.8	1.1	1.1	1.0	1.1	1.4	1.7		
				Combined Uncertainty (dB)	2.0	1.7	1.1	1.5	1.1	1.0	0.8	0.9	0.8	0.8	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.8	0.8	0.8	0.8	0.7	0.8	1.1	1.1	1.0	1.1	1.4	1.7		
	Background	10.51	122	Average (dBA)	2.1	6.8	10.7	15.8	20.2	25.7	28.9	27.9	29.7	29.9	30.1	30.9	32.3	30.3	31.1	30.3	31.5	31.8	31.2	31.6	31.6	30.2	27.2	25.1	22.9	20.1	19.0	11.8	43.2
				Uncertainty A (dB)	0.1	0.2	0.2	0.2	0.4	0.3	0.5	0.3	0.2	0.3	0.2	0.2	0.1	0.2	0.2	0.2	0.2	0.2	0.3	0.4	0.4	0.5	0.5	0.4	0.4	0.4	0.4	0.3			
				Uncertainty B (dB)	2.0	1.6	1.1	1.5	1.1	0.9	0.8	0.8	0.8	0.8	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.8	0.8	0.8	0.7	0.8	1.1	1.1	1.0	1.1	1.4	1.7			
				Combined Uncertainty (dB)	2.0	1.7	1.1	1.5	1.1	1.0	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	0.8	1.0	1.2	1.2	1.1	1.1	1.4	1.7			
11.0	Turbine ON	11.01	115	Average (dBA)	9.1	18.5	17.9	22.2	26.4	30.9	35.5	33.9	36.8	38.1	38.1	40.8	41.5	40.8	42.7	42.3	43.9	44.1	43.6	43.0	42.0	42.1	39.9	32.7	28.5	24.1	20.7	14.7	53.8
				Uncertainty A (dB)	0.2	0.2	0.2	0.2	0.2	0.1	0.2	0.2	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	0.2	0.1	0.2	0.2	0.3	0.3			
				Uncertainty B (dB)	2.0	1.6	1.1	1.5	1.1	0.9	0.8	0.8	0.8	0.8	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.8	0.8	0.8	0.7	0.8	1.1	1.1	1.0	1.1	1.4	1.7			
				Combined Uncertainty (dB)	2.0	1.7	1.1	1.5	1.1	1.0	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	0.8	0.7	0.8	1.1	1.1	1.0	1.1	1.4	1.7		
	Background	10.98	104	Average (dBA)	2.2	6.9	10.7	16.5	20.8	25.3	28.5	27.1	29.3	29.5	29.4	30.5	32.4	30.4	31.8	30.8	31.8	32.0	31.4	31.8	31.8	30.6	27.7	25.5	23.2	20.3	19.1	12.4	43.2
				Uncertainty A (dB)	0.2	0.2	0.2	0.3	0.4	0.3	0.5	0.3	0.2	0.3	0.2	0.2	0.1	0.2	0.3	0.2	0.2	0.2	0.3	0.5	0.6	0.7	0.7	0.6	0.6	0.5	0.5	0.3			
				Uncertainty B (dB)	2.0	1.6	1.1	1.5	1.1	0.9	0.8	0.8	0.8	0.8	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.8	0.8	0.8	0.7	0.8	1.1	1.1	1.0	1.1	1.4	1.7			
				Combined Uncertainty (dB)	2.0	1.7	1.1	1.6	1.1	1.0	1.0	0.9	0.9	0.9	0.7	0.7	0.7	0.7	0.7	0.8	0.7	0.8	0.9	0.9	0.9	1.1	1.3	1.2	1.1	1.2	1.4	1.7			

Table C.04 Detailed measurement uncertainty at hub height

Project: North Kent Wind 1 LP - Turbine T33 - IEC 61400-11 Measurement
Report ID: 17283.01.T33.RP2

Created on: 2019-02-12

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	
11.5	Turbine ON	11.49	98	Average (dBA)	9.2	18.7	17.9	22.1	26.0	31.2	35.9	35.3	36.5	38.0	37.7	40.4	41.1	40.6	42.4	42.1	43.7	44.0	43.7	43.2	42.2	42.1	39.6	33.1	28.8	24.5	21.1	13.5	53.7
				Uncertainty A (dB)	0.2	0.2	0.2	0.2	0.2	0.2	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	0.3	0.3	0.2	0.3	0.3	0.4	0.3	
				Uncertainty B (dB)	2.0	1.6	1.1	1.5	1.1	0.9	0.8	0.8	0.8	0.8	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.8	0.8	0.8	0.8	0.7	0.8	1.1	1.1	1.0	1.1	1.4	1.7	
				Combined Uncertainty (dB)	2.0	1.7	1.1	1.5	1.1	1.0	0.9	0.9	0.9	0.8	0.7	0.8	0.7	0.7	0.7	0.8	0.7	0.8	0.8	0.8	0.8	0.9	1.1	1.1	1.0	1.1	1.4	1.7	
	Background	11.51	53	Average (dBA)	2.5	7.1	10.2	17.0	20.1	26.4	28.1	27.7	30.0	29.8	29.6	30.8	32.5	30.9	31.4	31.1	32.1	32.1	31.5	32.0	32.1	30.9	27.8	25.5	23.0	19.9	18.6	11.5	43.4
				Uncertainty A (dB)	0.2	0.3	0.3	0.5	0.5	0.4	0.6	0.5	0.3	0.3	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.4	0.6	0.7	0.8	0.8	0.8	0.7	0.6	0.6	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	1.2	1.0	1.0	0.9	0.9	0.9	0.7	0.8	0.7	0.8	0.8	0.8	0.8	0.8	0.9	1.0	1.0	1.2	1.4	1.3	1.2	1.2	1.5	1.7	
12.0	Turbine ON	11.97	69	Average (dBA)	9.3	19.7	18.1	22.2	26.1	30.5	36.2	34.0	36.2	37.9	37.4	40.0	40.9	40.4	42.2	41.9	43.6	43.9	43.7	43.3	42.3	41.9	39.3	33.1	29.0	24.8	21.8	14.0	53.5
				Uncertainty A (dB)	0.3	0.3	0.3	0.2	0.2	0.2	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	0.2	0.3	0.3	0.5	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	0.9	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	1.0	1.1	1.4	1.7	
	Background	11.96	29	Average (dBA)	3.0	7.2	10.6	17.9	19.2	26.5	28.4	26.9	30.0	29.5	29.7	31.2	32.8	31.1	31.7	31.6	32.5	32.6	32.5	33.1	33.3	32.1	29.2	26.8	24.4	21.8	20.5	14.6	44.0
				Uncertainty A (dB)	0.3	0.4	0.3	0.7	0.4	0.6	0.8	0.4	0.4	0.4	0.4	0.3	0.4	0.3	0.5	0.4	0.4	0.4	0.6	0.7	0.9	1.0	1.0	0.9	0.9	0.9	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	1.7	1.1	1.1	1.2	0.9	0.9	0.9	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.9	1.0	1.1	1.2	1.3	1.5	1.4	1.3	1.4	1.7	1.9	
12.5	Turbine ON	12.50	47	Average (dBA)	9.4	19.0	18.1	22.2	26.2	31.1	35.7	33.6	36.2	37.9	37.2	39.5	40.6	40.3	42.0	41.7	43.5	43.9	43.9	43.5	42.6	42.1	39.4	33.6	29.2	25.0	21.4	13.5	53.5
				Uncertainty A (dB)	0.2	0.2	0.2	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	0.1	0.1	0.1	0.2	0.2	0.3	0.4	0.5	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	0.9	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	1.5	1.7	
	Background	12.41	12	Average (dBA)	2.4	6.9	12.4	19.6	21.7	27.5	29.3	28.4	30.7	29.9	30.2	31.3	33.3	30.7	31.2	31.3	32.0	31.8	31.6	32.2	32.4	31.4	28.5	25.9	23.1	19.6	18.2	10.9	43.7
				Uncertainty A (dB)	0.5	0.7	1.2	1.4	1.3	0.9	1.4	1.0	0.7	0.7	0.6	0.5	0.5	0.6	0.6	0.8	0.7	0.7	1.1	1.4	1.8	2.1	2.2	1.9	1.7	1.5	1.4	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	1.8	1.6	2.1	1.7	1.3	1.7	1.3	1.1	1.1	0.9	0.9	0.9	0.9	0.9	1.0	1.0	1.0	1.4	1.6	1.9	2.2	2.4	2.1	2.0	1.8	1.9	1.9	
13.0	Turbine ON	12.99	27	Average (dBA)	9.4	19.2	18.2	22.2	26.2	30.9	35.0	33.5	36.5	38.0	37.6	39.6	40.6	40.3	41.8	41.6	43.2	43.8	44.1	43.7	42.8	42.1	39.0	34.1	29.8	25.7	21.9	14.6	53.6
				Uncertainty A (dB)	0.3	0.3	0.4	0.4	0.3	0.2	0.3	0.3	0.3	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.3	0.4	0.5	0.6	0.8	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	0.9	0.8	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.8	0.8	0.8	0.7	0.9	1.1	1.1	1.1	1.2	1.6	1.8	
	Background	12.92	5	Average (dBA)	3.1	7.5	11.5	22.9	23.1	29.9	31.0	29.9	31.8	30.2	31.2	33.3	33.3	31.9	32.4	33.6	34.6	34.4	34.2	34.8	34.7	33.4	30.3	27.7	25.0	22.3	20.8	16.2	45.6
				Uncertainty A (dB)	0.5	0.8	0.6	2.5	1.7	2.4	2.5	1.7	1.2	0.7	0.7	1.0	0.9	1.0	1.0	1.5	1.4	1.0	1.1	1.2	1.1	1.4	1.3	0.6	0.5	1.0	1.2	2.4	
				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	1.9	1.2	2.9	2.0	2.6	2.7	1.9	1.4	1.1	1.0	1.3	1.1	1.2	1.2	1.6	1.5	1.3	1.4	1.4	1.3	1.6	1.7	1.2	1.1	1.5	1.8	2.9	

Table C.05 Secondary Windscreen Influence

Project: North Kent Wind 1 LP - Turbine T33 - IEC 61400-11 Measurement

Report ID: 17283.01.T33.RP2

Created on: 11/2/2019

1/3 Octave Band (Hz)	Average (dB) (Lp screen - Lp no screen)	Standard Deviation (dB)
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
12500	0.3	0.7
16000	0.2	0.9
20000	0.2	0.8

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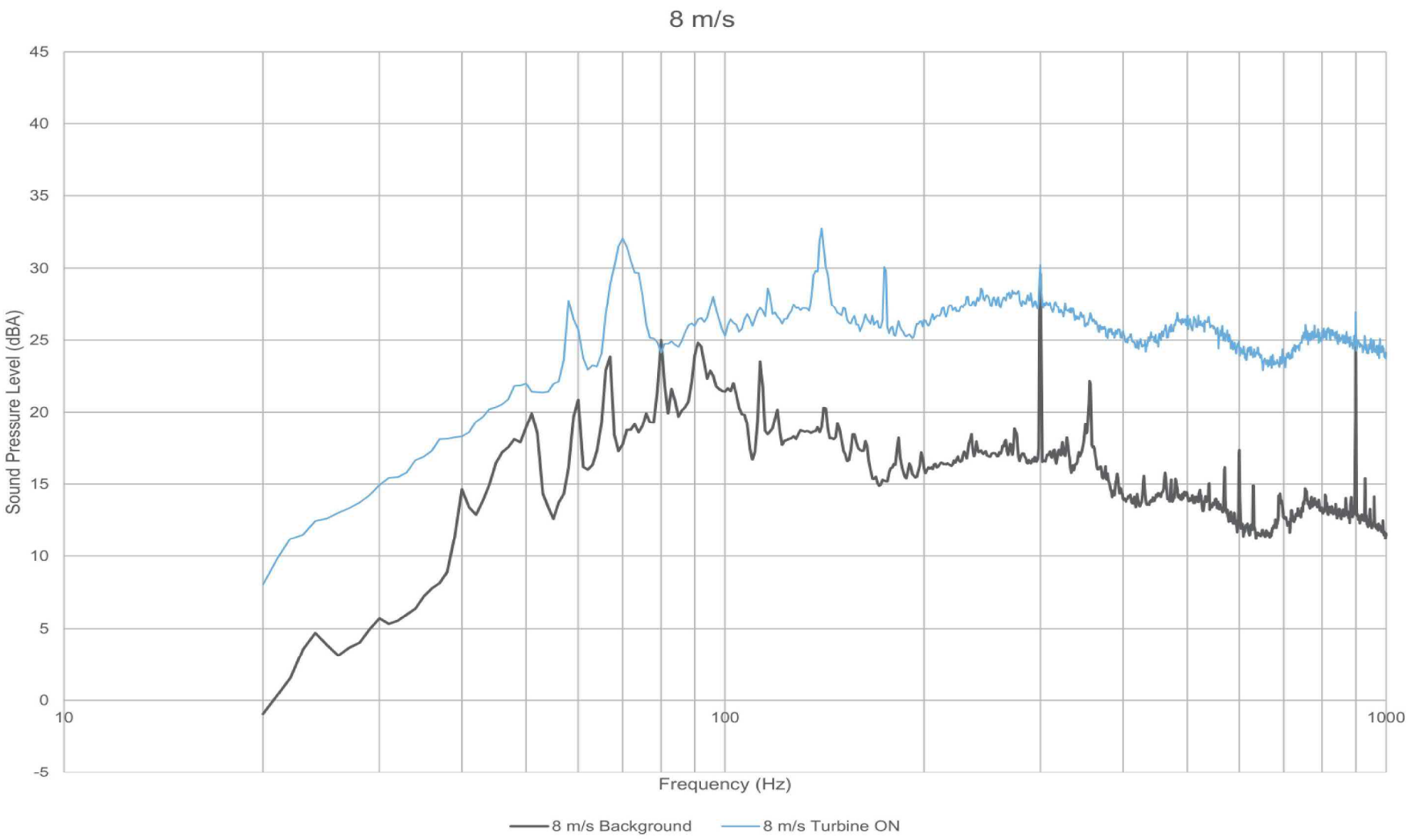
Appendix D
Tonality Assessment

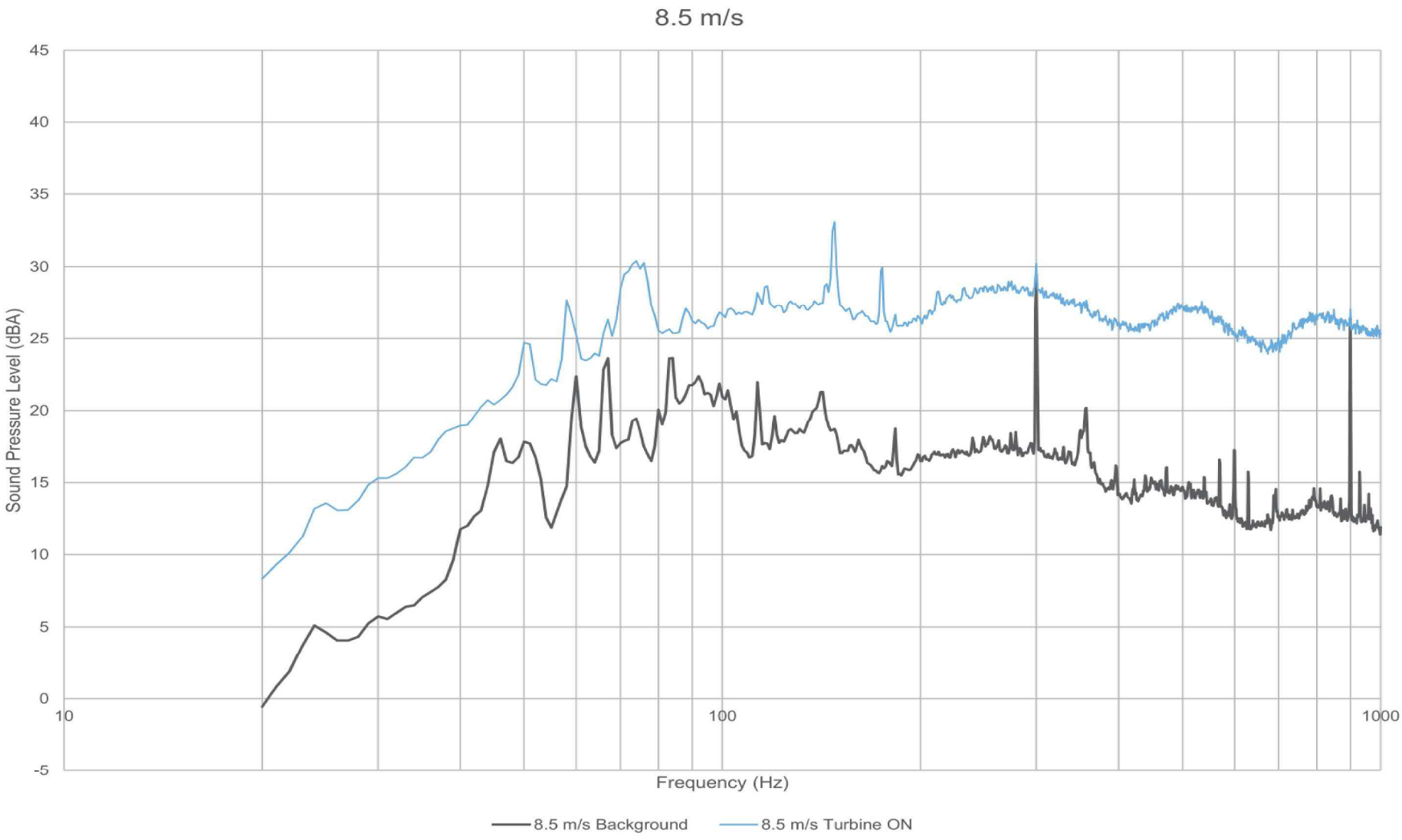
ilac-MRA

SCC Accredited
CB-P/S
OCPS
Accrédité CCN

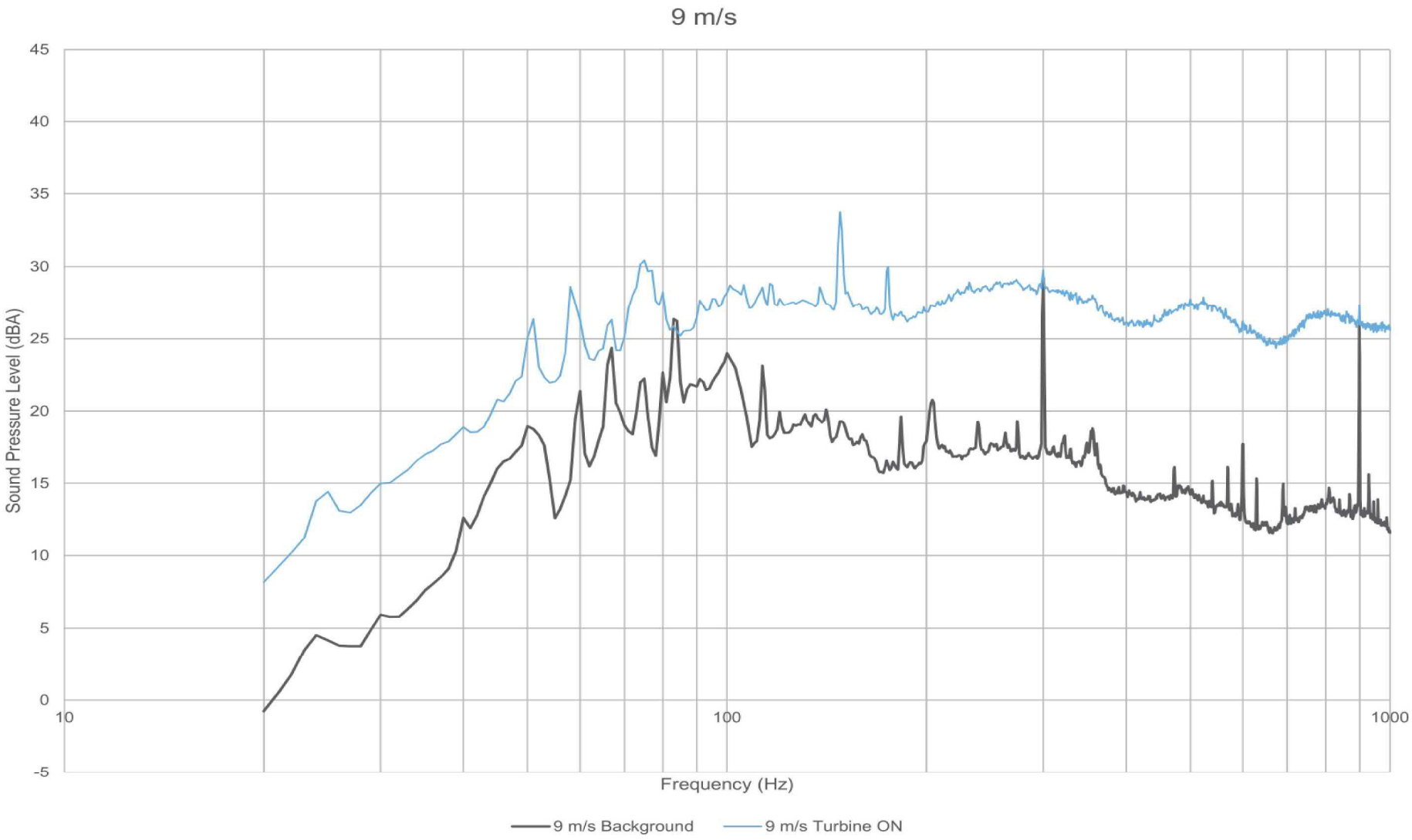


aercoustics	17283.01.T33.RP2 Scale: NTS Drawn by: IK Reviewed by: MAD Date: Dec 2018 Revision: 1	**Project Name** North Kent Wind 1 LP - IEC 61400-11 Edition 3.0 - Turbine T33 **Figure Title** Plot of narrow band spectra - Turbine ON vs. Background at 8 m/s

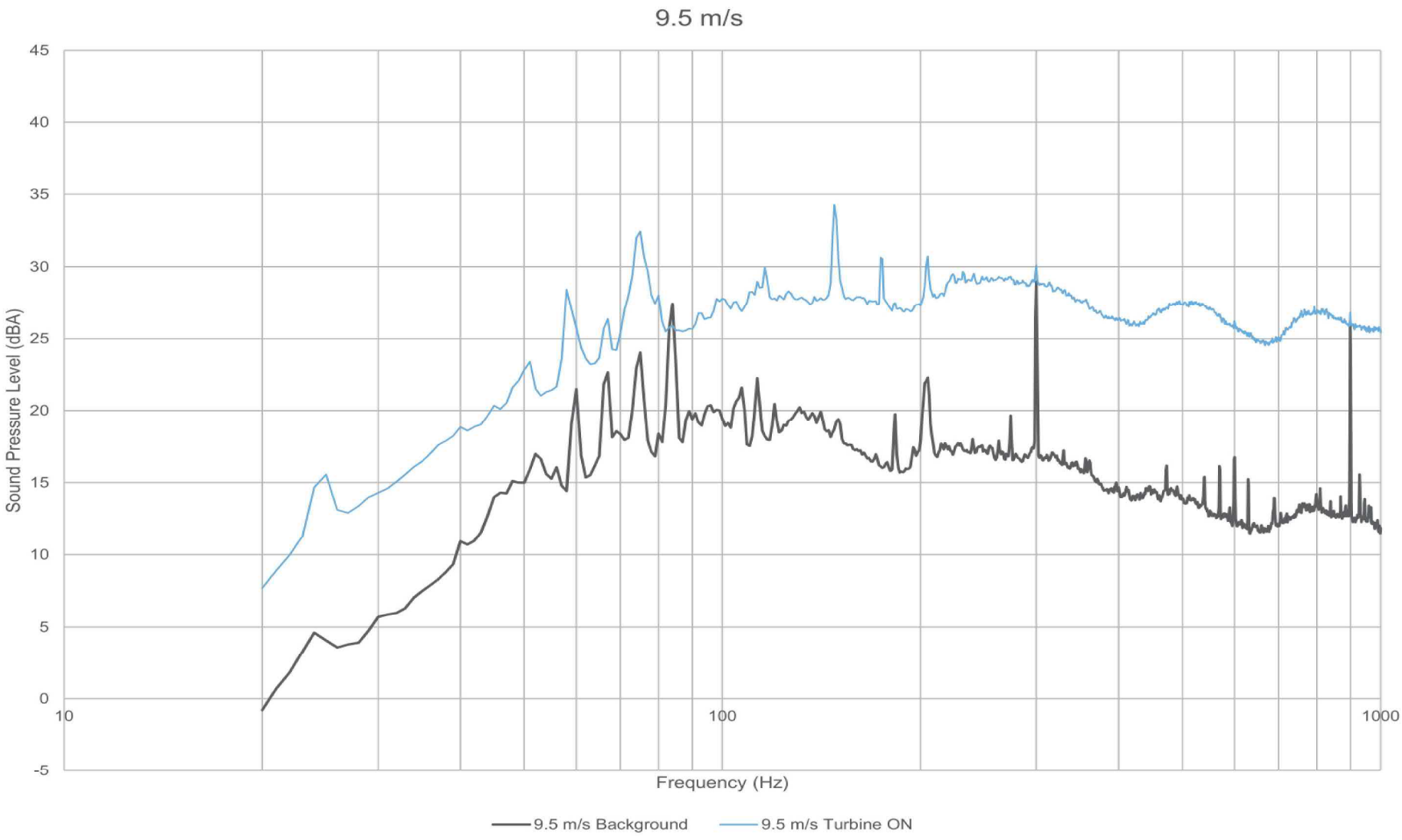
Figure D.01



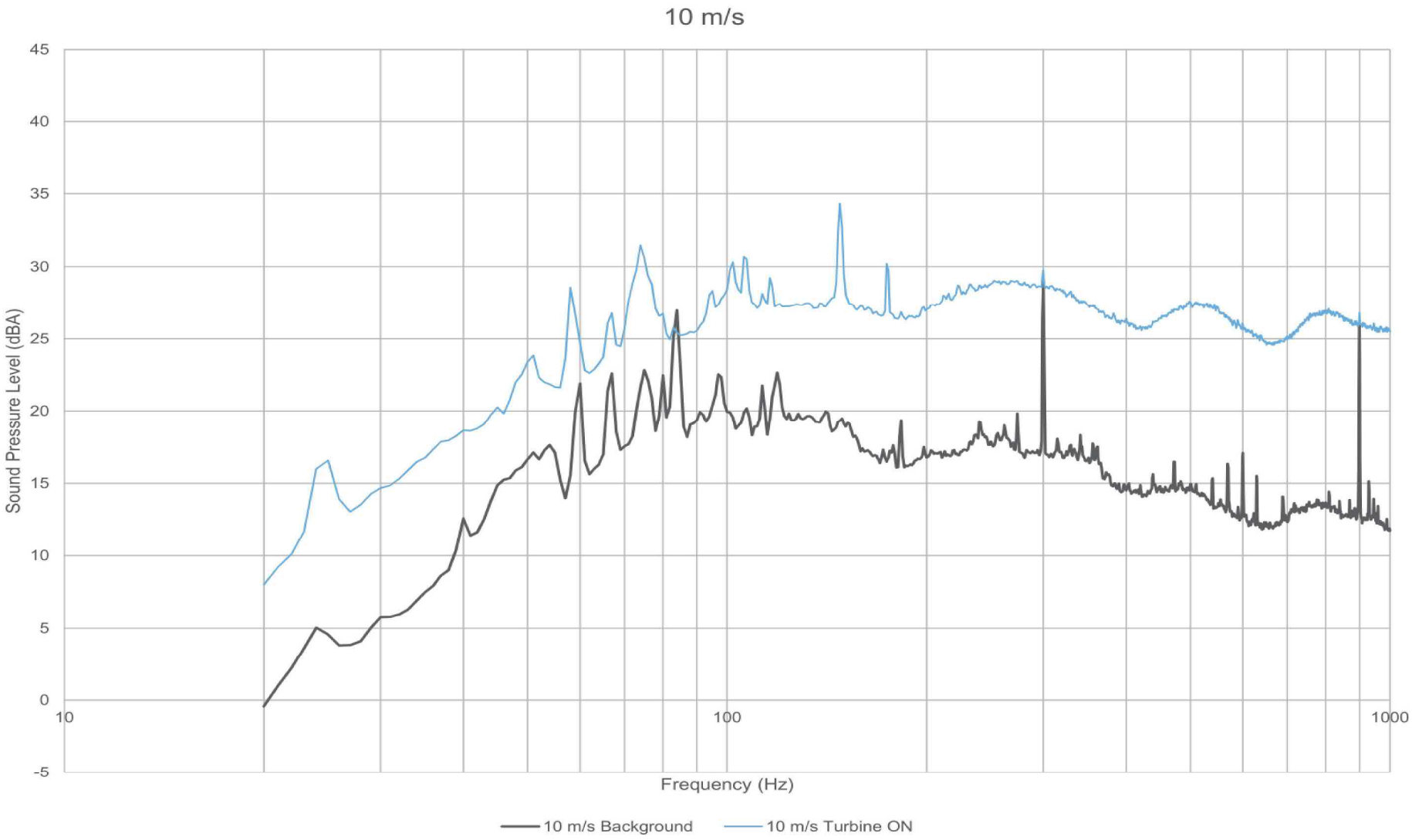
aercoustics	17283.01.T33.RP2	**Project Name**
	Scale: NTS Drawn by: IK Reviewed by: MAD Date: Dec 2018 Revision: 1	North Kent Wind 1 LP - IEC 61400-11 Edition 3.0 - Turbine T33
		Figure Title Plot of narrow band spectra - Turbine ON vs. Background at 8.5 m/s
		Figure D.02



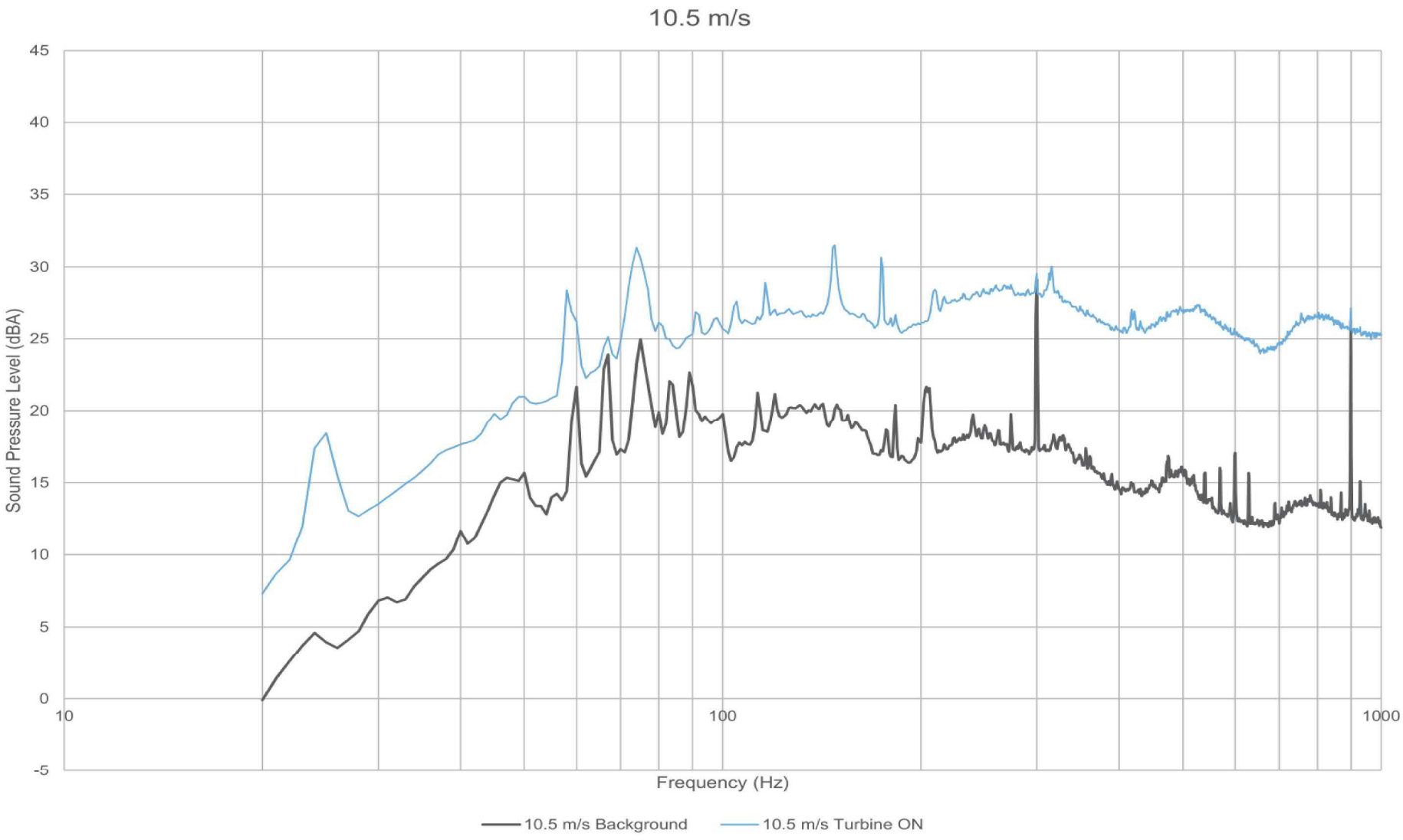
aercoustics	17283.01.T33.RP2	**Project Name**
	Scale: NTS Drawn by: IK Reviewed by: MAD Date: Dec 2018 Revision: 1	North Kent Wind 1 LP - IEC 61400-11 Edition 3.0 - Turbine T33
		Figure Title Plot of narrow band spectra - Turbine ON vs. Background at 9 m/s
		Figure D.03



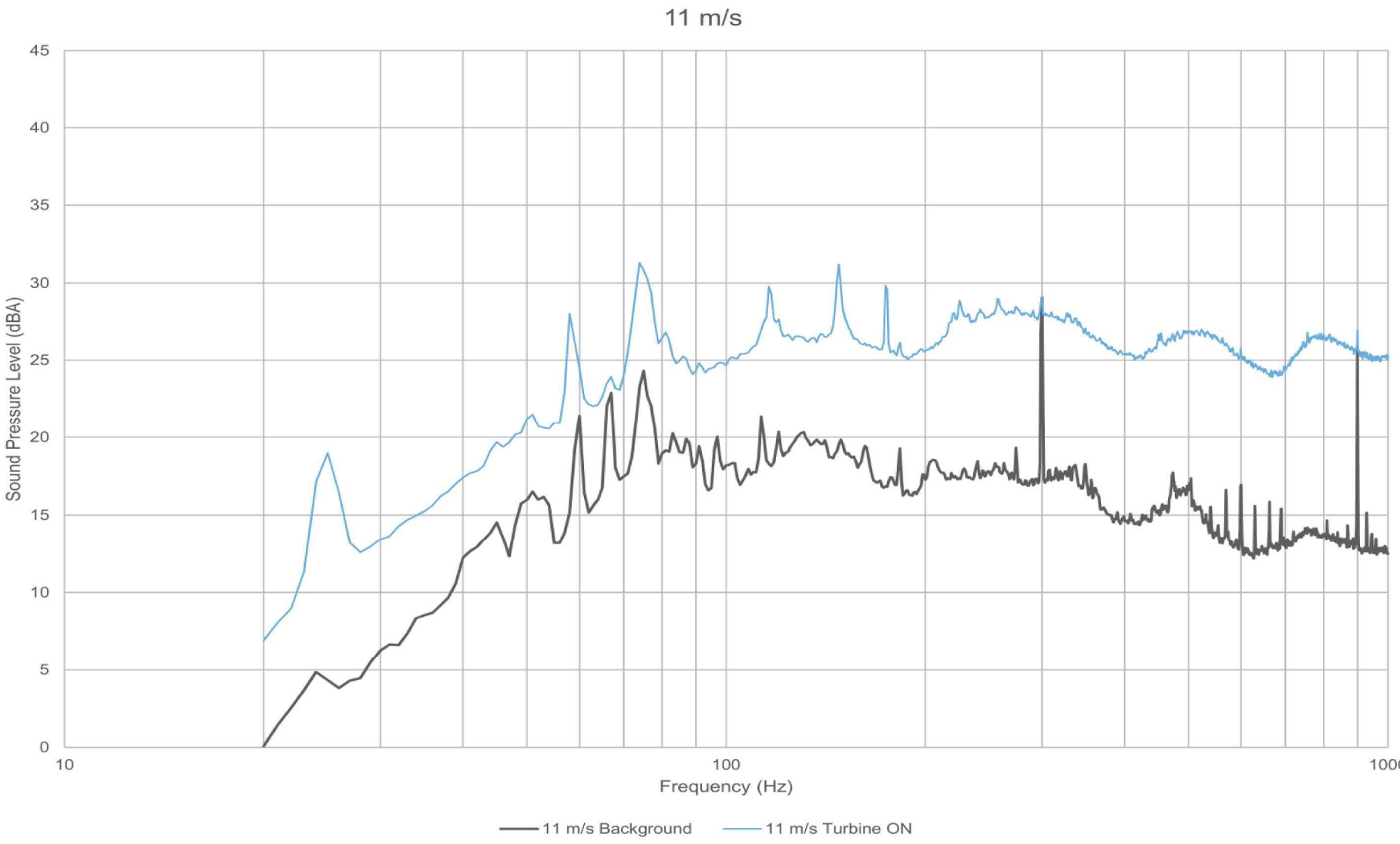
aercoustics	17283.01.T33.RP2	**Project Name**
	Scale: NTS Drawn by: IK Reviewed by: MAD Date: Dec 2018 Revision: 1	North Kent Wind 1 LP - IEC 61400-11 Edition 3.0 - Turbine T33
		Figure Title Plot of narrow band spectra - Turbine ON vs. Background at 9.5 m/s
		Figure D.04



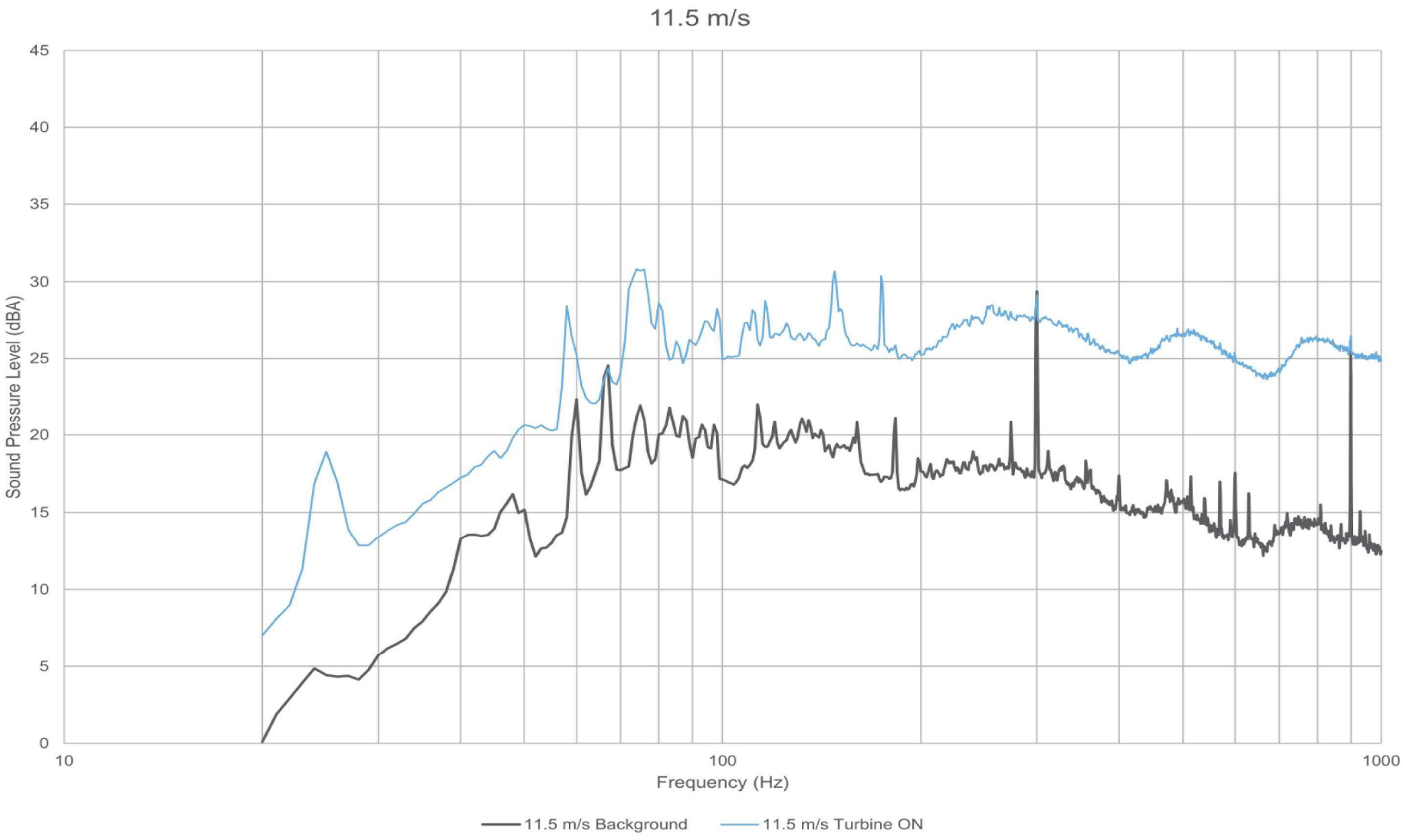
aercoustics	17283.01.T33.RP2	**Project Name**
	Scale: NTS Drawn by: IK Reviewed by: MAD Date: Dec 2018 Revision: 1	North Kent Wind 1 LP - IEC 61400-11 Edition 3.0 - Turbine T33
		Figure Title Plot of narrow band spectra - Turbine ON vs. Background at 10 m/s
		Figure D.05



aercoustics	17283.01.T33.RP2	**Project Name**
	Scale: NTS Drawn by: IK Reviewed by: MAD Date: Dec 2018 Revision: 1	North Kent Wind 1 LP - IEC 61400-11 Edition 3.0 - Turbine T33
		Figure Title Plot of narrow band spectra - Turbine ON vs. Background at 10.5 m/s
		Figure D.06

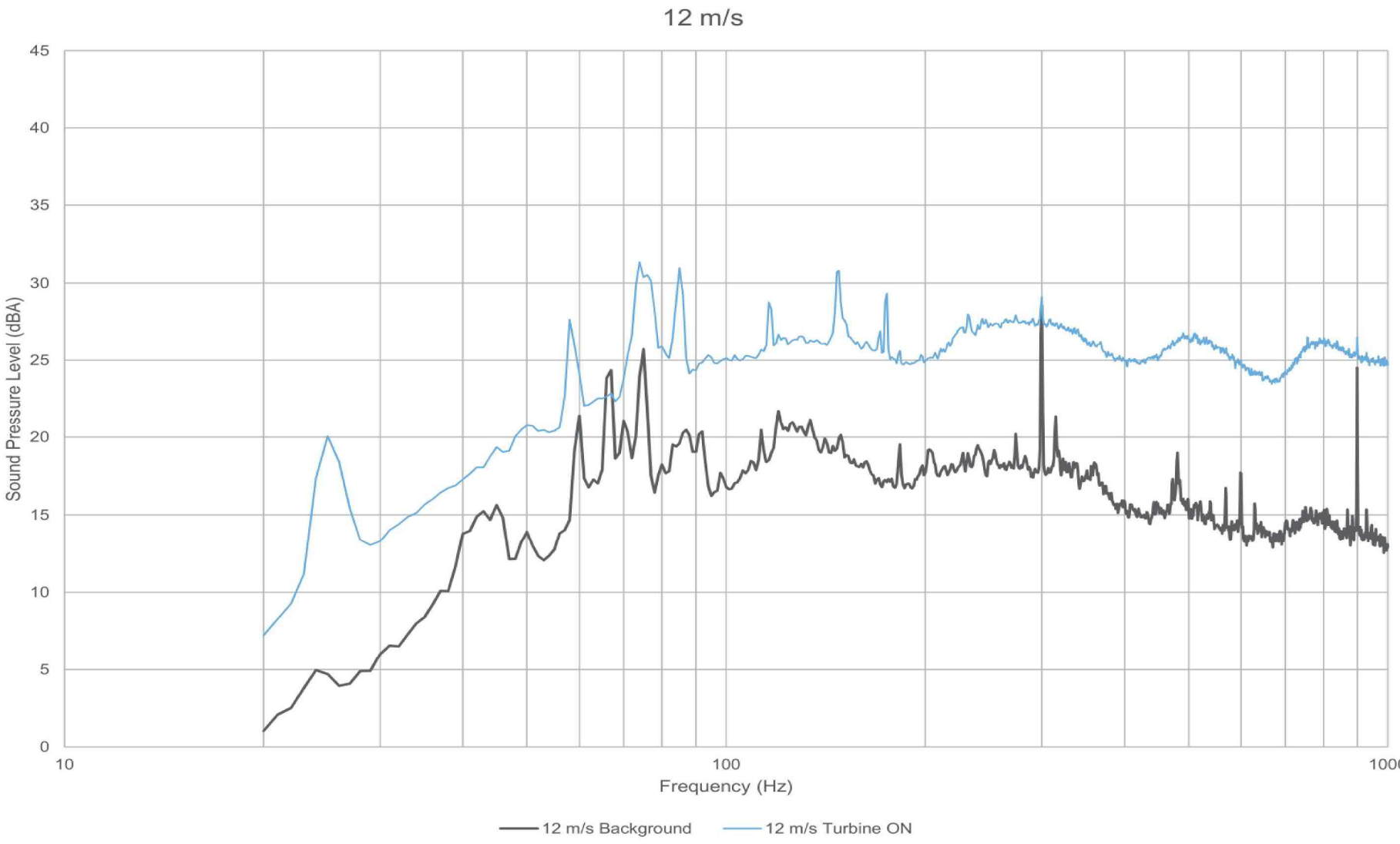


aercoustics	17283.01.T33.RP2	**Project Name**
	Scale: NTS Drawn by: IK Reviewed by: MAD Date: Dec 2018 Revision: 1	North Kent Wind 1 LP - IEC 61400-11 Edition 3.0 - Turbine T33
		Figure Title Plot of narrow band spectra - Turbine ON vs. Background at 11 m/s
		Figure D.07



aercoustics	17283.01.T33.RP2	**Project Name**
	Scale: NTS Drawn by: IK Reviewed by: MAD Date: Dec 2018 Revision: 1	North Kent Wind 1 LP - IEC 61400-11 Edition 3.0 - Turbine T33
		Figure Title Plot of narrow band spectra - Turbine ON vs. Background at 11.5 m/s

Figure D.08



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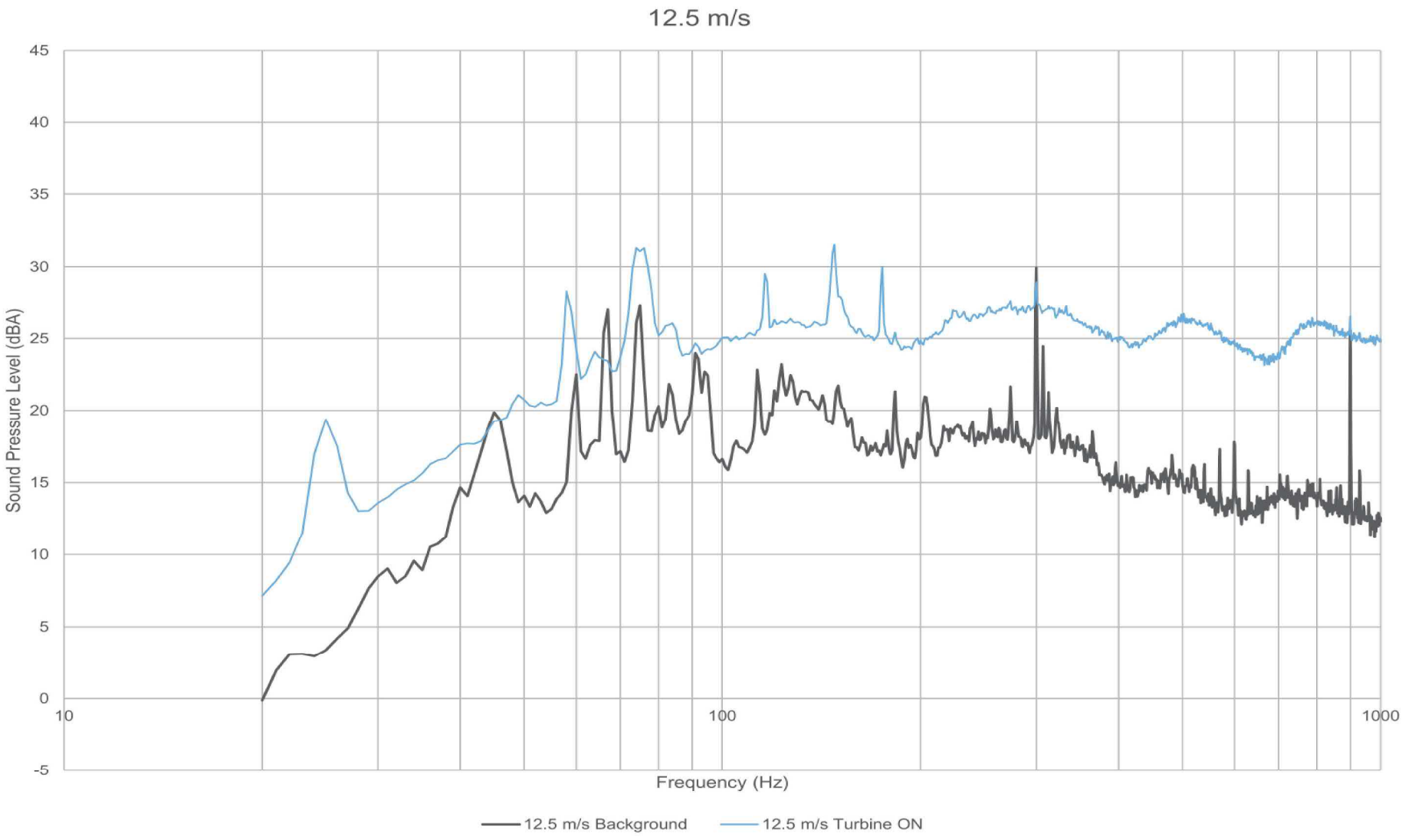
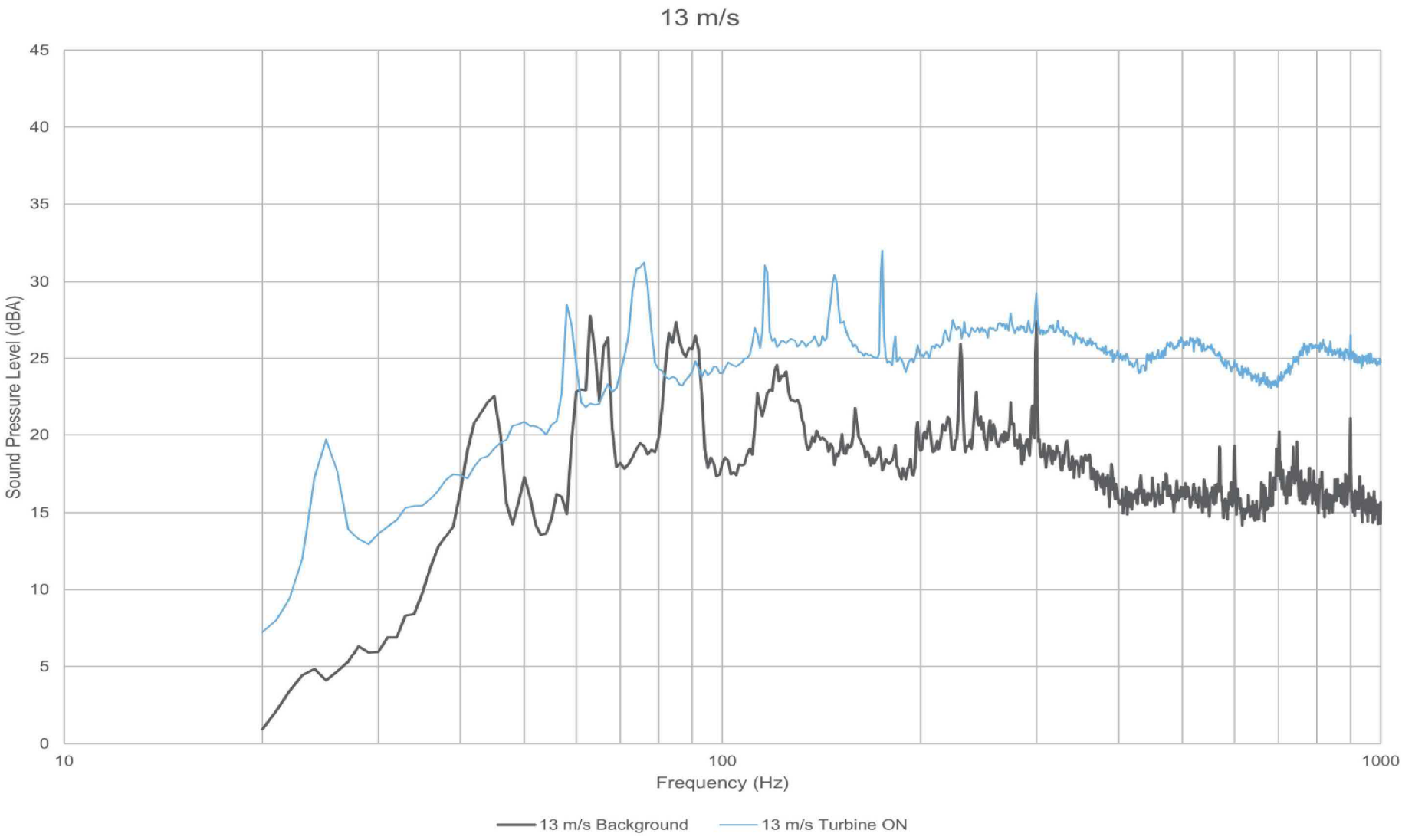
	Scale: NTS Drawn by: IK Reviewed by: MAD Date: Dec 2018 Revision: 1	North Kent Wind 1 LP - IEC 61400-11 Edition 3.0 - Turbine T33
		Figure Title Plot of narrow band spectra - Turbine ON vs. Background at 12 m/s
		Figure D.09



aercoustics	17283.01.T33.RP2	**Project Name**
	Scale: NTS Drawn by: IK Reviewed by: MAD Date: Dec 2018 Revision: 1	North Kent Wind 1 LP - IEC 61400-11 Edition 3.0 - Turbine T33
		Figure Title Plot of narrow band spectra - Turbine ON vs. Background at 12.5 m/s
		Figure D.10



aercoustics	17283.01.T33.RP2	**Project Name**	
	Scale: NTS Drawn by: IK Reviewed by: MAD Date: Dec 2018 Revision: 1	North Kent Wind 1 LP - IEC 61400-11 Edition 3.0 - Turbine T33	
		Figure Title Plot of narrow band spectra - Turbine ON vs. Background at 13 m/s	**Figure D.11**

Table D.01 Tonality Assessment Table - 9 m/s

Project: North Kent Wind 1 LP - Turbine T33 - IEC 61400-11 Measurement

Report ID: 17283.01.T33.RP2

Created on: 2018-12-11

Measurement #	Centre frequency (Hz)	Energy average of all masking lines (dB)	Masking level (dB)	Tone level (dB)	Determination of tonality (dB)	Frequency dependent audibility criterion (dB)	Tonal Audibility (dB)
1214	80	25.1	43.4	38.1	-5.2	-2.0	-3.2
1212	91	24.6	42.8	42.4	-0.4	-2.0	1.6
1228	95	27.1	45.3	36.1	-9.3	-2.0	-7.3
1234	96	26.5	44.8	40.0	-4.8	-2.0	-2.8
1187	99	28.2	46.5	42.2	-4.3	-2.0	-2.3
1233	103	26.4	44.7	41.2	-3.5	-2.0	-1.5
1176	106	28.4	46.7	43.0	-3.7	-2.0	-1.6
1235	106	27.1	45.4	44.1	-1.3	-2.0	0.7
1226	113	27.4	45.6	36.8	-8.9	-2.0	-6.9
Average	99				-3.8	-2.0	-1.8

Table D.02 Tonality Assessment Table - 9.5 m/s

Project: North Kent Wind 1 LP - Turbine T33 - IEC 61400-11 Measurement
Report ID: 17283.01.T33.RP2

Created on: 2018-12-11

Measurement #	Centre frequency (Hz)	Energy average of all masking lines (dB)	Masking level (dB)	Tone level (dB)	Determination of tonality (dB)	Frequency dependent audibility criterion (dB)	Tonal Audibility (dB)
956	75	25.3	43.6	33.1	-10.5	-2.0	-8.5
741	75	23.7	42.0	32.3	-9.7	-2.0	-7.7
931	75	23.6	41.9	33.8	-8.1	-2.0	-6.1
202	75	24.5	42.8	34.7	-8.1	-2.0	-6.1
737	75	23.7	41.9	29.8	-12.2	-2.0	-10.2
740	75	24.1	42.3	33.6	-8.7	-2.0	-6.7
264	75	27.0	45.3	45.0	-0.3	-2.0	1.7
925	75	23.3	41.5	29.9	-11.6	-2.0	-9.6
1117	75	23.8	42.1	33.2	-8.9	-2.0	-6.9
816	75	24.9	43.2	35.2	-8.0	-2.0	-6.0
263	75	25.6	43.8	45.6	1.7	-2.0	3.7
978	75	20.9	39.2	34.0	-5.2	-2.0	-3.2
935	75	22.8	41.1	31.2	-9.9	-2.0	-7.9
1061	75	24.5	42.7	32.8	-9.9	-2.0	-7.9
388	75	23.2	41.5	40.0	-1.5	-2.0	0.5
365	75	25.5	43.7	32.3	-11.4	-2.0	-9.4
738	75	23.8	42.1	30.3	-11.8	-2.0	-9.8
928	75	25.0	43.3	31.9	-11.4	-2.0	-9.4
815	75	24.2	42.4	32.9	-9.5	-2.0	-7.5
936	75	23.3	41.5	36.1	-5.4	-2.0	-3.4
937	75	22.1	40.4	34.3	-6.1	-2.0	-4.1
924	76	23.6	41.8	33.1	-8.7	-2.0	-6.7
1111	76	23.2	41.5	34.1	-7.4	-2.0	-5.4
262	79	27.3	45.5	42.7	-2.9	-2.0	-0.9
689	80	24.9	43.1	37.4	-5.7	-2.0	-3.7
688	80	25.0	43.2	36.9	-6.3	-2.0	-4.3
690	80	25.8	44.1	38.2	-5.9	-2.0	-3.9
687	80	26.7	44.9	37.9	-7.1	-2.0	-5.1
1215	80	25.5	43.8	38.9	-4.8	-2.0	-2.8
1225	86	25.5	43.8	35.3	-8.5	-2.0	-6.5
1223	92	27.1	45.3	36.4	-8.9	-2.0	-6.9
1196	95	28.3	46.5	34.8	-11.7	-2.0	-9.7
1060	98	25.4	43.7	38.4	-5.3	-2.0	-3.3
1197	98	28.2	46.5	42.5	-4.0	-2.0	-1.9
1188	98	28.2	46.5	37.9	-8.5	-2.0	-6.5
1210	100	25.9	44.2	45.3	1.2	-2.0	3.2
1209	105	25.8	44.1	44.9	0.8	-2.0	2.8
586	113	28.4	46.6	50.4	3.8	-2.0	5.8
585	122	27.6	45.9	44.5	-1.4	-2.0	0.6
Average	82				-4.3	-2.0	-2.3

Table D.03 Tonality Assessment Table - 10 m/s

Project: North Kent Wind 1 LP - Turbine T33 - IEC 61400-11 Measurement

Report ID: 17283.01.T33.RP2

Created on: 2018-12-11

Measurement #	Centre frequency (Hz)	Energy average of all masking lines (dB)	Masking level (dB)	Tone level (dB)	Determination of tonality (dB)	Frequency dependent audibility criterion (dB)	Tonal Audibility (dB)
308	75	24.3	42.5	30.4	-12.1	-2.0	-10.1
1062	75	24.4	42.7	32.7	-10.0	-2.0	-8.0
725	75	25.1	43.3	32.7	-10.6	-2.0	-8.6
929	75	23.0	41.3	29.8	-11.5	-2.0	-9.5
747	75	24.0	42.2	30.9	-11.4	-2.0	-9.4
1101	75	23.5	41.7	31.5	-10.3	-2.0	-8.3
743	75	24.8	43.1	32.3	-10.8	-2.0	-8.8
824	75	24.0	42.3	34.5	-7.8	-2.0	-5.8
730	75	24.9	43.2	31.5	-11.7	-2.0	-9.7
1109	75	23.6	41.8	30.1	-11.7	-2.0	-9.7
1113	75	24.4	42.7	31.2	-11.5	-2.0	-9.4
1216	80	25.0	43.2	39.7	-3.5	-2.0	-1.5
1058	93	26.0	44.3	35.4	-8.9	-2.0	-6.9
1191	93	26.2	44.5	40.9	-3.6	-2.0	-1.6
1211	95	24.9	43.2	46.4	3.2	-2.0	5.2
1193	98	27.3	45.6	41.4	-4.2	-2.0	-2.2
1192	98	27.1	45.4	41.0	-4.4	-2.0	-2.4
1195	98	27.1	45.3	39.3	-6.0	-2.0	-4.0
1194	100	27.7	46.0	41.4	-4.6	-2.0	-2.5
1221	103	26.7	45.0	40.2	-4.8	-2.0	-2.8
587	106	28.6	46.9	53.7	6.8	-2.0	8.8
1208	113	26.9	45.1	38.0	-7.1	-2.0	-5.1
Average	86				-3.1	-2.0	-1.1

Table D.04 Tonality Assessment Table - 11 m/s

Project: North Kent Wind 1 LP - Turbine T33 - IEC 61400-11 Measurement

Report ID: 17283.01.T33.RP2

Created on: 2018-12-11

Measurement #	Centre frequency (Hz)	Energy average of all masking lines (dB)	Masking level (dB)	Tone level (dB)	Determination of tonality (dB)	Frequency dependent audibility criterion (dB)	Tonal Audibility (dB)
1185	68	20.9	39.2	32.9	-6.2	-2.0	-4.2
593	68	23.4	41.6	37.8	-3.8	-2.0	-1.8
1085	72	21.1	39.3	41.7	2.3	-2.0	4.3
709	72	24.0	42.3	35.2	-7.1	-2.0	-5.1
1075	72	22.4	40.7	37.2	-3.4	-2.0	-1.4
337	72	21.9	40.2	35.6	-4.6	-2.0	-2.6
645	73	22.9	41.2	39.4	-1.7	-2.0	0.3
218	73	22.4	40.7	34.5	-6.2	-2.0	-4.2
1141	73	22.4	40.6	32.6	-8.0	-2.0	-6.0
1049	73	21.4	39.7	32.1	-7.6	-2.0	-5.5
1183	73	23.2	41.5	30.6	-10.9	-2.0	-8.9
904	73	24.0	42.3	34.2	-8.1	-2.0	-6.1
920	73	23.7	42.0	33.3	-8.7	-2.0	-6.7
890	73	23.5	41.8	33.5	-8.3	-2.0	-6.3
1151	73	25.7	43.9	38.6	-5.3	-2.0	-3.3
1164	73	23.1	41.4	34.0	-7.4	-2.0	-5.4
1020	74	24.3	42.5	33.1	-9.4	-2.0	-7.4
1165	74	23.7	41.9	32.9	-9.0	-2.0	-7.0
915	74	22.7	40.9	31.6	-9.3	-2.0	-7.3
1091	74	20.8	39.0	34.5	-4.5	-2.0	-2.5
1071	74	23.8	42.0	35.3	-6.7	-2.0	-4.7
712	74	22.9	41.1	33.1	-8.0	-2.0	-6.0
799	74	20.3	38.6	34.0	-4.5	-2.0	-2.5
1047	74	22.1	40.4	33.4	-6.9	-2.0	-4.9
802	74	23.5	41.8	35.9	-5.9	-2.0	-3.9
840	74	24.2	42.5	32.7	-9.8	-2.0	-7.8
616	74	22.7	41.0	38.4	-2.6	-2.0	-0.5
861	74	19.9	38.1	36.1	-2.1	-2.0	-0.1
917	74	22.8	41.0	31.1	-9.9	-2.0	-7.9
870	74	24.5	42.7	34.1	-8.7	-2.0	-6.7
868	74	23.7	42.0	33.6	-8.4	-2.0	-6.4
801	74	21.7	40.0	37.1	-2.9	-2.0	-0.9
222	74	22.4	40.7	34.5	-6.2	-2.0	-4.2
1147	74	23.8	42.1	33.9	-8.2	-2.0	-6.2
898	74	24.9	43.2	34.6	-8.6	-2.0	-6.6
968	74	22.3	40.6	35.8	-4.8	-2.0	-2.8
1069	74	22.2	40.4	35.3	-5.1	-2.0	-3.1
761	74	22.3	40.5	37.8	-2.7	-2.0	-0.7
1030	74	24.0	42.2	34.3	-7.9	-2.0	-5.9
891	74	22.4	40.6	35.9	-4.7	-2.0	-2.7
1048	74	21.0	39.2	35.7	-3.6	-2.0	-1.6
684	74	25.9	44.2	34.4	-9.7	-2.0	-7.7
1010	74	22.9	41.1	35.2	-6.0	-2.0	-4.0
1070	74	22.6	40.8	35.6	-5.2	-2.0	-3.2
1088	75	21.7	40.0	36.2	-3.8	-2.0	-1.8
1008	75	25.5	43.7	33.1	-10.7	-2.0	-8.7
198	75	23.8	42.0	35.7	-6.4	-2.0	-4.4
965	75	20.9	39.2	35.6	-3.6	-2.0	-1.6
1004	75	23.8	42.1	33.2	-8.9	-2.0	-6.9
859	75	19.3	37.5	36.0	-1.5	-2.0	0.5
967	75	21.8	40.0	35.5	-4.6	-2.0	-2.6
1012	75	23.3	41.5	35.3	-6.2	-2.0	-4.2
1016	75	24.3	42.6	34.3	-8.3	-2.0	-6.3

Table D.04 Tonality Assessment Table - 11 m/s

Project: North Kent Wind 1 LP - Turbine T33 - IEC 61400-11 Measurement

Report ID: 17283.01.T33.RP2

Created on: 2018-12-11

Measurement #	Centre frequency (Hz)	Energy average of all masking lines (dB)	Masking level (dB)	Tone level (dB)	Determination of tonality (dB)	Frequency dependent audibility criterion (dB)	Tonal Audibility (dB)
1052	75	22.9	41.2	34.3	-6.9	-2.0	-4.9
1040	75	21.6	39.9	35.2	-4.7	-2.0	-2.7
1005	75	23.7	42.0	35.7	-6.3	-2.0	-4.3
760	75	22.0	40.3	38.4	-1.9	-2.0	0.1
810	75	23.8	42.1	33.4	-8.7	-2.0	-6.7
1015	75	23.3	41.6	34.5	-7.2	-2.0	-5.2
971	75	23.0	41.2	33.6	-7.6	-2.0	-5.6
972	75	22.7	40.9	34.5	-6.4	-2.0	-4.4
981	75	24.0	42.3	34.7	-7.6	-2.0	-5.5
633	75	24.8	43.0	41.0	-2.0	-2.0	0.0
1002	75	23.8	42.0	33.1	-9.0	-2.0	-6.9
982	75	25.6	43.8	32.5	-11.3	-2.0	-9.3
1009	75	23.5	41.8	34.4	-7.4	-2.0	-5.4
676	75	24.7	42.9	32.1	-10.8	-2.0	-8.8
778	76	25.8	44.0	36.3	-7.7	-2.0	-5.7
1079	76	22.4	40.6	33.7	-6.9	-2.0	-4.9
775	76	24.4	42.6	37.8	-4.8	-2.0	-2.8
1014	76	23.3	41.5	37.9	-3.6	-2.0	-1.6
1138	76	26.0	44.3	37.0	-7.3	-2.0	-5.3
1089	76	21.1	39.4	37.3	-2.1	-2.0	-0.1
1077	76	21.1	39.3	36.0	-3.4	-2.0	-1.4
648	76	22.1	40.3	42.0	1.7	-2.0	3.7
1073	76	23.2	41.4	34.0	-7.4	-2.0	-5.4
237	76	24.7	42.9	41.1	-1.9	-2.0	0.1
1043	76	22.4	40.7	35.5	-5.2	-2.0	-3.2
677	77	24.4	42.7	38.4	-4.2	-2.0	-2.2
873	77	25.7	43.9	36.5	-7.4	-2.0	-5.4
193	77	24.5	42.7	37.8	-5.0	-2.0	-3.0
776	77	24.0	42.3	38.8	-3.5	-2.0	-1.5
213	77	24.9	43.2	36.7	-6.5	-2.0	-4.5
238	77	24.2	42.4	38.2	-4.2	-2.0	-2.2
846	77	23.8	42.1	35.2	-6.9	-2.0	-4.8
679	78	25.4	43.7	39.1	-4.6	-2.0	-2.6
391	78	22.9	41.1	38.7	-2.4	-2.0	-0.4
1139	78	25.0	43.3	37.7	-5.6	-2.0	-3.5
708	79	24.6	42.8	38.9	-3.9	-2.0	-1.9
619	80	23.8	42.1	37.5	-4.6	-2.0	-2.6
629	81	24.5	42.8	43.2	0.5	-2.0	2.5
657	82	23.2	41.4	40.1	-1.3	-2.0	0.7
631	86	26.6	44.8	41.4	-3.4	-2.0	-1.4
649	110	24.7	42.9	42.4	-0.5	-2.0	1.5
	75				-4.8	-2.0	-2.7

Table D.05 Tonality Assessment Table - 11.5 m/s

Project: North Kent Wind 1 LP - Turbine T33 - IEC 61400-11 Measurement
Report ID: 17283.01.T33.RP2

Created on: 2018-12-11

Measurement #	Centre frequency (Hz)	Energy average of all masking lines (dB)	Masking level (dB)	Tone level (dB)	Determination of tonality (dB)	Frequency dependent audibility criterion (dB)	Tonal Audibility (dB)
642	68	24.5	42.8	41.8	-1.0	-2.0	1.0
1028	72	22.7	41.0	35.1	-5.8	-2.0	-3.8
1094	72	21.4	39.7	39.9	0.3	-2.0	2.3
845	72	23.4	41.7	41.8	0.1	-2.0	2.1
582	72	23.8	42.0	33.3	-8.7	-2.0	-6.7
701	72	22.8	41.1	35.9	-5.2	-2.0	-3.2
584	72	23.3	41.6	37.6	-3.9	-2.0	-1.9
579	72	22.6	40.9	39.4	-1.5	-2.0	0.5
895	72	24.0	42.3	37.5	-4.7	-2.0	-2.7
770	72	23.3	41.6	37.4	-4.1	-2.0	-2.1
1042	72	22.3	40.5	36.8	-3.8	-2.0	-1.8
864	72	22.7	40.9	36.4	-4.5	-2.0	-2.5
786	72	22.9	41.2	36.9	-4.3	-2.0	-2.3
1163	73	22.7	40.9	33.9	-7.0	-2.0	-5.0
796	73	19.6	37.8	36.6	-1.2	-2.0	0.8
1142	73	23.9	42.2	33.8	-8.4	-2.0	-6.3
790	74	22.1	40.3	36.8	-3.6	-2.0	-1.6
1031	74	24.7	42.9	32.0	-10.9	-2.0	-8.9
785	74	21.9	40.1	36.5	-3.6	-2.0	-1.6
857	74	19.9	38.1	36.4	-1.7	-2.0	0.3
570	74	23.8	42.1	32.0	-10.0	-2.0	-8.0
781	74	21.4	39.7	36.5	-3.1	-2.0	-1.1
230	74	21.6	39.8	34.3	-5.5	-2.0	-3.5
806	74	22.9	41.1	37.1	-4.0	-2.0	-2.0
769	74	23.2	41.4	35.0	-6.4	-2.0	-4.4
681	74	25.5	43.8	35.9	-7.8	-2.0	-5.8
881	74	21.5	39.8	36.2	-3.6	-2.0	-1.6
852	74	19.5	37.7	37.8	0.1	-2.0	2.1
219	74	23.1	41.4	34.6	-6.8	-2.0	-4.8
1168	74	22.5	40.8	36.0	-4.8	-2.0	-2.8
1074	74	22.3	40.5	31.3	-9.3	-2.0	-7.3
792	74	23.0	41.2	38.3	-2.9	-2.0	-0.9
1160	74	22.5	40.8	33.3	-7.4	-2.0	-5.4
387	75	24.6	42.9	38.6	-4.3	-2.0	-2.3
1090	75	21.1	39.4	34.2	-5.2	-2.0	-3.2
966	75	21.7	40.0	34.6	-5.4	-2.0	-3.4
910	75	22.9	41.2	32.4	-8.7	-2.0	-6.7
1011	75	23.1	41.4	34.0	-7.4	-2.0	-5.4
791	75	21.5	39.8	37.2	-2.6	-2.0	-0.6
1013	75	22.0	40.2	34.7	-5.5	-2.0	-3.5
594	75	24.8	43.0	34.6	-8.4	-2.0	-6.4
659	75	22.8	41.1	35.8	-5.3	-2.0	-3.3
794	75	21.4	39.7	35.2	-4.4	-2.0	-2.4
996	75	24.6	42.9	32.6	-10.3	-2.0	-8.3
783	75	22.2	40.4	37.7	-2.8	-2.0	-0.8
1025	75	23.4	41.6	34.0	-7.6	-2.0	-5.6
1003	75	23.9	42.2	35.4	-6.8	-2.0	-4.8
692	76	25.0	43.2	37.1	-6.1	-2.0	-4.1
216	76	23.0	41.3	38.4	-2.9	-2.0	-0.9
217	76	22.3	40.5	34.7	-5.9	-2.0	-3.9
970	76	21.9	40.1	34.2	-5.9	-2.0	-3.9
756	76	24.0	42.3	36.2	-6.1	-2.0	-4.1
1023	76	22.9	41.1	35.7	-5.4	-2.0	-3.4

Table D.05 Tonality Assessment Table - 11.5 m/s

Project: North Kent Wind 1 LP - Turbine T33 - IEC 61400-11 Measurement

Report ID: 17283.01.T33.RP2

Created on: 2018-12-11

Measurement #	Centre frequency (Hz)	Energy average of all masking lines (dB)	Masking level (dB)	Tone level (dB)	Determination of tonality (dB)	Frequency dependent audibility criterion (dB)	Tonal Audibility (dB)
617	76	22.0	40.3	37.8	-2.5	-2.0	-0.5
918	76	22.9	41.1	33.8	-7.3	-2.0	-5.3
757	76	23.6	41.8	37.0	-4.8	-2.0	-2.8
809	76	23.7	41.9	36.6	-5.4	-2.0	-3.4
448	76	25.0	43.2	35.8	-7.5	-2.0	-5.5
612	76	24.7	43.0	36.9	-6.1	-2.0	-4.1
964	76	24.1	42.4	36.5	-5.9	-2.0	-3.9
618	76	22.7	40.9	39.8	-1.1	-2.0	0.9
1022	76	22.4	40.6	37.4	-3.2	-2.0	-1.2
229	77	22.9	41.1	37.5	-3.7	-2.0	-1.7
227	77	24.7	43.0	37.5	-5.5	-2.0	-3.5
1140	77	24.2	42.4	38.5	-4.0	-2.0	-2.0
768	77	23.3	41.6	38.6	-3.0	-2.0	-1.0
382	77	24.6	42.9	31.2	-11.7	-2.0	-9.7
907	77	21.1	39.3	34.6	-4.7	-2.0	-2.7
215	77	24.4	42.6	36.6	-6.0	-2.0	-4.0
777	78	24.1	42.3	39.0	-3.3	-2.0	-1.3
228	79	25.2	43.5	37.1	-6.4	-2.0	-4.4
630	80	25.8	44.1	43.7	-0.4	-2.0	1.6
841	80	24.6	42.8	37.1	-5.8	-2.0	-3.8
624	80	22.9	41.1	43.8	2.6	-2.0	4.6
1181	80	26.7	45.0	43.1	-1.8	-2.0	0.2
623	81	24.7	43.0	41.9	-1.1	-2.0	0.9
241	85	25.4	43.6	41.1	-2.5	-2.0	-0.5
1039	89	22.5	40.7	46.2	5.4	-2.0	7.4
1084	91	22.9	41.1	38.8	-2.4	-2.0	-0.4
588	98	28.5	46.7	51.6	4.9	-2.0	6.9
1037	111	23.7	42.0	49.5	7.5	-2.0	9.5
Average	76				-2.7	-2.0	-0.7

Table D.06 Tonality Assessment Table - 12 m/s

Project: North Kent Wind 1 LP - Turbine T33 - IEC 61400-11 Measurement

Report ID: 17283.01.T33.RP2

Created on: 2018-12-11

Measurement #	Centre frequency (Hz)	Energy average of all masking lines (dB)	Masking level (dB)	Tone level (dB)	Determination of tonality (dB)	Frequency dependent audibility criterion (dB)	Tonal Audibility (dB)
347	60	14.1	32.4	20.9	-11.5	-2.0	-9.5
844	71	24.1	42.3	38.5	-3.8	-2.0	-1.8
400	72	23.8	42.1	35.9	-6.2	-2.0	-4.2
863	73	21.6	39.8	37.1	-2.7	-2.0	-0.7
851	73	19.1	37.3	35.8	-1.5	-2.0	0.5
1156	73	22.4	40.7	34.6	-6.0	-2.0	-4.0
1170	73	24.5	42.7	33.6	-9.2	-2.0	-7.2
714	74	22.9	41.2	35.3	-5.9	-2.0	-3.9
1044	74	22.8	41.0	35.6	-5.4	-2.0	-3.4
888	74	23.4	41.7	36.9	-4.8	-2.0	-2.8
853	74	21.5	39.7	36.5	-3.2	-2.0	-1.2
1159	74	21.9	40.2	33.9	-6.3	-2.0	-4.3
1017	74	23.4	41.6	30.3	-11.3	-2.0	-9.3
1027	74	22.8	41.1	35.2	-5.9	-2.0	-3.9
862	74	21.3	39.6	37.8	-1.8	-2.0	0.2
884	74	23.7	41.9	37.7	-4.2	-2.0	-2.2
567	74	20.9	39.2	37.2	-2.0	-2.0	0.0
800	74	20.6	38.9	37.6	-1.3	-2.0	0.7
858	74	18.6	36.9	37.9	1.1	-2.0	3.1
580	74	22.9	41.1	34.9	-6.2	-2.0	-4.2
1155	74	21.3	39.6	31.5	-8.1	-2.0	-6.1
973	74	21.0	39.3	34.2	-5.1	-2.0	-3.1
1161	74	22.1	40.3	30.2	-10.1	-2.0	-8.1
1158	74	21.8	40.1	33.0	-7.0	-2.0	-5.0
911	75	22.1	40.4	32.5	-7.9	-2.0	-5.9
1092	75	21.9	40.1	32.5	-7.6	-2.0	-5.6
893	75	23.2	41.4	35.4	-6.0	-2.0	-4.0
1032	75	23.6	41.8	35.0	-6.8	-2.0	-4.8
795	75	23.1	41.4	35.3	-6.1	-2.0	-4.1
710	75	23.3	41.6	32.1	-9.5	-2.0	-7.5
572	75	24.1	42.3	33.5	-8.9	-2.0	-6.9
848	75	22.6	40.8	35.0	-5.8	-2.0	-3.8
860	75	20.7	39.0	33.4	-5.6	-2.0	-3.6
793	75	21.5	39.8	37.4	-2.4	-2.0	-0.4
788	76	24.6	42.8	34.7	-8.1	-2.0	-6.1
1021	76	24.9	43.1	35.7	-7.4	-2.0	-5.4
899	76	25.4	43.7	34.5	-9.1	-2.0	-7.1
1019	76	25.3	43.6	33.3	-10.3	-2.0	-8.3
780	76	21.6	39.9	37.2	-2.7	-2.0	-0.7
239	76	23.4	41.7	39.1	-2.6	-2.0	-0.6
1026	76	23.8	42.1	37.4	-4.7	-2.0	-2.7
1078	76	22.6	40.9	36.6	-4.3	-2.0	-2.3
576	76	23.5	41.7	36.2	-5.5	-2.0	-3.5
1154	76	22.0	40.2	35.3	-5.0	-2.0	-3.0
900	77	24.5	42.7	38.6	-4.2	-2.0	-2.2
680	77	26.1	44.3	37.4	-6.9	-2.0	-4.9
449	77	25.8	44.1	40.1	-4.0	-2.0	-2.0
877	77	22.3	40.6	38.5	-2.1	-2.0	-0.1
1153	77	24.4	42.7	37.9	-4.8	-2.0	-2.8
919	77	25.1	43.4	36.7	-6.6	-2.0	-4.6
613	77	25.0	43.3	37.6	-5.6	-2.0	-3.6
905	78	24.9	43.1	38.0	-5.1	-2.0	-3.1
842	80	24.7	43.0	39.6	-3.3	-2.0	-1.3

Table D.06 Tonality Assessment Table - 12 m/s

Project: North Kent Wind 1 LP - Turbine T33 - IEC 61400-11 Measurement

Report ID: 17283.01.T33.RP2

Created on: 2018-12-11

565	84	23.1	41.3	38.6	-2.8	-2.0	-0.7
242	85	25.9	44.1	45.1	1.0	-2.0	3.0
564	85	24.8	43.1	39.9	-3.1	-2.0	-1.1
1180	85	26.1	44.4	47.8	3.5	-2.0	5.5
1083	94	24.2	42.5	41.5	-1.0	-2.0	1.0
Average	76				-4.1	-2.0	-2.1

Table D.07 Tonality Assessment Table - 12.5 m/s

Project: North Kent Wind 1 LP - Turbine T33 - IEC 61400-11 Measurement

Report ID: 17283.01.T33.RP2

Created on: 2018-12-11

Measurement #	Centre frequency (Hz)	Energy average of all masking lines (dB)	Masking level (dB)	Tone level (dB)	Determination of tonality (dB)	Frequency dependent audibility criterion (dB)	Tonal Audibility (dB)
243	58	23.0	41.3	42.8	1.5	-2.0	3.5
698	72	22.1	40.3	33.9	-6.4	-2.0	-4.4
713	73	22.4	40.6	35.0	-5.6	-2.0	-3.6
889	73	24.2	42.4	34.2	-8.2	-2.0	-6.2
1093	73	20.1	38.4	34.3	-4.1	-2.0	-2.1
856	74	21.7	40.0	33.8	-6.2	-2.0	-4.2
789	74	23.2	41.4	35.7	-5.7	-2.0	-3.7
696	74	23.2	41.4	32.6	-8.8	-2.0	-6.8
699	74	24.3	42.6	35.7	-6.8	-2.0	-4.8
894	74	23.1	41.4	35.6	-5.8	-2.0	-3.7
908	74	21.6	39.9	35.2	-4.7	-2.0	-2.6
439	74	24.3	42.6	34.5	-8.1	-2.0	-6.1
855	74	21.3	39.5	36.1	-3.5	-2.0	-1.5
909	74	23.7	42.0	34.3	-7.7	-2.0	-5.7
1033	75	24.3	42.5	33.6	-8.9	-2.0	-6.9
1029	75	22.5	40.8	33.9	-6.9	-2.0	-4.9
784	75	22.6	40.9	36.5	-4.4	-2.0	-2.4
854	75	20.3	38.6	35.5	-3.1	-2.0	-1.1
1034	75	23.0	41.2	34.4	-6.8	-2.0	-4.8
1024	75	23.3	41.5	36.2	-5.3	-2.0	-3.3
779	76	23.5	41.7	37.2	-4.5	-2.0	-2.5
901	76	24.0	42.3	36.3	-6.0	-2.0	-4.0
691	76	26.1	44.3	34.0	-10.3	-2.0	-8.3
880	76	23.7	41.9	36.4	-5.6	-2.0	-3.6
782	76	21.5	39.8	38.0	-1.7	-2.0	0.3
711	76	22.6	40.8	36.7	-4.2	-2.0	-2.2
787	76	23.7	41.9	37.6	-4.3	-2.0	-2.3
892	76	24.1	42.3	37.4	-5.0	-2.0	-3.0
767	77	21.8	40.0	38.5	-1.6	-2.0	0.4
843	77	24.4	42.7	41.4	-1.3	-2.0	0.7
397	77	24.5	42.7	39.8	-2.9	-2.0	-0.9
392	78	25.2	43.4	40.2	-3.2	-2.0	-1.2
875	78	25.1	43.4	36.0	-7.4	-2.0	-5.4
876	78	23.2	41.4	39.4	-2.1	-2.0	-0.1
707	83	24.0	42.3	42.7	0.4	-2.0	2.4
566	85	22.3	40.5	37.8	-2.8	-2.0	-0.8
Average	75				-4.1	-2.0	-2.1

Table D.08 Tonality Assessment Table - 13 m/s

Project: North Kent Wind 1 LP - Turbine T33 - IEC 61400-11 Measurement

Report ID: 17283.01.T33.RP2

Created on: 2018-12-11

Measurement #	Centre frequency (Hz)	Energy average of all masking lines (dB)	Masking level (dB)	Tone level (dB)	Determination of tonality (dB)	Frequency dependent audibility criterion (dB)	Tonal Audibility (dB)
697	73	22.5	40.8	32.0	-8.8	-2.0	-6.8
1157	73	21.3	39.5	32.5	-7.0	-2.0	-5.0
887	73	21.3	39.6	36.0	-3.6	-2.0	-1.6
850	74	21.3	39.5	35.5	-4.0	-2.0	-2.0
849	74	22.2	40.5	34.9	-5.5	-2.0	-3.5
878	75	23.4	41.7	34.7	-7.0	-2.0	-5.0
695	75	23.7	42.0	35.0	-7.0	-2.0	-5.0
440	75	24.9	43.2	34.0	-9.2	-2.0	-7.2
879	75	24.8	43.1	33.8	-9.3	-2.0	-7.3
885	75	23.6	41.9	35.9	-6.0	-2.0	-4.0
428	76	21.8	40.1	39.5	-0.6	-2.0	1.4
398	76	23.4	41.7	38.7	-2.9	-2.0	-0.9
882	76	21.1	39.3	37.7	-1.6	-2.0	0.4
429	76	21.6	39.9	39.2	-0.7	-2.0	1.3
883	76	23.2	41.5	36.2	-5.3	-2.0	-3.3
703	77	23.9	42.1	43.9	1.8	-2.0	3.8
693	77	25.7	44.0	38.2	-5.8	-2.0	-3.8
	75				-3.7	-2.0	-1.7

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Appendix E
Measurement Data

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Table E.01 Measurement data - Turbine ON

Project: North Kent Wind 1 LP - Turbine T33 - IEC 61400-11 Measurement

Report ID: 17283.01.T33.RP2

Created on: 2019-01-30

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

Data Point #	Standardized Wind Speed	LAeq	Turbine Power Output (kW)	Reference Yaw Angle (°)	Yaw Angle (°)	Pitch Angle (°)	Rotor RPM	Nacelle Anemometer Wind Speed (m/s)	10m Anemometer Wind Speed (m/s)	Air Temperature (-C)	Pressure (kPa)	Relative Humidity (%)
1			2956	28.0	19.4	12.4	13.8	14.7	9.3	0.7	97936.7	85
2			2824	28.0	19.5	10.1	13.3	14.0	8.6	0.7	97936.4	85
3			2862	28.0	19.5	9.0	13.4	12.9	9.2	0.7	97936.6	85
4			3063	28.0	19.5	11.5	14.4	15.7	10.8	0.7	97936.6	85
5			3056	28.0	19.5	13.0	14.3	17.0	10.7	0.7	97936.8	85
6			2902	28.0	19.5	11.7	13.6	14.8	11.3	0.7	97936.6	85
7			2968	28.0	19.5	12.3	13.9	15.0	11.2	0.7	97937.0	85
8			2950	28.0	19.5	12.5	13.9	15.1	11.6	0.7	97936.7	85
9			2916	28.0	19.5	12.0	13.7	14.3	12.1	0.7	97937.0	85
10			2882	28.0	19.4	11.2	13.5	14.4	12.7	0.7	97937.3	85
11			2851	28.0	19.5	9.9	13.4	12.8	10.8	0.7	97936.8	85
12			3050	28.0	19.5	12.1	14.3	15.2	11.4	0.7	97936.7	85
13			3043	28.0	19.4	13.3	14.3	15.5	11.0	0.7	97936.8	85
14			2931	28.0	19.4	12.8	13.7	14.5	9.5	0.7	97936.6	84
15			2887	28.0	19.5	12.0	13.6	15.5	8.6	0.7	97936.8	84
16			2870	28.0	19.5	11.1	13.4	13.5	9.6	0.7	97936.9	84
17			3038	28.0	19.5	12.8	14.3	15.5	10.1	0.7	97937.0	84
18			3003	28.0	19.5	13.7	14.1	16.7	10.7	0.7	97936.8	84
19			2911	28.0	20.9	13.0	13.7	16.2	9.6	0.7	97936.9	84
20			2891	28.0	21.6	12.4	13.6	16.1	10.6	0.7	97936.8	85
21			2958	28.0	21.6	12.9	13.9	16.3	11.2	0.7	97936.8	85
22			2932	28.0	21.7	12.8	13.8	15.3	12.6	0.7	97937.0	85
23			2891	28.0	21.7	12.0	13.5	15.4	13.2	0.7	97937.1	85
24			2899	28.0	21.6	11.6	13.6	14.3	11.6	0.7	97937.1	85
25			2897	28.0	21.6	10.9	13.6	14.8	10.8	0.7	97942.6	84
26			2976	28.0	21.6	11.8	14.0	15.6	11.4	0.7	97950.1	84
27			3000	28.0	21.6	12.6	14.0	16.5	11.1	0.7	97950.1	84
28			2991	28.0	21.7	13.2	14.0	15.2	12.1	0.7	97950.0	84
29			2856	28.0	21.6	11.6	13.4	14.4	11.0	0.7	97950.1	84
30			2921	28.0	21.6	11.4	13.7	15.3	10.6	0.7	97949.8	84
31			2943	28.0	21.6	11.8	13.8	15.1	10.0	0.7	97951.3	84
32			2876	28.0	21.7	10.6	13.5	14.4	8.8	0.6	97950.3	84
33			2938	28.0	21.7	10.5	13.8	13.4	10.0	0.6	97950.2	84
34			3035	28.0	21.7	12.3	14.2	15.3	11.1	0.6	97950.3	84
35			2975	28.0	21.7	12.4	13.9	14.9	11.2	0.6	97950.3	84
36			2825	28.0	21.7	10.1	13.3	13.7	12.4	0.6	97950.3	84
37			3001	28.0	21.7	11.5	14.1	15.8	12.3	0.6	97951.5	84
38			3045	28.0	21.7	13.2	14.2	16.6	13.6	0.6	97950.5	84
39			2879	28.0	21.7	11.6	13.5	14.4	13.6	0.6	97950.8	84
40			2985	28.0	21.7	12.6	14.0	15.0	12.4	0.6	97950.5	84
41			2969	28.0	21.7	12.3	14.0	15.5	13.8	0.6	97950.5	84
42			3100	28.0	21.6	14.9	14.5	17.6	12.2	0.6	97952.8	84
43			2968	28.0	21.6	14.6	13.9	17.7	13.3	0.6	97975.8	83
44			2923	28.0	21.6	14.4	13.7	16.8	12.5	0.6	97975.8	83
45			2883	28.0	21.6	13.5	13.6	15.8	12.0	0.6	97975.9	83
46			2930	28.0	21.7	13.7	13.8	14.9	12.3	0.6	97976.0	83
47			2943	28.0	21.7	13.8	13.8	16.0	13.7	0.6	97975.9	83
48			2995	28.0	21.6	14.8	14.0	16.3	12.1	0.6	97975.9	83
49			2944	28.0	21.7	14.7	13.8	16.0	12.2	0.6	97963.3	83
50			2922	28.0	21.6	14.3	13.7	15.7	11.2	0.6	97962.6	83
51			2985	28.0	21.6	15.2	14.0	18.3	12.9	0.6	97962.8	83
52			2963	28.0	21.7	15.6	13.9	17.8	12.3	0.6	97962.9	83
53			2929	28.0	21.6	15.3	13.8	17.2	11.8	0.6	97962.8	83
54			2809	28.0	23.2	13.6	13.2	16.0	11.3	0.6	97964.7	83
55			2822	28.0	24.3	12.1	13.3	13.9	12.6	0.6	97976.2	83
56			2967	28.0	24.2	13.2	13.9	15.5	12.0	0.6	97976.1	83
57			2917	28.0	24.2	12.7	13.6	15.7	12.0	0.6	97976.2	83
58			2855	28.0	24.2	11.3	13.4	14.6	13.1	0.6	97976.1	83
59			2967	28.0	24.2	12.0	13.9	15.5	13.1	0.6	97976.3	83
60			2978	28.0	24.2	12.6	13.9	14.6	12.4	0.6	97976.3	83
61			2923	28.0	24.3	12.0	13.6	15.4	11.1	0.6	97976.3	83
62			2943	28.0	24.2	12.0	13.8	15.2	10.0	0.6	97976.3	83
63			2999	28.0	24.2	12.9	14.0	15.2	10.7	0.6	97976.3	83
64			3022	28.0	24.2	14.0	14.2	16.9	11.3	0.6	97976.2	83
65			2933	28.0	24.2	13.3	13.7	16.1	12.0	0.6	97976.3	83
66			2902	28.0	24.2	12.9	13.6	15.6	10.6	0.6	97976.2	83
67			2846	28.0	24.2	11.3	13.3	14.0	10.9	0.6	97976.3	84
68			2905	28.0	24.2	11.0	13.6	13.4	10.2	0.6	97976.3	84
69			3051	28.0	24.2	12.9	14.3	16.6	11.2	0.6	97976.5	84
70			2976	28.0	24.2	13.1	14.0	16.0	11.8	0.6	97976.3	84
71			2972	28.0	24.2	13.4	13.9	15.8	9.6	0.6	97976.6	84
72			2825	28.0	24.2	11.2	13.2	15.0	10.5	0.6	97976.5	84
73			2923	28.0	24.2	11.3	13.7	14.6	10.9	0.6	97964.0	84
74			3013	28.0	24.2	12.6	14.1	15.4	9.9	0.6	97963.3	84
75			2933	28.0	24.1	12.2	13.7	14.7	10.6	0.6	97963.5	84
76			2882	28.0	22.1	11.2	13.6	14.4	9.3	0.6	97963.2	84
77			2908	28.0	22.0	10.8	13.6	13.9	8.5	0.6	97963.4	84
78			2967	28.0	22.0	11.3	13.9	14.3	8.5	0.6	97965.3	84
79			2971	28.0	22.0	11.7	13.9	14.8	8.4	0.6	97977.0	84
80			2912	28.0	22.0	10.9	13.6	13.0	10.8	0.6	97976.9	84
81			3001	28.0	21.9	12.5	14.0	16.2	10.8	0.6	97976.8	84
82			2908	28.0	22.0	11.6	13.6	14.5	10.5	0.6	97976.9	84
83			2903	28.0	22.0	11.2	13.6	15.1	10.7	0.6	97976.9	84
84			2880	28.0	22.0	10.0	13.5	13.8	9.8	0.5	97976.8	84
85			2964	28.0	22.0	10.7	13.9	14.3	10.1	0.5	97977.0	84
86			2934	28.0	22.0	10.4	13.7	14.0	10.9	0.5	97977.0	84
87			2922	28.0	22.0	10.0	13.7	14.6	10.7	0.5	97977.1	84
88			2924	28.0	21.9	9.6	13.7	14.1	9.5	0.5	97977.3	84

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

Data Point #	Standardized Wind Speed	LAeq	Turbine Power Output (kW)	Reference Yaw Angle (°)	Yaw Angle (°)	Pitch Angle (°)	Rotor RPM	Nacelle Anemometer Wind Speed (m/s)	10m Anemometer Wind Speed (m/s)	Air Temperature (-C)	Pressure (kPa)	Relative Humidity (%)
89			2958	28.0	22.0	10.0	13.8	14.3	9.5	0.5	97977.2	84
90			2974	28.0	21.4	10.5	13.9	14.8	9.9	0.5	97977.1	85
91			2963	28.0	19.4	10.7	13.9	14.8	11.5	0.5	97977.2	85
92			2931	28.0	19.4	10.3	13.7	14.6	10.4	0.5	97977.3	85
93			2901	28.0	19.4	9.4	13.6	13.1	10.3	0.5	97977.1	85
94			2914	28.0	19.4	9.2	13.6	13.5	10.4	0.5	97976.9	85
95			2962	28.0	17.2	9.5	13.9	14.1	10.8	0.5	97977.5	85
96			3003	28.0	17.0	10.5	14.0	15.1	9.8	0.5	97977.3	85
97			2933	28.0	17.0	9.9	13.7	15.0	9.7	0.5	97977.3	85
98			2862	28.0	17.0	8.3	13.4	13.1	9.3	0.5	97977.1	85
99			2952	28.0	17.0	8.7	13.8	13.5	10.2	0.5	97977.4	85
100			2974	28.0	16.9	9.2	13.9	12.8	11.1	0.5	97977.2	85
101			2931	28.0	17.0	8.6	13.7	13.2	11.2	0.5	97977.4	85
102			2969	28.0	17.0	9.4	13.9	14.6	10.2	0.5	97977.4	85
103			2899	28.0	17.0	8.0	13.6	12.0	8.6	0.5	97977.3	85
104			2955	28.0	17.0	8.6	13.8	13.0	8.8	0.5	97977.3	85
105			2939	28.0	17.0	8.2	13.7	13.6	9.9	0.5	97977.6	85
106			2950	28.0	17.0	8.2	13.8	12.7	9.7	0.5	97977.5	85
107			2947	28.0	17.0	8.2	13.8	13.2	8.8	0.5	97977.5	85
108			2983	28.0	17.0	8.9	13.9	14.0	9.5	0.5	97977.4	85
109			3001	28.0	17.0	9.4	14.0	13.1	8.6	0.5	97977.5	85
110			3059	28.0	17.0	11.3	14.3	15.0	9.5	0.5	97977.6	85
111			3097	28.0	17.0	13.2	14.5	16.4	10.0	0.5	97977.8	85
112			3004	28.0	17.0	13.6	14.1	16.6	10.3	0.5	97977.8	85
113			2903	28.0	16.9	12.6	13.7	15.3	9.1	0.5	97977.6	85
114			2967	28.0	17.0	13.4	13.9	17.1	9.6	0.5	97979.1	86
115			2961	28.0	17.2	13.8	14.0	16.1	9.1	0.5	97977.6	86
116			3023	28.0	19.6	15.0	14.2	18.0	10.1	0.5	97977.6	86
117			2988	28.0	19.6	15.6	14.1	17.6	11.5	0.5	97978.0	86
118			2901	28.0	20.0	14.9	13.6	17.0	10.1	0.5	97978.0	86
119			2833	28.0	22.4	13.5	13.3	15.2	11.8	0.5	97977.7	86
120			2856	28.0	22.4	12.7	13.4	15.1	13.3	0.5	97977.9	85
121			2958	28.0	22.4	13.1	13.9	16.2	12.7	0.5	97978.1	85
122			2882	28.0	22.4	12.2	13.5	15.0	12.6	0.5	97977.7	85
123			2779	28.0	22.4	9.3	13.0	13.5	12.4	0.5	97978.0	85
124			2993	28.0	22.4	11.0	14.0	15.0	11.9	0.5	97978.1	85
125			2917	28.0	22.3	10.4	13.6	13.6	10.9	0.5	97985.2	85
126			2953	28.0	22.4	10.6	13.8	15.4	10.0	0.4	97991.1	85
127			2954	28.0	22.4	10.7	13.8	13.5	10.2	0.4	97991.3	85
128			2954	28.0	22.3	10.9	13.8	14.1	9.8	0.4	97991.1	85
129			2917	28.0	22.4	10.2	13.7	14.1	10.5	0.4	97990.9	85
130			2978	28.0	22.4	11.0	13.9	15.3	10.3	0.4	97991.3	85
131			2956	28.0	22.4	10.9	13.8	14.7	10.3	0.5	97991.2	85
132			3003	28.0	22.4	12.0	14.1	14.7	11.9	0.5	97990.9	85
133			3101	28.0	20.3	15.6	14.5	18.7	11.5	0.1	98075.5	81
134			3022	28.0	20.3	16.2	14.2	18.9	12.4	0.1	98075.0	81
135			2896	28.0	20.3	15.2	13.6	17.8	11.9	0.1	98074.9	81
136			2834	28.0	20.3	13.9	13.3	16.0	13.6	0.1	98074.7	80
137			2898	28.0	20.3	13.6	13.6	15.0	13.7	0.1	98075.0	80
138			2882	28.0	20.3	12.9	13.5	16.1	12.6	0.1	98074.7	80
139			2931	28.0	20.3	12.9	13.7	15.2	11.5	0.1	98074.8	80
140			3109	28.0	20.3	15.5	14.6	17.7	12.5	0.1	98074.7	80
141			3021	28.0	20.3	16.1	14.1	18.4	11.9	0.1	98074.8	80
142			2931	28.0	20.2	15.5	13.8	17.5	12.7	0.1	98074.7	80
143			2983	28.0	20.3	16.4	14.0	17.4	13.5	0.1	98075.1	80
144			2884	28.0	20.3	15.4	13.6	16.5	12.9	0.1	98075.7	80
145			2863	28.0	20.3	14.6	13.4	17.4	14.2	0.1	98075.5	80
146			2646	28.0	19.3	12.1	12.4	14.6	13.8	0.1	98075.1	80
147			0	28.0	-2.5	-0.6	-0.1	0.0	14.7	0.1	98075.9	80
148			0	28.0	-3.2	-0.8	-0.2	0.0	12.6	0.1	98075.3	80
149			0	28.0	-3.2	-0.8	-0.2	0.0	12.1	0.1	98075.0	79
150			0	28.0	-3.2	-0.8	-0.2	0.0	13.5	0.1	98075.3	79
151			0	28.0	-3.2	-0.8	-0.2	0.0	13.4	0.1	98075.6	79
152			3104	28.0	20.0	15.5	14.4	17.5	12.4	0.1	98075.7	79
153			2966	28.0	21.1	15.0	13.9	16.7	13.3	0.1	98075.8	79
154			2938	28.0	22.7	14.9	13.8	17.3	13.5	0.1	98075.8	79
155			2956	28.0	22.7	15.0	13.9	17.4	12.1	0.1	98075.5	79
156			2952	28.0	22.7	15.3	13.8	16.4	12.1	0.1	98075.8	79
157			3025	28.0	22.7	16.6	14.2	17.9	13.1	0.1	98075.7	79
158			2897	28.0	22.7	15.5	13.6	17.4	12.5	0.1	98075.8	79
159			2867	28.0	22.7	14.7	13.5	17.1	11.0	0.1	98075.9	79
160			2864	28.0	22.7	13.9	13.4	16.1	11.5	0.1	98079.1	79
161			2959	28.0	22.7	14.5	13.9	17.1	12.8	0.1	98089.3	79
162			2887	28.0	22.7	13.7	13.5	16.1	12.2	0.1	98089.2	79
163			2866	28.0	22.7	12.7	13.4	15.1	12.4	0.1	98089.7	79
164			2896	28.0	22.7	12.2	13.6	15.0	12.0	0.1	98089.5	79
165			2969	28.0	22.7	12.6	13.9	15.1	11.2	0.1	98089.5	79
166			3126	28.0	22.6	15.3	14.6	17.2	11.4	0.1	98089.6	79
167			2987	28.0	22.7	15.3	14.0	17.2	12.7	0.1	98089.6	79
168			2853	28.0	22.6	13.7	13.4	15.8	12.2	0.1	98089.3	79
169			3038	28.0	22.6	15.5	14.2	18.1	12.4	0.1	98089.3	79
170			2945	28.0	22.7	15.3	13.9	16.3	11.7	0.1	98089.1	79
171			2923	28.0	22.8	15.0	13.7	16.4	13.1	0.1	98089.0	79
172			2866	28.0	22.8	14.0	13.5	16.9	13.8	0.1	98085.8	79
173			2886	28.0	22.6	12.3	13.5	15.7	13.9	0.1	98075.5	79
174			2916	28.0	22.6	12.7	13.7	15.5	13.6	0.1	98075.8	79
175			2968	28.0	22.7	13.3	14.0	15.8	13.3	0.1	98075.9	79
176			2968	28.0	22.7	13.9	13.9	16.1	12.3	0.1	98075.7	79

Table E.01 Measurement data - Turbine ON

Project: North Kent Wind 1 LP - Turbine T33 - IEC 61400-11 Measurement
Report ID: 17283.01.T33.RP2

Created on: 2019-01-30

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

Data Point #	Standardized Wind Speed	LAeq	Turbine Power Output (kW)	Reference Yaw Angle (°)	Yaw Angle (°)	Pitch Angle (°)	Rotor RPM	Nacelle Anemometer Wind Speed (m/s)	10m Anemometer Wind Speed (m/s)	Air Temperature (-C)	Pressure (kPa)	Relative Humidity (%)
177			2999	28.0	22.6	14.6	14.1	16.0	11.9	0.1	98081.8	79
178			2977	28.0	22.7	15.4	14.0	18.0	12.0	0.0	98089.1	79
179			2880	28.0	22.7	14.4	13.6	16.6	12.0	0.0	98089.3	79
180			2828	28.0	24.6	13.1	13.4	14.6	10.4	0.0	98088.8	79
181			2888	28.0	24.8	12.9	13.6	16.0	10.3	0.0	98089.3	79
182			2902	28.0	24.8	12.6	13.7	16.0	13.3	0.0	98089.5	79
183			2899	28.0	24.8	12.3	13.6	15.0	13.1	0.0	98089.3	78
184			2781	28.0	24.9	9.6	13.1	14.0	13.0	0.0	98089.2	78
185			2973	28.0	24.8	10.7	14.0	15.4	12.5	0.0	98089.1	78
186			3066	28.0	24.8	12.9	14.4	15.6	11.8	0.0	98089.1	78
187			3181	28.0	24.8	16.0	14.9	19.4	11.5	0.0	98088.8	78
188			2993	28.0	24.8	16.1	14.1	17.6	10.6	0.0	98088.8	78
189			2930	28.0	24.9	15.7	13.8	17.7	10.2	0.1	98088.9	79
190			2949	28.0	24.9	16.1	13.9	18.4	10.5	0.1	98088.6	79
191			2864	28.0	24.9	15.2	13.5	18.5	12.0	0.1	98089.2	79
192			2837	28.0	24.8	13.9	13.3	17.3	12.6	0.1	98088.9	79
193	10.8	53.8	3036	23.7	18.2	3.3	14.2	11.1	8.0	-1.6	98646.9	66
194			2762	23.7	18.2	2.0	13.7	10.3	6.9	-1.6	98646.9	66
195	10.0	53.7	2597	23.7	18.2	0.7	13.7	10.8	6.6	-1.6	98647.0	66
196			2762	23.7	18.2	0.8	13.7	10.4	7.5	-1.6	98647.2	65
197	10.6	53.5	2861	23.7	18.2	0.5	13.7	10.8	8.7	-1.6	98647.2	65
198	11.2	53.9	2954	23.7	18.2	1.2	13.9	11.5	8.8	-1.6	98647.3	65
199	10.6	53.8	2702	23.7	18.2	-0.3	13.6	10.8	8.0	-1.6	98646.6	65
200	9.6	54.0	2386	23.7	18.2	-1.0	13.7	9.3	8.2	-1.6	98646.8	65
201	9.3	54.2	2247	23.7	18.2	-1.1	13.7	9.4	8.6	-1.6	98634.9	64
202	9.5	53.9	2310	23.7	18.2	-0.8	13.8	10.2	7.8	-1.6	98635.0	64
203	9.6	54.0	2394	23.7	18.2	-0.7	13.8	10.3	8.7	-1.6	98634.7	64
204	9.8	53.9	2462	23.7	18.2	-0.8	13.8	10.6	8.5	-1.6	98634.4	64
205	10.0	53.8	2569	23.7	18.2	-0.5	13.8	9.6	8.9	-1.6	98634.3	64
206	9.9	53.6	2544	23.7	18.2	-0.5	13.7	9.4	9.1	-1.6	98634.3	64
207			2676	23.7	17.8	-0.5	13.7	10.1	8.3	-1.6	98634.0	62
208	9.9	54.0	2551	23.7	15.6	-0.7	13.7	9.8	7.6	-1.6	98634.0	61
209	9.7	53.6	2457	23.7	15.6	-0.8	13.7	9.6	7.6	-1.6	98634.0	61
210			2670	23.7	15.6	-0.4	13.8	9.8	7.2	-1.6	98634.9	61
211	10.1	54.0	2607	23.7	15.6	-0.5	13.7	10.0	6.6	-1.6	98634.8	61
212	10.4	54.3	2829	23.7	15.6	-0.3	13.7	10.7	7.3	-1.6	98635.0	61
213	11.0	54.4	3008	23.7	15.6	1.7	14.1	11.3	8.2	-1.6	98634.6	65
214	10.7	54.3	3034	23.7	15.5	3.8	14.3	10.9	7.0	-1.6	98634.4	65
215	11.3	54.0	3036	23.7	15.6	5.5	14.2	11.5	7.5	-1.6	98635.0	65
216	11.3	53.7	2991	23.7	15.6	6.1	14.1	11.5	9.8	-1.6	98634.9	65
217	11.4	53.3	2961	23.7	15.6	6.5	13.9	11.7	9.6	-1.6	98634.7	65
218	11.0	52.6	2866	23.7	15.6	4.7	13.5	11.3	8.0	-1.6	98634.0	65
219	11.3	52.8	2902	23.7	15.6	4.5	13.7	11.5	7.4	-1.5	98646.7	65
220	10.7	52.9	2874	23.7	15.6	3.2	13.5	10.9	7.8	-1.5	98646.9	65
221	10.3	53.0	2901	23.7	15.6	2.7	13.6	10.6	9.6	-1.5	98647.1	65
222	11.2	53.2	2890	23.7	15.6	2.1	13.6	11.5	8.6	-1.5	98647.3	65
223	9.7	53.5	2455	23.7	15.5	0.0	13.6	9.5	8.3	-1.5	98647.9	65
224	10.0	53.7	2575	23.7	15.5	-0.1	13.7	9.8	8.2	-1.5	98647.4	65
225	9.8	54.6	2472	23.7	15.5	-0.7	13.7	9.8	7.4	-1.5	98635.3	64
226	9.8	54.6	2512	23.7	15.5	-0.5	13.8	10.1	6.8	-1.5	98634.8	63
227	11.5	54.7	2914	23.7	15.5	1.5	14.1	11.8	7.9	-1.5	98635.0	63
228	11.3	54.5	3109	23.7	15.6	5.2	14.6	11.6	8.7	-1.5	98634.9	63
229	11.5	53.8	3032	23.7	15.6	6.2	14.2	11.7	8.6	-1.5	98634.9	63
230	11.5	53.0	2918	23.7	15.6	5.1	13.7	11.7	9.1	-1.5	98635.0	63
231	10.5	53.1	2899	23.7	15.6	4.2	13.6	10.7	8.1	-1.5	98636.3	63
232	10.5	53.7	2917	23.7	15.6	3.9	13.7	10.7	9.1	-1.5	98635.4	63
233	10.7	53.6	2932	23.7	15.6	3.9	13.7	10.9	8.7	-1.5	98635.1	63
234	10.4	53.8	2890	23.7	15.6	2.9	13.6	10.6	10.1	-1.5	98635.3	63
235	10.4	53.7	2664	23.7	15.6	1.4	13.5	10.6	10.0	-1.5	98635.6	63
236			2678	23.7	15.6	1.2	13.7	10.1	8.5	-1.5	98635.5	63
237	10.9	54.2	2970	23.7	15.6	2.4	14.0	11.1	9.3	-1.5	98635.3	63
238	10.9	54.0	3015	23.7	14.0	4.2	14.2	11.2	9.5	-1.5	98635.7	63
239	11.8	54.0	3008	23.7	12.7	5.3	14.1	12.0	9.0	-1.5	98636.3	63
240	10.7	53.6	2911	23.7	12.7	4.1	13.6	10.9	8.6	-1.5	98636.1	63
241	11.3	54.7	2954	23.7	12.7	4.6	13.9	11.6	8.3	-1.5	98636.2	63
242	11.9	54.2	2938	23.7	12.7	4.4	13.8	12.1	8.7	-1.5	98635.8	63
243	12.5	53.6	2956	23.7	12.7	4.9	13.9	12.8	9.6	-1.5	98636.2	63
244	11.4	53.3	2925	23.7	12.7	4.5	13.7	11.6	8.5	-1.5	98635.9	63
245	11.6	53.7	2922	23.7	12.7	4.0	13.7	11.8	8.8	-1.5	98636.0	63
246	10.3	53.6	2689	23.7	12.7	2.1	13.4	10.5	7.8	-1.5	98636.2	63
247	9.8	54.2	2485	23.7	12.7	1.2	13.6	9.6	6.5	-1.5	98636.4	63
248	9.8	54.0	2468	23.7	12.7	0.9	13.7	9.8	7.6	-1.5	98641.1	64
249	10.8	54.0	2692	23.7	12.7	1.0	13.7	11.0	8.8	-1.5	98649.3	66
250	9.9	54.0	2553	23.7	12.7	0.1	13.7	9.4	8.7	-1.5	98649.4	66
251	9.6	54.2	2375	23.7	12.7	-0.8	13.7	9.9	9.7	-1.5	98649.2	66
252	8.7	54.1	1891	23.7	13.6	-1.4	13.6	8.8	8.8	-1.5	98649.2	66
253	9.3	54.0	2201	23.7	16.5	0.2	13.8	8.8	7.0	-1.5	98649.3	66
254	9.2	53.8	2162	23.7	16.6	-0.4	13.7	9.6	7.1	-1.5	98649.2	65
255	9.1	53.8	2098	23.7	18.9	-1.0	13.7	9.6	7.4	-1.5	98649.3	65
256	9.2	53.8	2149	23.7	19.2	-1.1	13.7	9.6	8.1	-1.5	98649.4	65
257	8.8	53.6	1931	23.7	19.2	-1.4	13.7	9.3	7.3	-1.5	98649.5	65
258			1982	23.7	19.5	-1.4	13.8	10.0	7.3	-1.5	98649.8	65
259	8.9	54.2	2010	23.7	21.8	-1.3	13.8	9.6	6.7	-1.5	98649.9	65
260	9.4	54.3	2274	23.7	21.8	-0.8	13.9	9.8	9.5	-1.5	98645.8	65
261			2181	23.7	21.7	-1.1	13.8	9.4	8.9	-1.5	98637.4	64
262	9.3	56.4	2215	23.7	21.7	-1.2	13.8	9.6	8.8	-1.5	98637.5	64
263	9.3	55.9	2204	23.7	21.7	-1.2	13.8	9.2	8.1	-1.5	98637.6	64
264	9.5	55.0	2319	23.7	21.8	-1.0	13.8	10.0	8.0	-1.5	98637.6	64

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

Data Point #	Standardized Wind Speed	LAeq	Turbine Power Output (kW)	Reference Yaw Angle (°)	Yaw Angle (°)	Pitch Angle (°)	Rotor RPM	Nacelle Anemometer Wind Speed (m/s)	10m Anemometer Wind Speed (m/s)	Air Temperature (-C)	Pressure (kPa)	Relative Humidity (%)
265			1703	23.7	13.0	-1.9	13.5	9.2	7.6	-1.3	98193.1	65
266			1560	23.7	12.9	-2.1	13.0	8.3	7.0	-1.3	98159.7	65
267	8.1	52.5	1531	23.7	11.8	-2.1	13.0	8.2	6.3	-1.3	98163.6	65
268	8.1	53.1	1532	23.7	10.1	-2.1	12.9	8.2	7.0	-1.3	98111.7	65
269	7.8	52.5	1406	23.7	10.1	-1.9	12.6	9.2	6.7	-1.3	98118.2	65
270	7.7	51.3	1339	23.7	10.1	-1.9	12.4	8.4	7.6	-1.3	98172.4	64
271	7.7	52.2	1338	23.7	10.2	-1.9	12.4	8.2	7.0	-1.3	98149.3	64
272	8.5	53.7	1770	23.7	10.0	-0.9	13.5	9.2	7.1	-1.3	98108.6	64
273			2188	23.7	7.1	-0.2	13.9	9.2	6.9	-1.3	98113.5	64
274			2513	23.7	6.8	0.1	13.9	9.6	6.7	-1.3	98135.0	64
275			2505	23.7	6.9	-0.4	13.7	10.8	6.4	-1.3	98158.1	64
276			2876	23.7	6.9	0.2	13.9	10.3	6.7	-1.3	98178.0	64
277			3001	23.7	6.8	1.4	14.0	10.8	8.2	-1.3	98223.2	64
278			2935	23.7	6.8	0.9	13.8	11.1	7.6	-1.3	98641.1	64
279			2796	23.7	6.8	-0.2	13.7	10.1	7.0	-1.3	98642.0	64
280			2926	23.7	5.3	-0.2	13.7	9.6	6.7	-1.3	98641.9	64
281			2808	23.7	3.9	-0.5	13.6	10.2	6.7	-1.2	98641.5	64
282			2532	23.7	4.0	-0.7	13.6	10.4	6.5	-1.2	98640.1	63
283			2514	23.7	3.9	-0.7	13.7	9.6	5.8	-1.2	98638.0	63
284			2536	23.7	4.0	-0.8	13.7	10.0	7.0	-1.2	98631.6	63
285			2495	23.7	4.0	-0.6	13.7	10.1	7.7	-1.2	98608.2	63
286			2716	23.7	4.0	-0.4	13.8	9.5	7.4	-1.2	98545.9	63
287			2566	23.7	4.0	-0.8	13.7	9.7	7.2	-1.2	98253.5	63
288			2069	23.7	4.0	-1.3	13.6	10.0	7.1	-1.2	97771.2	63
289			1834	23.7	4.0	-1.5	13.7	9.2	7.2	-1.2	97732.0	63
290			1843	23.7	4.0	-1.6	13.8	9.7	7.0	-1.2	97713.5	63
291			1976	23.7	4.0	-1.4	13.8	8.9	6.0	-1.2	97647.0	63
292			1982	23.7	4.0	-1.4	13.8	9.3	6.7	-1.2	97575.0	63
293			1947	23.7	4.8	-1.4	13.8	9.7	6.6	-1.2	97642.3	64
294			2045	23.7	6.5	-1.4	13.8	10.5	6.6	-1.2	97627.6	65
295			1837	23.7	6.5	-1.5	13.7	9.4	6.6	-1.2	97528.2	65
296			1743	23.7	6.5	-1.6	13.6	8.2	6.4	-1.2	97459.5	65
297			1619	23.7	6.5	-1.7	13.2	8.7	6.8	-1.2	97440.4	65
298			1448	23.7	7.8	-1.9	12.8	7.1	6.3	-1.2	97319.3	65
299	7.9	51.9	1449	23.7	9.2	-1.6	12.7	8.0	5.4	-1.2	97227.8	64
300	7.9	51.9	1433	23.7	9.2	-1.5	12.7	7.3	5.4	-1.2	97141.8	64
301	7.6	51.2	1309	23.7	9.2	-1.5	12.2	7.8	5.9	-1.2	97179.7	64
302	7.4	50.6	1195	23.7	9.3	-1.5	11.9	8.1	6.1	-1.2	97163.5	64
303	7.5	50.6	1238	23.7	9.2	-1.5	12.0	7.9	6.5	-1.2	97292.2	64
304	7.5	50.5	1237	23.7	9.2	-1.5	12.0	7.2	7.2	-1.2	97359.0	64
305	8.7	54.0	1901	23.7	9.2	-0.5	13.8	9.3	7.9	-1.2	97370.1	63
306	8.5	54.2	1761	23.7	9.2	-1.8	13.6	8.9	8.6	-1.2	97319.5	63
307	9.7	53.9	2421	23.7	9.2	0.6	13.9	9.7	8.9	-1.2	97242.6	63
308	10.2	53.8	2657	23.7	9.2	0.8	13.8	10.8	9.5	-1.2	97211.8	63
309	10.3	54.0	2991	23.7	9.2	1.7	14.0	10.5	8.8	-1.2	97126.0	63
310	10.5	53.7	3027	23.7	9.2	3.4	14.1	10.7	8.6	-1.2	97120.8	63
311	10.3	53.5	2941	23.7	9.3	2.2	13.7	10.5	9.6	-1.2	97173.1	64
312	11.3	53.5	2981	23.7	9.3	3.1	13.9	11.5	9.4	-1.2	96880.2	64
313	11.4	53.9	2967	23.7	9.2	3.2	13.8	11.6	10.4	-1.2	96623.7	64
314			2924	23.7	8.2	2.7	13.7	11.1	9.8	-1.2	96341.1	64
315			2653	23.7	7.0	1.3	13.6	10.9	9.3	-1.2	96032.1	64
316			2602	23.7	7.0	0.9	13.7	10.7	8.7	-1.2	95733.7	63
317			2592	23.7	6.9	0.3	13.7	9.7	8.6	-1.2	95452.2	62
318			2824	23.7	6.9	0.5	13.8	11.4	8.3	-1.2	95496.6	62
319			3030	23.7	6.9	2.5	14.1	11.0	8.2	-1.2	95458.9	62
320			3082	23.7	7.0	5.2	14.4	11.5	7.5	-1.2	95442.5	62
321			2944	23.7	7.0	3.9	13.7	11.3	7.4	-1.2	95534.0	62
322			2933	23.7	7.0	3.4	13.7	11.7	8.1	-1.2	95255.4	62
323			2912	23.7	7.0	2.3	13.6	12.1	8.5	-1.2	95074.0	62
324			2926	23.7	7.0	2.2	13.7	11.7	9.4	-1.2	95453.8	62
325			2972	23.7	7.0	3.0	14.0	11.3	9.9	-1.2	94924.2	62
326			3073	23.7	7.0	5.8	14.3	11.5	8.8	-1.2	94898.0	62
327			2979	23.7	7.0	5.5	13.9	11.8	8.6	-1.2	95021.5	62
328			2909	23.7	6.9	4.1	13.6	11.4	9.0	-1.2	94873.4	63
329			2909	23.7	6.9	3.0	13.6	11.1	8.2	-1.2	94835.7	63
330			2946	23.7	7.0	3.4	13.7	10.9	8.6	-1.2	95002.5	63
331			2849	23.7	6.9	1.8	13.6	10.8	9.1	-1.2	94747.9	63
332			2994	23.7	6.9	3.3	14.0	12.0	8.7	-1.2	94791.1	63
333			3057	23.7	6.9	5.4	14.3	11.2	9.2	-1.2	94884.8	63
334			2976	23.7	6.9	5.3	13.8	11.1	8.7	-1.2	94859.0	63
335			2967	23.7	7.0	5.1	13.9	11.5	7.8	-1.2	94936.4	63
336			2946	23.7	8.1	5.4	13.8	11.7	7.2	-1.2	94651.5	63
337	11.1	53.2	2797	23.7	9.8	3.1	13.4	11.3	7.3	-1.2	94588.8	63
338	11.5	53.3	2688	23.7	9.8	1.6	13.5	11.7	7.7	-1.2	94858.5	63
339	10.1	53.5	2621	23.7	9.8	1.3	13.6	10.0	8.4	-1.2	94865.4	63
340	10.1	53.7	2622	23.7	9.8	0.9	13.7	11.1	10.4	-1.1	94728.2	63
341	11.4	53.8	2903	23.7	9.9	1.2	13.8	11.6	9.8	-1.1	94763.1	62
342			2829	23.7	9.9	0.3	13.7	9.7	10.1	-1.1	94927.3	62
343			2950	23.7	9.8	0.6	13.8	10.2	9.7	-1.1	94983.6	62
344			2303	23.7	9.8	12.3	12.4	11.4	9.3	-1.1	95234.1	62
345	10.4	41.7	0	23.7	9.8	81.0	1.4	10.7	7.9	-1.1	94912.4	62
346	11.4	39.4	0	23.7	9.8	82.0	0.5	11.7	8.6	-1.1	94538.1	63
347	12.1	41.5	0	23.7	9.8	82.0	0.4	12.4	9.6	-1.1	95008.9	63
348	11.5	40.7	0	23.7	9.8	82.0	0.5	11.7	9.4	-1.1	94701.9	63
349	10.9	41.5	0	23.7	9.8	82.0	0.4	11.1	9.2	-1.1	95113.1	63
350			0	23.7	9.8	82.0	0.4	8.8	9.3	-1.1	94650.6	63
351			1796	23.7	18.6	-1.6	13.7	9.8	7.4	-0.9	98623.1	64
352			1758	23.7	18.6	-1.6	13.6	8.7	7.0	-0.9	98622.9	64

Table E.01 Measurement data - Turbine ON

Project: North Kent Wind 1 LP - Turbine T33 - IEC 61400-11 Measurement

Report ID: 17283.01.T33.RP2

Created on: 2019-01-30

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

Data Point #	Standardized Wind Speed	LAeq	Turbine Power Output (kW)	Reference Yaw Angle (°)	Yaw Angle (°)	Pitch Angle (°)	Rotor RPM	Nacelle Anemometer Wind Speed (m/s)	10m Anemometer Wind Speed (m/s)	Air Temperature (-C)	Pressure (kPa)	Relative Humidity (%)
353			1726	23.7	18.6	-1.6	13.6	8.8	7.1	-0.9	98623.1	64
354			1566	23.7	18.5	-1.8	13.1	7.7	7.0	-0.9	98622.9	64
355			1513	23.7	18.5	-1.9	12.9	9.5	6.5	-0.9	98622.7	64
356			1667	23.7	19.3	-1.7	13.4	9.7	6.5	-0.9	98622.6	64
357			2094	23.7	21.1	-0.7	13.9	8.5	7.7	-0.9	98617.7	64
358	9.2	53.5	2181	23.7	21.1	-1.0	13.8	9.5	8.0	-0.9	98609.3	65
359			1894	23.7	21.1	-1.5	13.7	9.8	8.2	-0.9	98609.4	65
360	8.4	53.7	1718	23.7	21.1	-1.6	13.5	9.1	8.1	-0.9	98609.8	65
361	9.0	53.8	2061	23.7	21.1	-0.9	13.9	8.9	7.1	-0.9	98609.2	65
362	9.4	53.7	2257	23.7	21.1	-1.0	13.8	8.9	6.3	-0.9	98609.5	65
363	9.0	53.6	2041	23.7	21.1	-1.4	13.7	9.3	8.2	-0.9	98609.4	65
364	9.6	54.1	2365	23.7	21.1	-0.4	13.9	10.3	8.3	-0.9	98609.8	64
365	9.4	53.9	2256	23.7	21.1	-1.1	13.8	10.8	7.8	-0.9	98609.5	64
366	9.1	53.8	2130	23.7	21.1	-1.3	13.7	10.9	6.8	-0.9	98609.8	64
367	9.4	53.9	2279	23.7	21.1	-1.0	13.8	9.8	6.9	-0.9	98609.3	64
368	9.3	53.7	2210	23.7	21.1	-1.2	13.7	9.5	7.3	-0.9	98609.4	64
369	8.8	53.6	1961	23.7	21.1	-1.4	13.7	9.8	7.9	-0.8	98609.7	64
370	8.5	53.7	1764	23.7	21.1	-1.6	13.6	9.2	7.9	-0.8	98609.8	64
371	8.3	53.1	1660	23.7	21.1	-1.7	13.4	8.1	8.4	-0.8	98609.5	64
372	8.3	53.2	1655	23.7	21.0	-1.7	13.4	8.9	8.4	-0.8	98609.7	64
373	8.6	53.7	1829	23.7	17.9	-1.5	13.8	8.5	8.2	-0.8	98609.4	64
374	8.3	52.6	1667	23.7	16.5	-1.7	13.4	8.1	7.6	-0.8	98609.5	64
375	8.2	52.9	1588	23.7	15.4	-2.0	13.2	9.3	7.2	-0.8	98609.5	64
376	8.2	53.3	1575	23.7	13.9	-2.1	13.1	9.7	6.8	-0.8	98609.2	63
377	8.0	52.1	1460	23.7	13.9	-2.1	12.8	8.7	5.9	-0.8	98609.4	63
378	7.6	51.0	1302	23.7	14.0	-2.1	12.2	8.5	6.2	-0.8	98609.4	63
379	7.4	50.8	1205	23.7	14.2	-2.1	11.9	6.8	7.2	-0.8	98609.0	63
380	7.6	51.6	1283	23.7	16.3	-2.1	12.2	8.4	6.6	-0.8	98608.7	63
381	9.0	53.4	2071	23.7	16.4	1.5	13.7	11.2	7.0	-0.8	98608.6	64
382	11.5	53.3	2699	23.7	16.4	2.2	13.7	11.7	7.6	-0.8	98609.2	64
383	11.8	53.6	2932	23.7	16.4	1.8	13.7	12.0	8.6	-0.8	98609.4	64
384	10.5	53.4	2943	23.7	16.4	1.7	13.7	10.7	9.7	-0.8	98609.1	64
385	10.7	53.6	2924	23.7	16.4	1.3	13.7	10.9	9.9	-0.8	98609.2	64
386	10.3	54.0	2975	23.7	16.4	2.0	13.9	10.5	9.3	-0.8	98608.3	64
387	11.3	54.1	2853	23.7	16.4	1.2	13.6	11.5	9.0	-0.8	98608.3	63
388	9.7	53.6	2456	23.7	16.4	-0.6	13.6	10.0	8.2	-0.8	98608.4	61
389	9.9	54.2	2557	23.7	16.4	-0.5	13.8	9.8	8.1	-0.8	98608.1	61
390	10.0	54.1	2581	23.7	16.3	-0.5	13.7	9.5	8.4	-0.8	98607.6	61
391	11.2	54.1	3112	23.7	16.3	5.0	14.6	11.5	9.6	-0.8	98606.0	61
392	12.4	54.0	3081	23.7	16.3	6.5	14.4	12.7	9.3	-0.8	98605.3	61
393	13.4	53.9	3097	23.7	16.3	8.7	14.5	13.7	8.6	-0.8	98604.5	61
394	13.0	53.3	2942	23.7	16.3	7.9	13.8	13.3	9.6	-0.8	98603.7	61
395	12.0	53.0	2920	23.7	16.3	7.3	13.7	12.3	9.7	-0.8	98603.0	61
396	11.9	53.3	2937	23.7	16.3	7.2	13.8	12.1	11.0	-0.8	98601.3	61
397	12.6	54.1	3044	23.7	16.4	9.3	14.3	12.9	10.3	-0.8	98594.4	61
398	13.0	53.5	3000	23.7	16.4	9.9	14.0	13.3	9.4	-0.8	98590.8	62
399	11.8	52.7	2870	23.7	16.4	8.1	13.4	12.0	8.9	-0.9	98593.8	63
400	11.8	53.0	2873	23.7	16.4	6.8	13.4	12.1	9.9	-0.9	98597.5	63
401	11.5	53.0	2867	23.7	16.4	5.7	13.4	11.8	10.5	-0.9	98599.9	63
402	11.0	53.5	2904	23.7	14.2	5.2	13.6	11.2	11.3	-0.9	98601.0	63
403	12.4	54.6	3106	23.7	13.4	8.5	14.6	12.6	12.0	-0.9	98600.0	63
404	14.1	54.6	3126	23.7	11.8	11.1	14.7	14.4	10.3	-0.8	98592.8	61
405	14.6	53.5	3024	23.7	10.9	11.5	14.1	15.0	8.7	-0.8	98587.5	60
406	13.2	52.5	2852	23.7	10.7	9.7	13.4	13.5	8.4	-0.8	98588.4	60
407			2900	23.7	8.1	9.4	13.6	13.7	10.5	-0.8	98593.0	60
408			2931	23.7	8.1	9.4	13.7	12.9	10.2	-0.8	98593.9	60
409			2976	23.7	8.0	10.1	14.0	13.1	10.9	-0.8	98586.8	60
410			2961	23.7	8.0	10.3	13.9	14.5	9.8	-0.8	98564.9	60
411			2953	23.7	8.0	10.6	13.8	13.3	9.2	-0.8	98545.9	61
412			2846	23.7	8.0	8.6	13.4	12.9	10.2	-0.8	98512.1	61
413			2885	23.7	8.1	8.0	13.5	11.9	10.7	-0.8	98493.2	61
414			2965	23.7	8.0	8.8	13.9	12.8	12.1	-0.8	98576.2	61
415			3034	23.7	8.1	10.4	14.2	14.2	11.7	-0.8	98591.9	61
416			3002	23.7	8.1	11.0	14.1	14.8	11.6	-0.8	98593.7	60
417	14.1	53.4	2941	23.7	10.6	10.7	13.8	14.4	10.7	-0.8	98594.8	60
418	13.1	54.3	2940	23.7	11.0	10.8	13.8	13.4	10.3	-0.8	98594.8	60
419	13.5	54.2	2915	23.7	11.0	10.5	13.7	13.7	11.1	-0.8	98594.8	60
420	13.3	53.5	2864	23.7	11.0	8.9	13.4	13.6	10.8	-0.8	98595.1	60
421	15.0	54.6	2972	23.7	11.9	10.2	14.0	15.3	12.0	-0.8	98596.3	60
422	14.6	53.6	2957	23.7	13.8	10.3	13.9	15.0	12.5	-0.8	98596.4	60
423	14.7	54.3	2965	23.7	13.7	10.7	13.9	15.0	12.9	-0.8	98596.6	61
424	14.4	53.5	2906	23.7	13.7	10.0	13.6	14.8	12.3	-0.8	98596.2	61
425	12.9	53.9	2894	23.7	13.7	9.1	13.6	13.2	12.5	-0.8	98596.6	61
426	12.5	54.0	2896	23.7	13.7	8.6	13.6	12.7	10.6	-0.8	98596.6	61
427	13.1	53.9	2885	23.7	13.7	7.5	13.5	13.4	11.7	-0.8	98596.0	61
428	13.2	53.6	2978	23.7	13.7	8.4	13.9	13.5	11.5	-0.8	98595.6	60
429	12.9	53.4	3009	23.7	13.7	9.6	14.1	13.1	11.0	-0.8	98595.3	59
430	13.0	52.9	2938	23.7	13.7	9.2	13.8	13.3	10.3	-0.8	98595.1	59
431	12.9	53.0	2938	23.7	13.7	8.4	13.7	13.2	8.7	-0.8	98597.4	59
432	12.7	52.7	2922	23.7	13.7	8.0	13.6	12.9	9.7	-0.8	98597.5	59
433	12.9	52.6	2878	23.7	13.6	6.6	13.5	13.1	9.4	-0.8	98597.6	60
434	12.7	52.8	2944	23.7	13.7	6.9	13.8	13.0	10.6	-0.8	98597.9	61
435	13.7	53.6	3006	23.7	14.6	8.4	14.1	14.0	9.9	-0.8	98598.3	61
436	12.6	53.1	2963	23.7	16.3	8.3	13.8	12.9	8.7	-0.8	98598.5	61
437	11.5	54.5	2906	23.7	16.3	7.4	13.6	11.7	8.4	-0.8	98598.6	61
438	12.5	52.7	2887	23.7	16.3	6.3	13.5	12.8	8.0	-0.8	98598.8	61
439	12.4	53.1	2926	23.7	16.3	6.1	13.7	12.7	8.7	-0.8	98598.6	61
440	13.0	53.4	2970	23.7	16.3	6.8	13.9	13.3	7.7	-0.8	98598.6	62

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

Data Point #	Standardized Wind Speed	LAeq	Turbine Power Output (kW)	Reference Yaw Angle (°)	Yaw Angle (°)	Pitch Angle (°)	Rotor RPM	Nacelle Anemometer Wind Speed (m/s)	10m Anemometer Wind Speed (m/s)	Air Temperature (-C)	Pressure (kPa)	Relative Humidity (%)
441	13.0	53.5	2960	23.7	16.3	6.9	13.8	13.3	7.9	-0.8	98598.7	62
442	12.3	53.2	2901	23.7	16.3	5.8	13.6	12.6	8.8	-0.8	98598.4	62
443	11.1	53.2	2880	23.7	16.3	4.2	13.4	11.3	9.7	-0.8	98598.3	62
444	10.8	54.0	2913	23.7	16.3	3.8	13.6	11.1	10.3	-0.8	98598.1	62
445	10.6	53.9	2923	23.7	15.1	3.6	13.7	10.8	9.5	-0.8	98597.9	62
446	10.8	53.5	2830	23.7	13.3	1.9	13.5	11.0	7.9	-0.8	98597.6	61
447			2775	23.7	11.8	1.5	13.6	10.0	9.8	-0.8	98598.1	61
448	11.3	54.1	2975	23.7	10.3	2.2	13.9	11.6	10.0	-0.8	98598.2	61
449	11.8	54.5	3058	23.7	10.4	4.6	14.3	12.1	8.6	-0.8	98598.6	61
450			3017	23.7	7.8	5.5	14.1	11.9	8.6	-0.8	98598.7	61
451			2941	23.7	7.2	4.7	13.7	12.7	7.1	-0.8	98598.5	62
452			2941	23.7	6.9	4.7	13.8	12.0	7.6	-0.8	98598.2	63
453			2958	23.7	4.9	4.8	13.8	11.5	8.7	-0.8	98597.8	63
454			2976	23.7	4.9	5.4	13.9	12.7	8.1	-0.8	98598.2	63
455			2923	23.7	4.9	4.7	13.7	11.2	9.0	-0.8	98598.9	63
456			2975	23.7	4.9	5.5	14.0	12.1	10.1	-0.8	98598.8	63
457			3006	23.7	4.9	7.1	14.1	12.4	9.2	-0.8	98598.8	62
458			2920	23.7	4.9	6.4	13.8	11.9	9.0	-0.7	98598.7	61
459			2992	23.7	4.9	7.8	14.1	12.5	9.6	-0.7	98598.5	61
460			2933	23.7	4.9	7.8	13.8	12.5	8.4	-0.7	98598.4	61
461			2840	23.7	3.1	5.7	13.4	11.9	7.7	-0.7	98598.4	61
462			2896	23.7	2.6	5.5	13.6	12.2	7.7	-0.7	98598.7	61
463			2714	23.7	2.7	3.2	13.3	11.3	9.2	-0.7	98590.6	61
464			2785	23.7	2.7	2.4	13.5	11.3	8.5	-0.7	98573.0	61
465			2865	23.7	2.7	2.1	13.7	11.7	8.4	-0.7	98573.1	61
466			2969	23.7	2.7	3.3	14.0	11.3	9.0	-0.7	98572.9	61
467			2976	23.7	2.7	4.1	14.0	11.7	9.0	-0.7	98573.2	61
468			2929	23.7	1.7	3.7	13.7	11.2	8.3	-0.7	98573.8	61
469			2915	23.7	1.2	3.2	13.7	11.2	8.5	-0.7	98580.3	61
470			2959	23.7	1.1	4.1	13.9	12.4	8.1	-0.7	98587.1	60
471			2940	23.7	0.2	4.0	13.8	11.3	7.5	-0.7	98586.7	60
472			2937	23.7	0.2	4.1	13.8	11.7	7.8	-0.7	98586.6	60
473			2942	23.7	0.2	4.2	13.8	12.2	8.5	-0.7	98586.3	60
474			2909	23.7	0.2	3.6	13.6	10.7	9.0	-0.7	98585.9	60
475			2909	23.7	0.2	3.0	13.7	10.7	9.0	-0.7	98585.8	61
476			2952	23.7	0.2	3.5	13.9	11.7	8.7	-0.7	98584.4	61
477			2971	23.7	0.2	4.3	13.9	11.4	9.6	-0.7	98583.9	61
478			2939	23.7	0.2	4.2	13.8	11.2	10.1	-0.7	98582.9	61
479			2925	23.7	0.2	3.8	13.7	10.8	9.7	-0.7	98582.3	61
480			2919	23.7	0.2	3.4	13.7	11.2	9.9	-0.7	98580.7	61
481			2841	23.7	6.5	1.6	13.4	11.0	9.4	-0.8	98580.2	59
482			2442	23.7	2.5	-0.4	13.4	11.5	9.0	-0.8	98579.8	59
483			2560	23.7	2.4	-1.2	13.6	10.4	9.3	-0.8	98579.3	59
484			2671	23.7	2.3	-1.0	13.6	10.1	8.4	-0.8	98578.6	59
485			2943	23.7	2.3	-0.1	13.7	9.6	9.2	-0.8	98579.0	59
486			3046	23.7	2.3	3.0	14.3	12.3	9.8	-0.8	98579.3	59
487			3129	23.7	2.3	6.5	14.6	11.8	10.4	-0.8	98579.9	61
488			3050	23.7	2.3	8.1	14.3	13.2	9.6	-0.8	98580.5	61
489			2970	23.7	2.3	8.4	13.9	13.3	8.0	-0.8	98581.9	61
490			2907	23.7	2.3	8.2	13.6	13.9	9.4	-0.8	98583.4	61
491			2899	23.7	2.2	8.2	13.6	13.0	10.4	-0.8	98583.7	61
492			2882	23.7	1.0	8.0	13.6	12.6	10.9	-0.8	98581.8	61
493			2901	23.7	0.1	7.9	13.6	13.6	9.9	-0.8	98571.7	60
494			2748	0.0	0.1	0.2	13.6	10.2	9.7	-0.7	98563.4	61
495			2748	0.0	0.1	0.2	13.6	10.2	10.2	-0.7	98563.2	61
496			2748	0.0	0.1	0.2	13.6	10.2	9.6	-0.7	98563.0	61
497			2748	0.0	0.1	0.2	13.6	10.2	10.3	-0.7	98562.9	61
498			2748	0.0	0.1	0.2	13.6	10.2	9.1	-0.7	98559.8	60
499			2748	0.0	0.1	0.2	13.6	10.2	9.0	-0.7	98550.7	58
500			2748	0.0	0.1	0.2	13.6	10.2	9.1	-0.7	98550.3	58
501			2748	0.0	0.1	0.2	13.6	10.2	8.6	-0.7	98550.2	58
502			2748	0.0	0.1	0.2	13.6	10.2	9.9	-0.7	98549.8	58
503			2748	0.0	0.1	0.2	13.6	10.2	8.7	-0.7	98549.7	58
504			2748	0.0	0.1	0.2	13.6	10.2	8.6	-0.7	98550.4	59
505			2748	0.0	0.1	0.2	13.6	10.2	8.8	-0.7	98550.4	60
506			2748	0.0	0.1	0.2	13.6	10.2	9.7	-0.7	98550.3	60
507			2748	0.0	0.1	0.2	13.6	10.2	9.1	-0.7	98549.8	60
508			2748	0.0	0.1	0.2	13.6	10.2	10.1	-0.7	98549.4	60
509			2748	0.0	0.1	0.2	13.6	10.2	9.3	-0.7	98549.3	60
510			2748	0.0	0.1	0.2	13.6	10.2	9.0	-0.7	98549.2	60
511			2748	0.0	0.1	0.2	13.6	10.2	7.9	-0.7	98550.6	60
512			2748	0.0	0.1	0.2	13.6	10.2	8.6	-0.7	98549.8	60
513			2748	0.0	0.1	0.2	13.6	10.2	8.7	-0.7	98549.9	60
514			2748	0.0	0.1	0.2	13.6	10.2	8.5	-0.7	98549.5	60
515			2748	0.0	0.1	0.2	13.6	10.2	9.4	-0.7	98549.7	60
516			2748	0.0	0.1	0.2	13.6	10.2	8.4	-0.7	98549.9	60
517			2748	0.0	0.1	0.2	13.6	10.2	8.6	-0.7	98550.5	60
518			2748	0.0	0.1	0.2	13.6	10.2	10.9	-0.7	98550.6	60
519			2748	0.0	0.1	0.2	13.6	10.2	11.2	-0.7	98549.5	60
520			2748	0.0	0.1	0.2	13.6	10.2	10.9	-0.7	98549.3	60
521			2748	0.0	0.1	0.2	13.6	10.2	10.8	-0.7	98549.8	60
522			2748	0.0	0.1	0.2	13.6	10.2	10.5	-0.7	98546.1	59
523			2748	0.0	0.1	0.2	13.6	10.2	10.0	-0.7	98536.3	58
524			2748	0.0	0.1	0.2	13.6	10.2	10.2	-0.7	98536.5	58
525			2748	0.0	0.1	0.2	13.6	10.2	10.4	-0.7	98536.2	58
526			2748	0.0	0.1	0.2	13.6	10.2	10.8	-0.7	98536.1	58
527			2748	0.0	0.1	0.2	13.6	10.2	10.6	-0.7	98535.6	58
528			2748	0.0	0.1	0.2	13.6	10.2	10.3	-0.7	98537.2	58

Table E.01 Measurement data - Turbine ON

Project: North Kent Wind 1 LP - Turbine T33 - IEC 61400-11 Measurement

Report ID: 17283.01.T33.RP2

Created on: 2019-01-30

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

Data Point #	Standardized Wind Speed	LAeq	Turbine Power Output (kW)	Reference Yaw Angle (°)	Yaw Angle (°)	Pitch Angle (°)	Rotor RPM	Nacelle Anemometer Wind Speed (m/s)	10m Anemometer Wind Speed (m/s)	Air Temperature (-C)	Pressure (kPa)	Relative Humidity (%)
529			2748	0.0	0.1	0.2	13.6	10.2	11.0	-0.7	98535.7	58
530			2748	0.0	0.1	0.2	13.6	10.2	10.9	-0.7	98535.7	58
531			2748	0.0	0.1	0.2	13.6	10.2	10.3	-0.7	98535.4	58
532			2748	0.0	0.1	0.2	13.6	10.2	10.0	-0.7	98536.0	58
533			2748	0.0	0.1	0.2	13.6	10.2	10.3	-0.7	98535.7	58
534			2748	0.0	0.1	0.2	13.6	10.2	12.0	-0.7	98535.7	58
535			2748	0.0	0.1	0.2	13.6	10.2	11.1	-0.7	98535.8	58
536			2748	0.0	0.1	0.2	13.6	10.2	9.8	-0.7	98535.4	58
537			2748	0.0	0.1	0.2	13.6	10.2	10.1	-0.7	98535.8	58
538			2748	0.0	0.1	0.2	13.6	10.2	9.8	-0.7	98535.3	58
539			2748	0.0	0.1	0.2	13.6	10.2	10.4	-0.7	98535.3	58
540			2748	0.0	0.1	0.2	13.6	10.2	10.6	-0.7	98534.8	58
541			2748	0.0	0.1	0.2	13.6	10.2	9.6	-0.7	98536.1	58
542			2748	0.0	0.1	0.2	13.6	10.2	8.4	-0.7	98536.3	58
543			2748	0.0	0.1	0.2	13.6	10.2	8.8	-0.7	98535.5	58
544			2748	0.0	0.1	0.2	13.6	10.2	8.9	-0.7	98536.3	58
545			2748	0.0	0.1	0.2	13.6	10.2	8.4	-0.7	98536.0	59
546			2748	0.0	0.1	0.2	13.6	10.2	11.5	-0.7	98535.9	60
547			2748	0.0	0.1	0.2	13.6	10.2	11.1	-0.7	98535.5	60
548			2748	0.0	0.1	0.2	13.6	10.2	9.7	-0.7	98536.0	60
549			2748	0.0	0.1	0.2	13.6	10.2	8.7	-0.7	98536.0	60
550			2748	0.0	0.1	0.2	13.6	10.2	10.3	-0.7	98536.2	60
551			2748	0.0	0.1	0.2	13.6	10.2	11.2	-0.7	98536.2	59
552			2748	0.0	0.1	0.2	13.6	10.2	10.2	-0.7	98536.6	57
553			2748	0.0	0.1	0.2	13.6	10.2	9.5	-0.7	98536.7	57
554			2748	0.0	0.1	0.2	13.6	10.2	9.4	-0.7	98536.8	57
555			2748	0.0	0.1	0.2	13.6	10.2	10.4	-0.7	98536.9	57
556			2748	0.0	0.1	0.2	13.6	10.2	11.0	-0.7	98537.0	57
557			2748	0.0	0.1	0.2	13.6	10.2	10.7	-0.7	98537.2	57
558			2748	0.0	0.1	0.2	13.6	10.2	9.9	-0.7	98537.3	58
559			2748	0.0	0.1	0.2	13.6	10.2	9.5	-0.7	98537.4	58
560			2748	0.0	0.1	0.2	13.6	10.2	8.0	-0.7	98537.6	58
561			2748	0.0	0.1	0.2	13.6	10.2	7.8	-0.7	98537.2	58
562			2748	0.0	0.1	0.2	13.6	10.2	8.4	-0.7	98537.3	58
563			2748	0.0	0.1	0.2	13.6	10.2	9.1	-0.7	98537.4	59
564	12.0	53.2	2868	4.0	0.2	5.0	13.4	12.2	10.2	-0.7	98535.0	58
565	12.1	52.5	2972	4.0	0.2	6.5	13.8	12.4	11.1	-0.7	98534.9	58
566	12.4	52.7	2932	4.0	0.2	6.3	13.6	12.6	11.2	-0.7	98535.1	58
567	12.1	52.4	2909	4.0	0.2	5.9	13.5	12.4	10.2	-0.7	98534.9	58
568	12.2	53.3	2910	4.0	0.2	5.6	13.5	12.4	9.8	-0.7	98533.5	58
569	11.9	52.9	2892	4.0	0.2	4.9	13.5	12.1	10.6	-0.7	98520.9	58
570	11.5	53.2	2919	4.0	0.2	4.8	13.6	11.7	9.6	-0.7	98520.9	58
571	10.8	53.4	2935	4.0	0.2	5.1	13.6	11.1	9.1	-0.7	98520.5	58
572	11.8	53.8	2951	4.0	0.2	5.5	13.7	12.1	8.5	-0.7	98520.5	58
573	12.7	53.1	2927	4.0	0.2	5.5	13.6	13.0	7.6	-0.7	98520.1	58
574	11.2	53.1	2926	4.0	0.2	5.4	13.6	11.4	8.0	-0.7	98523.8	58
575	13.0	52.8	2926	4.0	0.2	5.3	13.6	13.3	9.2	-0.7	98534.5	60
576	12.0	53.1	2982	4.0	0.2	6.5	13.9	12.2	9.0	-0.7	98534.2	60
577	11.4	53.2	2951	4.0	0.2	6.7	13.7	11.6	8.7	-0.7	98534.5	60
578	12.0	52.7	2881	4.0	0.2	5.6	13.4	12.2	8.3	-0.7	98534.3	60
579	11.5	52.7	2836	4.0	0.2	3.7	13.2	11.8	9.5	-0.7	98534.7	60
580	12.0	53.2	2945	4.0	0.2	4.6	13.7	12.2	9.5	-0.7	98534.8	60
581	11.9	53.3	2949	4.0	0.2	5.2	13.7	12.1	9.1	-0.7	98534.7	59
582	11.4	52.4	2879	4.0	0.2	3.8	13.4	11.7	8.5	-0.7	98534.6	59
583	11.1	52.9	2925	4.0	0.2	4.0	13.6	11.3	9.4	-0.7	98534.5	59
584	11.4	53.2	2797	4.0	0.2	2.8	13.4	11.6	10.1	-0.7	98534.8	59
585	9.4	53.6	2276	4.0	0.2	0.4	13.3	11.3	10.3	-0.7	98534.8	59
586	9.3	55.0	2205	4.0	0.2	0.2	13.5	9.9	9.9	-0.7	98534.8	59
587	10.1	55.6	2628	4.0	0.2	0.8	13.7	11.0	9.4	-0.7	98534.6	58
588	11.6	55.1	2799	4.0	0.2	0.5	13.6	11.9	9.4	-0.7	98534.4	58
589			2904	4.0	0.2	0.4	13.6	10.4	7.7	-0.7	98534.0	58
590	10.0	54.0	2603	4.0	0.2	-1.1	13.4	10.2	7.8	-0.7	98534.3	58
591	10.0	53.9	2604	4.0	0.2	-1.3	13.5	10.3	7.8	-0.7	98534.3	58
592			2784	4.0	0.2	-0.8	13.6	9.8	8.1	-0.7	98534.9	59
593	10.8	53.7	2905	4.0	0.2	-0.9	13.6	11.1	7.9	-0.7	98535.0	60
594	11.6	53.9	2957	4.0	0.2	0.1	13.8	11.8	7.4	-0.7	98534.8	60
595	10.7	53.7	2879	4.0	0.2	-0.7	13.5	10.9	7.2	-0.7	98535.1	60
596	11.0	54.1	2926	4.0	0.2	-0.5	13.7	11.3	7.5	-0.7	98534.9	60
597	10.3	53.9	2910	4.0	0.2	-0.7	13.6	10.5	7.8	-0.7	98534.9	60
598			2901	4.0	0.2	-0.6	13.6	10.0	8.6	-0.7	98534.9	60
599	10.3	54.9	2976	4.0	0.2	1.0	13.9	10.5	8.1	-0.6	98535.5	60
600			2953	4.0	0.2	1.3	13.8	10.5	8.3	-0.6	98535.5	60
601			2935	4.0	0.2	1.4	13.7	9.4	8.0	-0.6	98535.2	60
602			2865	4.0	0.2	0.6	13.5	9.9	7.7	-0.6	98535.1	60
603	10.6	53.6	2937	4.0	0.2	1.0	13.7	10.9	7.5	-0.6	98535.6	60
604	10.4	53.2	2921	4.0	0.2	1.4	13.6	10.7	7.7	-0.6	98521.5	60
605			2783	4.0	0.2	0.3	13.5	10.4	7.3	-0.6	98521.6	60
606	9.9	53.6	2557	4.0	0.2	-0.7	13.5	8.7	8.0	-0.6	98521.2	60
607	9.7	54.5	2432	4.0	0.2	-1.3	13.5	8.9	7.6	-0.6	98520.6	60
608	9.3	54.9	2219	4.0	0.2	-1.5	13.6	8.7	8.2	-0.6	98521.2	60
609	10.2	53.4	2643	4.0	0.2	-0.2	13.7	9.7	8.8	-0.6	98520.4	60
610			2918	4.0	0.2	0.3	13.7	10.1	8.0	-0.6	98521.1	59
611			2968	4.0	0.2	1.3	13.8	10.2	7.3	-0.6	98521.4	59
612	11.6	54.2	3004	4.0	0.2	2.6	14.0	11.8	6.5	-0.6	98521.7	59
613	11.8	53.5	3040	4.0	0.2	4.9	14.2	12.0	8.6	-0.6	98521.6	59
614	10.5	53.1	2904	4.0	0.2	3.5	13.5	10.8	9.1	-0.6	98521.3	59
615	10.8	53.8	2918	4.0	0.2	3.5	13.6	11.0	9.5	-0.6	98521.4	59
616	10.9	53.5	2897	4.0	0.2	2.7	13.5	11.1	9.4	-0.6	98520.9	59

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

Data Point #	Standardized Wind Speed	LAeq	Turbine Power Output (kW)	Reference Yaw Angle (°)	Yaw Angle (°)	Pitch Angle (°)	Rotor RPM	Nacelle Anemometer Wind Speed (m/s)	10m Anemometer Wind Speed (m/s)	Air Temperature (-C)	Pressure (kPa)	Relative Humidity (%)
617	11.5	52.9	2975	4.0	0.2	4.1	13.9	11.7	8.5	-0.6	98520.9	59
618	11.7	53.3	2987	4.0	0.2	5.3	13.9	11.9	7.8	-0.6	98521.0	59
619	11.2	53.2	2933	4.0	0.2	5.1	13.7	11.4	8.4	-0.6	98521.4	59
620	10.5	53.1	2738	4.0	0.2	2.8	13.3	10.7	8.7	-0.6	98521.5	59
621	10.5	53.5	2873	4.0	0.2	2.1	13.4	10.8	9.3	-0.6	98520.9	59
622			2852	4.0	0.2	1.2	13.5	10.4	10.6	-0.6	98522.7	59
623	11.5	53.9	2943	4.0	0.2	2.3	13.7	11.7	10.1	-0.6	98522.4	59
624	11.5	53.4	2923	4.0	0.2	2.2	13.7	11.7	8.7	-0.6	98521.7	59
625			2873	4.0	0.2	1.1	13.5	9.6	8.8	-0.6	98522.0	59
626			2808	4.0	0.2	0.7	13.6	9.1	8.5	-0.6	98522.4	59
627			2896	4.0	0.1	0.6	13.6	9.9	7.8	-0.6	98521.6	59
628			2848	4.0	0.1	-0.1	13.6	10.4	8.0	-0.6	98521.4	59
629	10.8	54.5	2846	4.0	0.1	-0.6	13.6	11.1	8.5	-0.6	98521.1	59
630	11.6	55.5	2917	4.0	0.1	-0.4	13.7	11.9	8.5	-0.6	98521.0	59
631	11.1	55.1	2911	4.0	0.1	-0.3	13.7	11.3	8.1	-0.6	98521.0	59
632			2966	4.0	0.1	1.0	13.9	10.4	7.9	-0.6	98521.1	59
633	10.8	54.2	2957	4.0	0.1	1.5	13.8	11.1	7.9	-0.6	98521.3	59
634			2917	4.0	0.1	0.9	13.6	10.4	8.2	-0.6	98520.8	60
635	10.6	53.6	2696	4.0	0.1	-0.3	13.5	10.8	8.2	-0.6	98520.4	60
636	9.6	53.8	2390	4.0	0.1	-1.3	13.6	10.4	8.8	-0.6	98520.7	60
637	10.3	53.8	2797	4.0	0.1	0.0	13.7	10.5	8.1	-0.6	98520.6	60
638	10.0	53.2	2603	4.0	0.1	-0.9	13.6	10.2	8.6	-0.6	98520.8	60
639	9.4	53.7	2285	4.0	0.1	-1.3	13.6	9.3	8.9	-0.6	98520.7	60
640	10.0	53.6	2587	4.0	0.1	-0.3	13.7	9.4	7.8	-0.6	98520.5	60
641	10.6	53.9	2896	4.0	0.1	0.2	13.8	10.8	8.0	-0.6	98520.7	60
642	11.5	54.3	3028	4.0	0.1	2.7	14.2	11.7	8.6	-0.6	98520.6	60
643	10.7	54.7	3032	4.0	0.1	4.4	14.2	10.9	9.2	-0.6	98520.6	60
644	10.8	52.8	2926	4.0	0.1	5.0	13.7	11.0	9.2	-0.6	98520.9	60
645	11.0	53.0	2862	4.0	0.1	3.4	13.4	11.3	9.9	-0.7	98520.8	60
646	11.0	53.3	2893	4.0	0.1	2.9	13.6	11.2	10.2	-0.7	98520.9	60
647	11.3	53.8	2940	4.0	0.1	3.3	13.8	11.6	8.5	-0.7	98520.7	60
648	11.1	54.0	2983	4.0	0.1	4.7	13.9	11.3	9.1	-0.7	98521.0	60
649	10.8	55.3	2946	4.0	0.2	4.9	13.8	11.0	9.7	-0.7	98520.9	60
650	10.7	56.9	2950	4.0	0.3	5.1	13.8	10.9	9.6	-0.7	98520.6	60
651			2931	4.0	0.3	5.2	13.7	10.8	8.6	-0.7	98520.6	59
652			2923	4.0	0.3	5.2	13.7	12.0	9.3	-0.7	98520.6	59
653			2940	4.0	0.3	5.7	13.7	11.5	9.6	-0.7	98520.7	59
654			2940	4.0	0.3	6.0	13.7	12.2	9.0	-0.7	98520.8	59
655			2874	4.0	0.3	4.9	13.5	11.2	7.9	-0.7	98520.5	59
656	10.6	53.1	2857	4.0	0.2	3.7	13.4	10.8	9.2	-0.7	98520.7	59
657	11.0	52.8	2856	4.0	0.3	2.3	13.3	11.3	9.4	-0.7	98520.9	60
658	10.6	52.8	2895	4.0	0.3	1.8	13.5	10.9	8.8	-0.7	98520.9	60
659	11.5	53.2	2944	4.0	0.3	2.6	13.7	11.7	8.4	-0.7	98520.5	60
660	11.2	53.0	2864	4.0	0.3	1.7	13.5	11.4	8.4	-0.7	98520.4	60
661	9.9	53.5	2553	4.0	0.3	0.4	13.5	10.7	9.2	-0.7	98520.7	60
662	9.8	53.6	2498	4.0	0.3	-0.2	13.5	9.9	9.4	-0.7	98520.5	60
663	9.8	53.5	2486	4.0	0.3	-0.6	13.6	9.2	8.4	-0.7	98520.8	60
664	9.6	53.7	2385	4.0	0.2	-1.4	13.5	10.4	7.5	-0.7	98520.7	60
665	9.6	53.8	2390	4.0	0.3	-1.4	13.6	10.6	7.8	-0.7	98520.7	60
666	9.8	53.6	2492	4.0	0.2	-1.3	13.6	10.1	7.8	-0.7	98520.9	60
667	10.1	53.7	2614	4.0	0.3	-1.2	13.6	9.8	7.5	-0.7	98522.3	60
668	10.1	53.7	2610	4.0	0.3	-1.3	13.5	10.1	7.5	-0.7	98522.0	60
669	9.8	53.8	2463	4.0	0.3	-1.4	13.6	10.4	7.7	-0.7	98522.8	62
670	10.1	54.2	2622	4.0	0.3	-1.0	13.6	10.4	7.1	-0.7	98522.5	62
671			2935	4.0	0.3	-0.5	13.7	9.7	7.7	-0.7	98521.8	62
672			2883	4.0	0.3	-0.5	13.6	9.6	6.8	-0.7	98521.7	62
673	10.3	53.6	2766	4.0	0.3	-1.1	13.5	10.6	8.3	-0.7	98522.8	62
674	10.2	53.5	2648	4.0	0.3	-1.2	13.5	10.0	7.9	-0.7	98523.4	62
675	9.9	53.7	2516	4.0	0.3	-1.3	13.6	10.3	7.7	-0.6	98523.8	61
676	10.9	53.9	2899	4.0	0.3	-0.3	13.7	11.1	8.9	-0.6	98522.9	61
677	11.0	53.7	3018	4.0	0.3	2.0	14.1	11.2	8.9	-0.6	98522.8	61
678			2974	4.0	0.3	2.5	13.9	10.4	8.0	-0.6	98522.8	61
679	10.8	53.7	3046	4.0	0.2	4.9	14.2	11.1	9.1	-0.6	98522.9	61
680	12.0	53.7	3017	4.0	0.2	6.3	14.1	12.2	9.0	-0.6	98522.4	61
681	11.5	53.1	2910	4.0	0.2	5.5	13.6	11.8	7.7	-0.6	98521.9	60
682	10.4	52.9	2887	4.0	0.2	4.7	13.5	10.6	9.5	-0.6	98521.9	60
683	10.3	53.2	2858	4.0	0.2	3.5	13.4	10.6	9.2	-0.6	98522.9	60
684	11.1	53.6	2887	4.0	0.2	2.0	13.5	11.4	8.9	-0.6	98522.5	60
685	10.3	53.3	2669	4.0	0.2	0.3	13.4	10.5	9.3	-0.6	98522.7	60
686	10.1	53.9	2618	4.0	0.2	-0.3	13.6	10.6	10.1	-0.6	98523.4	59
687	9.7	53.7	2419	4.0	0.2	-1.4	13.6	10.9	10.7	-0.6	98523.9	59
688	9.6	53.6	2402	4.0	0.3	-1.4	13.6	11.8	9.5	-0.6	98523.5	59
689	9.6	53.5	2367	4.0	0.3	-1.5	13.6	10.8	8.2	-0.6	98523.8	59
690	9.4	53.9	2286	4.0	0.3	-1.6	13.6	9.0	7.2	-0.6	98522.2	59
691	12.6	53.8	2980	4.0	0.5	4.5	13.8	12.8	8.2	-0.7	98482.8	63
692	11.7	54.0	3005	4.0	0.5	5.5	13.9	12.0	7.6	-0.7	98484.4	63
693	12.8	53.7	3020	4.0	0.5	6.9	14.0	13.1	9.7	-0.7	98484.3	63
694	13.3	53.5	3038	4.0	0.5	8.4	14.1	13.6	8.7	-0.7	98484.2	63
695	13.1	54.5	2972	4.0	0.5	8.6	13.8	13.3	9.5	-0.7	98484.0	63
696	12.5	54.4	2932	4.0	0.5	8.5	13.7	12.7	9.5	-0.7	98483.7	63
697	13.1	52.7	2881	4.0	0.5	7.5	13.4	13.4	9.7	-0.7	98484.4	63
698	12.6	52.6	2865	4.0	0.5	6.3	13.4	12.9	9.3	-0.7	98483.8	63
699	12.5	52.6	2899	4.0	0.5	6.2	13.5	12.8	9.0	-0.7	98485.3	62
700	10.7	52.6	2812	4.0	0.5	3.4	13.1	10.9	9.1	-0.7	98483.8	62
701	11.4	52.9	2899	4.0	0.5	3.1	13.5	11.6	8.8	-0.7	98483.9	62
702	11.6	53.4	2984	4.0	0.5	4.6	13.9	11.9	7.3	-0.7	98484.1	62
703	13.0	53.4	3040	4.0	0.5	6.7	14.1	13.3	8.5	-0.7	98484.7	62
704	13.6	53.8	3032	4.0	0.5	7.8	14.1	13.9	9.0	-0.7	98484.3	62

Table E.01 Measurement data - Turbine ON

Project: North Kent Wind 1 LP - Turbine T33 - IEC 61400-11 Measurement

Report ID: 17283.01.T33.RP2

Created on: 2019-01-30

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

Data Point #	Standardized Wind Speed	LAeq	Turbine Power Output (kW)	Reference Yaw Angle (°)	Yaw Angle (°)	Pitch Angle (°)	Rotor RPM	Nacelle Anemometer Wind Speed (m/s)	10m Anemometer Wind Speed (m/s)	Air Temperature (-C)	Pressure (kPa)	Relative Humidity (%)
705	13.4	54.5	3062	4.0	0.5	9.9	14.2	13.7	8.8	-0.7	98484.1	62
706	13.4	52.9	2913	4.0	0.5	9.1	13.6	13.7	9.3	-0.7	98483.5	61
707	12.7	53.1	2894	4.0	0.5	8.4	13.5	13.0	10.5	-0.7	98484.2	61
708	11.1	53.4	2884	4.0	0.5	7.9	13.5	11.4	9.8	-0.7	98484.9	61
709	11.0	52.9	2803	4.0	0.5	5.6	13.1	11.2	9.7	-0.7	98484.8	61
710	12.0	53.1	2892	4.0	0.5	5.5	13.5	12.3	10.0	-0.7	98484.5	61
711	12.7	52.6	2975	4.0	0.5	6.9	13.8	12.9	8.4	-0.7	98485.2	62
712	11.0	53.2	2920	4.0	0.5	6.3	13.6	11.2	8.2	-0.7	98485.1	62
713	12.3	52.9	2876	4.0	0.5	5.2	13.4	12.6	10.2	-0.7	98485.2	62
714	11.8	53.0	2893	4.0	0.5	5.0	13.5	12.1	10.6	-0.7	98484.8	62
715	10.4	53.0	2746	4.0	0.5	3.0	13.2	10.6	9.1	-0.7	98484.8	62
716	9.8	53.0	2508	4.0	0.5	0.8	13.3	10.3	8.3	-0.7	98484.7	62
717	10.2	53.5	2633	4.0	0.5	0.9	13.5	10.6	8.1	-0.7	98485.8	62
718	10.3	53.2	2744	4.0	0.5	0.7	13.6	10.5	8.5	-0.7	98484.9	62
719			2678	4.0	0.5	0.1	13.5	10.3	9.3	-0.7	98485.3	62
720			2664	4.0	0.5	-0.5	13.5	10.4	9.8	-0.7	98485.4	62
721	9.6	53.7	2390	4.0	0.5	-1.6	13.5	9.8	8.7	-0.7	98485.2	62
722	9.4	54.1	2296	4.0	0.5	-1.8	13.6	8.8	8.1	-0.7	98485.0	62
723	9.7	53.9	2449	4.0	0.5	-1.3	13.7	9.3	8.8	-0.7	98486.6	61
724	9.8	53.9	2510	4.0	0.5	-1.2	13.7	10.1	10.0	-0.7	98485.0	61
725	10.0	53.4	2585	4.0	0.5	-1.2	13.6	10.2	9.2	-0.7	98485.1	61
726	9.8	53.6	2507	4.0	0.5	-1.5	13.6	9.6	9.3	-0.7	98485.5	61
727	10.0	53.8	2566	4.0	0.5	-1.0	13.6	9.5	9.1	-0.7	98485.5	61
728	9.4	53.6	2275	4.0	0.5	-1.8	13.5	10.5	7.5	-0.7	98485.9	61
729	9.3	53.7	2209	4.0	0.5	-1.7	13.6	9.6	6.7	-0.7	98496.8	61
730	9.8	53.7	2491	4.0	0.5	-0.6	13.7	10.3	7.0	-0.7	98497.4	61
731	10.2	53.5	2644	4.0	0.5	-1.1	13.5	10.5	7.4	-0.7	98496.1	61
732	9.8	53.7	2471	4.0	0.5	-1.6	13.6	11.1	7.0	-0.7	98495.8	61
733	9.5	53.7	2307	4.0	0.5	-1.7	13.5	9.7	7.2	-0.7	98496.0	61
734	9.1	53.3	2132	4.0	0.5	-1.9	13.6	9.3	6.2	-0.7	98487.8	63
735	9.3	54.3	2234	4.0	0.5	-1.8	13.6	9.0	8.1	-0.7	98483.7	63
736	9.5	53.7	2328	4.0	0.5	-1.6	13.7	9.9	8.1	-0.7	98483.6	63
737	9.5	53.7	2314	4.0	0.5	-1.8	13.6	9.1	8.8	-0.7	98483.4	63
738	9.5	53.5	2351	4.0	0.5	-1.6	13.6	8.9	8.8	-0.7	98483.7	63
739	9.5	53.6	2328	4.0	0.5	-1.8	13.6	9.1	7.9	-0.7	98483.7	63
740	9.3	53.8	2231	4.0	0.5	-1.8	13.6	9.4	7.8	-0.6	98484.4	63
741	9.4	53.7	2297	4.0	0.5	-1.5	13.7	10.4	7.2	-0.6	98484.3	64
742	9.8	53.8	2499	4.0	0.5	-1.1	13.7	8.9	7.8	-0.6	98484.1	64
743	10.0	53.5	2589	4.0	0.5	-1.1	13.6	10.0	8.7	-0.6	98484.0	64
744	10.2	53.3	2654	4.0	0.5	-1.3	13.6	10.2	8.7	-0.6	98483.9	64
745	10.0	53.6	2566	4.0	0.5	-1.4	13.5	10.8	9.3	-0.6	98484.1	64
746	9.8	53.8	2473	4.0	0.5	-1.6	13.6	10.4	9.9	-0.6	98483.9	63
747	10.0	53.6	2569	4.0	0.5	-1.2	13.7	10.4	9.0	-0.6	98483.9	62
748	9.6	53.6	2381	4.0	0.5	-1.7	13.6	10.2	8.1	-0.6	98483.9	62
749	9.1	53.5	2138	4.0	0.5	-1.9	13.5	9.5	7.6	-0.6	98483.9	62
750	8.7	53.4	1885	4.0	0.5	-2.1	13.5	8.4	7.7	-0.6	98484.4	62
751	8.6	53.5	1844	4.0	0.5	-2.2	13.6	9.0	7.1	-0.6	98484.1	62
752	8.5	53.3	1787	4.0	0.5	-2.2	13.6	9.3	7.3	-0.6	98485.9	63
753	8.8	53.7	1974	4.0	0.5	-2.1	13.7	9.2	7.9	-0.6	98485.9	64
754	9.2	53.8	2188	4.0	0.5	-1.4	13.8	8.9	6.9	-0.6	98485.3	64
755	10.4	53.8	2923	4.0	0.5	1.0	13.8	10.6	7.1	-0.6	98484.9	64
756	11.4	53.8	2995	4.0	0.5	2.1	13.9	11.7	6.1	-0.6	98485.2	64
757	11.5	53.5	3008	4.0	0.5	3.8	14.0	11.8	6.1	-0.6	98485.2	64
758			2927	4.0	0.5	3.1	13.6	10.3	6.6	-0.6	98485.3	64
759	10.5	53.2	2919	4.0	0.5	2.6	13.6	10.7	8.7	-0.6	98484.9	65
760	10.8	52.9	2947	4.0	0.5	3.3	13.7	11.0	8.9	-0.6	98484.8	65
761	11.2	53.0	2895	4.0	0.5	2.4	13.5	11.4	8.3	-0.6	98484.9	65
762	10.5	53.3	2886	4.0	0.5	1.6	13.4	10.8	8.1	-0.6	98485.0	65
763	10.6	53.5	2888	4.0	0.5	0.8	13.5	10.8	8.0	-0.6	98485.0	65
764			2848	4.0	0.5	0.5	13.5	9.9	9.5	-0.6	98484.4	63
765			2956	4.0	0.4	1.7	13.8	10.1	8.6	-0.6	98484.7	62
766	10.7	53.7	2950	4.0	0.4	1.9	13.8	10.9	9.5	-0.6	98484.8	62
767	12.4	53.4	3008	4.0	0.4	3.7	14.1	12.7	8.8	-0.6	98484.7	62
768	11.7	53.2	3003	4.0	0.4	5.0	14.0	12.0	9.4	-0.6	98483.9	62
769	11.4	52.8	2889	4.0	0.4	3.5	13.5	11.7	9.1	-0.6	98484.0	62
770	11.4	53.0	2804	4.0	0.4	1.9	13.4	11.7	8.8	-0.7	98484.3	62
771	10.2	53.3	2636	4.0	0.4	0.7	13.6	11.1	9.5	-0.7	98484.3	62
772	10.0	53.6	2582	4.0	0.4	0.1	13.6	10.2	9.5	-0.7	98484.1	62
773	9.8	53.6	2512	4.0	0.4	-0.6	13.6	10.7	8.9	-0.7	98484.4	62
774	10.4	54.1	2785	4.0	0.4	-0.3	13.7	10.6	8.7	-0.7	98484.7	62
775	11.0	53.9	2986	4.0	0.4	1.2	13.9	11.3	8.4	-0.7	98484.5	62
776	11.0	53.9	3020	4.0	0.4	3.2	14.1	11.2	9.3	-0.7	98483.9	62
777	11.6	53.4	3029	4.0	0.4	5.2	14.2	11.9	9.6	-0.7	98483.5	62
778	10.8	53.5	2968	4.0	0.4	5.3	13.9	11.1	8.8	-0.7	98483.3	62
779	12.5	52.8	2974	4.0	0.4	6.2	13.9	12.7	8.4	-0.7	98483.6	62
780	12.1	52.2	2936	4.0	0.4	6.4	13.8	12.4	8.8	-0.7	98483.5	62
781	11.5	52.2	2878	4.0	0.4	5.3	13.5	11.7	8.0	-0.7	98483.9	62
782	12.3	52.6	2951	4.0	0.4	6.2	13.9	12.5	9.2	-0.7	98483.6	63
783	11.6	52.5	2920	4.0	0.4	6.3	13.7	11.9	9.8	-0.7	98483.6	63
784	12.6	52.7	2931	4.0	0.4	6.4	13.7	12.8	10.6	-0.7	98483.8	63
785	11.4	52.9	2891	4.0	0.4	5.8	13.5	11.7	10.5	-0.7	98483.6	63
786	11.4	52.7	2845	4.0	0.4	3.9	13.4	11.7	10.8	-0.7	98483.8	63
787	12.3	53.4	2958	4.0	0.4	5.9	13.9	12.6	11.0	-0.7	98483.7	62
788	12.1	53.3	2937	4.0	0.4	6.3	13.8	12.4	10.2	-0.7	98484.2	61
789	12.7	53.1	2888	4.0	0.4	5.8	13.6	13.0	10.8	-0.7	98484.3	61
790	11.4	52.8	2899	4.0	0.4	5.7	13.6	11.6	11.5	-0.7	98483.9	61
791	11.6	52.7	2914	4.0	0.4	6.0	13.7	11.9	10.6	-0.7	98484.3	61
792	11.6	52.6	2886	4.0	0.4	5.3	13.6	11.9	8.9	-0.7	98484.0	61

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

Data Point #	Standardized Wind Speed	LAeq	Turbine Power Output (kW)	Reference Yaw Angle (°)	Yaw Angle (°)	Pitch Angle (°)	Rotor RPM	Nacelle Anemometer Wind Speed (m/s)	10m Anemometer Wind Speed (m/s)	Air Temperature (-C)	Pressure (kPa)	Relative Humidity (%)
793	11.8	52.5	2933	4.0	0.4	6.1	13.8	12.0	8.6	-0.7	98483.9	61
794	11.5	53.3	2924	4.0	0.4	6.2	13.7	11.8	9.0	-0.7	98483.9	61
795	12.0	54.1	2931	4.0	0.4	6.5	13.7	12.3	9.1	-0.7	98483.8	61
796	11.6	52.4	2866	4.0	0.4	5.3	13.4	11.8	9.6	-0.7	98483.8	61
797	10.7	52.4	2872	4.0	0.4	4.5	13.5	10.9	9.1	-0.7	98484.2	61
798	10.4	52.5	2876	4.0	0.4	3.7	13.4	10.6	8.9	-0.7	98484.0	61
799	11.0	52.7	2881	4.0	0.4	2.9	13.5	11.2	10.2	-0.7	98483.7	61
800	12.0	53.3	2909	4.0	0.4	2.9	13.6	12.3	9.7	-0.7	98484.0	61
801	11.1	53.1	2916	4.0	0.4	2.8	13.6	11.3	8.8	-0.7	98484.0	61
802	11.0	53.2	2899	4.0	0.4	2.3	13.5	11.2	8.5	-0.7	98484.4	61
803	10.7	53.4	2814	4.0	0.4	1.1	13.5	10.9	9.4	-0.7	98484.7	61
804			2751	4.0	0.3	0.7	13.5	9.6	9.5	-0.7	98484.7	61
805	10.5	53.7	2802	4.0	0.3	0.4	13.6	10.7	9.3	-0.7	98484.4	61
806	11.6	53.3	2780	4.0	0.3	-0.2	13.5	11.8	8.8	-0.7	98484.1	61
807			2814	4.0	0.3	-0.6	13.6	10.0	9.1	-0.7	98483.8	61
808	10.7	53.8	2971	4.0	0.3	0.8	13.9	10.9	8.9	-0.7	98484.0	61
809	11.3	53.7	2983	4.0	0.3	2.1	13.9	11.5	8.5	-0.7	98485.9	61
810	11.2	53.5	2938	4.0	0.3	2.0	13.7	11.5	7.6	-0.7	98485.1	61
811	9.9	53.5	2560	4.0	0.5	-0.5	13.4	11.3	8.6	-0.8	98497.3	62
812	9.8	53.8	2497	4.0	0.5	-1.5	13.6	11.3	9.5	-0.8	98497.4	62
813	9.4	53.6	2300	4.0	0.5	-1.7	13.6	10.2	8.0	-0.8	98497.4	62
814	9.5	53.7	2331	4.0	0.5	-1.7	13.6	10.6	7.7	-0.8	98497.3	62
815	9.6	53.9	2363	4.0	0.5	-1.7	13.6	11.0	8.0	-0.8	98496.3	62
816	9.4	53.8	2272	4.0	0.5	-1.8	13.6	9.2	7.6	-0.7	98496.3	62
817	9.0	53.8	2052	4.0	0.5	-2.0	13.5	9.1	7.9	-0.7	98496.1	63
818	8.7	53.7	1884	4.0	0.5	-2.1	13.6	8.1	7.7	-0.7	98495.8	63
819	8.4	53.5	1743	4.0	0.5	-2.3	13.5	8.5	7.9	-0.7	98495.8	63
820	8.3	53.1	1638	4.0	0.5	-2.4	13.3	9.0	8.9	-0.7	98495.7	63
821	8.0	52.7	1490	4.0	0.5	-2.5	12.8	9.0	8.1	-0.7	98495.8	63
822	8.0	52.7	1498	4.0	0.5	-2.5	12.9	7.9	8.5	-0.7	98487.8	63
823	8.3	53.4	1632	4.0	0.5	-2.2	13.3	8.0	8.9	-0.7	98483.9	63
824	10.0	53.6	2571	4.0	0.5	0.8	13.8	8.8	9.3	-0.7	98483.7	63
825	10.6	53.8	2932	4.0	0.5	1.3	13.7	10.8	8.0	-0.7	98483.5	63
826			2801	4.0	0.5	0.5	13.5	9.7	7.6	-0.7	98483.3	63
827			2691	4.0	0.5	-0.3	13.5	9.6	7.9	-0.7	98483.3	63
828	10.7	53.7	2928	4.0	0.4	0.3	13.7	10.9	7.4	-0.7	98491.2	64
829			2933	4.0	0.4	0.5	13.7	9.6	6.6	-0.7	98495.1	64
830	10.2	53.9	2637	4.0	0.4	-1.0	13.5	10.7	7.5	-0.7	98495.2	64
831	10.0	53.7	2570	4.0	0.4	-1.1	13.6	10.3	7.3	-0.7	98495.2	64
832	9.8	53.6	2463	4.0	0.4	-1.3	13.6	10.4	7.2	-0.7	98495.3	64
833	10.7	53.7	2739	4.0	0.4	-0.3	13.8	10.9	7.7	-0.7	98495.1	64
834			3043	4.0	0.4	3.0	14.2	10.1	8.9	-0.7	98487.3	64
835	10.2	53.8	2639	4.0	0.4	0.6	13.5	10.1	9.3	-0.7	98483.5	64
836	9.8	54.3	2479	4.0	0.4	-0.2	13.6	9.2	9.6	-0.7	98483.5	64
837			2738	4.0	0.4	0.1	13.7	9.8	11.5	-0.7	98483.4	64
838	10.5	53.6	2953	4.0	0.4	0.8	13.8	10.8	9.9	-0.7	98483.2	64
839	10.7	54.4	2980	4.0	0.4	2.4	13.9	10.9	9.2	-0.7	98483.4	64
840	10.9	53.5	2894	4.0	0.4	1.1	13.5	11.1	9.5	-0.7	98483.6	63
841	11.7	54.2	3055	4.0	0.4	4.1	14.3	11.9	10.2	-0.7	98483.5	62
842	12.1	54.0	3134	4.0	0.4	7.7	14.6	12.3	10.0	-0.7	98483.4	62
843	12.6	53.8	3004	4.0	0.4	8.0	14.0	12.8	8.3	-0.7	98483.3	62
844	12.1	52.5	2875	4.0	0.4	6.5	13.4	12.4	8.8	-0.7	98483.4	62
845	11.5	52.9	2838	4.0	0.4	4.8	13.3	11.8	9.7	-0.7	98483.4	62
846	11.1	53.3	2976	4.0	0.3	6.0	13.9	11.3	10.8	-0.8	98483.1	63
847	13.5	53.1	3033	4.0	0.3	8.2	14.2	13.8	9.2	-0.8	98484.0	63
848	12.2	52.5	2937	4.0	0.4	7.9	13.7	12.5	10.6	-0.8	98484.5	63
849	12.9	52.4	2892	4.0	0.4	7.1	13.5	13.2	11.1	-0.8	98484.4	63
850	13.2	52.4	2925	4.0	0.4	7.3	13.7	13.5	9.8	-0.8	98483.6	63
851	12.1	52.1	2885	4.0	0.3	6.5	13.5	12.4	10.3	-0.8	98485.7	63
852	11.6	52.4	2894	4.0	0.2	6.1	13.5	11.8	9.0	-0.8	98485.3	63
853	11.9	53.0	2932	4.0	0.2	6.3	13.7	12.1	8.7	-0.8	98485.7	63
854	12.6	52.4	2953	4.0	0.2	7.0	13.8	12.9	8.7	-0.8	98485.8	63
855	12.6	52.6	2895	4.0	0.2	6.2	13.5	12.8	8.7	-0.8	98485.4	63
856	12.5	53.1	2904	4.0	0.2	5.8	13.5	12.8	10.0	-0.8	98485.2	63
857	11.4	52.4	2913	4.0	0.2	5.7	13.6	11.6	9.6	-0.8	98492.9	63
858	12.0	52.5	2897	4.0	0.2	5.0	13.5	12.3	9.1	-0.8	98496.7	63
859	11.1	52.8	2934	4.0	0.2	5.3	13.7	11.4	9.1	-0.8	98496.8	63
860	12.1	52.7	2944	4.0	0.2	5.6	13.7	12.4	9.4	-0.8	98496.7	63
861	11.0	52.7	2908	4.0	0.2	5.2	13.6	11.2	10.5	-0.8	98496.9	63
862	12.1	53.0	2895	4.0	0.2	4.5	13.5	12.4	9.5	-0.8	98496.9	63
863	12.2	52.7	2886	4.0	0.2	3.6	13.4	12.5	10.4	-0.8	98497.0	62
864	11.4	53.3	2860	4.0	0.2	1.8	13.3	11.6	11.4	-0.8	98497.1	62
865	10.7	53.1	2687	4.0	0.2	0.8	13.4	11.0	10.4	-0.8	98497.0	62
866	10.7	53.7	2780	4.0	0.2	0.9	13.6	11.0	10.2	-0.8	98496.9	62
867			2955	4.0	0.2	1.6	13.8	10.2	9.5	-0.8	98497.1	62
868	11.0	53.4	2932	4.0	0.2	1.4	13.6	11.3	9.1	-0.8	98497.4	62
869	10.3	53.3	2772	4.0	0.2	0.2	13.5	10.5	9.4	-0.8	98497.2	62
870	11.1	53.8	2929	4.0	0.2	0.5	13.6	11.3	8.1	-0.8	98497.3	63
871			2867	4.0	0.2	-0.3	13.5	10.3	7.2	-0.8	98497.4	63
872			2899	4.0	0.2	-0.5	13.6	10.1	6.7	-0.8	98497.1	63
873	10.8	54.0	3021	4.0	0.2	2.1	14.1	11.0	8.1	-0.8	98497.1	63
874			2915	4.0	0.2	1.5	13.7	9.2	8.3	-0.8	98496.9	63
875	12.6	54.0	3049	4.0	0.2	4.0	14.3	12.8	7.0	-0.8	98504.3	63
876	12.3	53.6	3091	4.0	0.2	6.5	14.4	12.5	7.8	-0.8	98510.2	63
877	12.2	53.1	3039	4.0	0.2	7.6	14.1	12.5	7.6	-0.8	98510.3	63
878	12.8	53.0	2946	4.0	0.2	7.4	13.7	13.1	7.9	-0.8	98510.3	63
879	12.9	53.5	2942	4.0	0.2	7.5	13.7	13.2	9.5	-0.8	98510.5	63
880	12.5	52.9	2971	4.0	0.2	8.3	13.9	12.7	8.7	-0.8	98510.4	63

Table E.01 Measurement data - Turbine ON

Project: North Kent Wind 1 LP - Turbine T33 - IEC 61400-11 Measurement

Report ID: 17283.01.T33.RP2

Created on: 2019-01-30

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

Data Point #	Standardized Wind Speed	LAeq	Turbine Power Output (kW)	Reference Yaw Angle (°)	Yaw Angle (°)	Pitch Angle (°)	Rotor RPM	Nacelle Anemometer Wind Speed (m/s)	10m Anemometer Wind Speed (m/s)	Air Temperature (-C)	Pressure (kPa)	Relative Humidity (%)
881	11.7	52.7	2905	4.0	0.2	7.6	13.6	11.9	9.2	-0.8	98504.3	63
882	12.9	52.6	2940	4.0	0.2	7.8	13.7	13.2	10.0	-0.8	98497.3	62
883	12.9	53.1	2958	4.0	0.2	8.5	13.8	13.1	9.3	-0.8	98497.1	62
884	12.1	52.9	2901	4.0	0.2	7.7	13.5	12.4	9.0	-0.8	98497.1	62
885	12.9	53.0	2938	4.0	0.2	8.1	13.7	13.2	8.9	-0.8	98496.2	62
886	13.3	52.5	2922	4.0	0.2	8.1	13.6	13.6	9.3	-0.8	98496.5	62
887	13.0	52.2	2890	4.0	0.2	7.2	13.5	13.2	9.2	-0.8	98495.7	62
888	11.9	52.9	2907	4.0	0.2	7.0	13.6	12.1	11.2	-0.8	98495.5	61
889	12.5	53.3	2886	4.0	0.2	6.3	13.4	12.8	9.8	-0.8	98495.8	61
890	11.0	53.8	2874	4.0	0.2	5.2	13.4	11.2	9.8	-0.8	98495.4	61
891	11.1	53.5	2913	4.0	0.2	4.9	13.7	11.3	9.3	-0.8	98495.8	61
892	12.4	54.0	2994	4.0	0.1	6.5	14.0	12.6	8.9	-0.8	98495.6	61
893	11.9	53.1	2961	4.0	0.1	6.6	13.8	12.2	8.3	-0.8	98496.9	62
894	12.6	53.1	2917	4.0	0.1	6.0	13.6	12.9	9.0	-0.8	98496.0	62
895	11.7	52.9	2878	4.0	0.1	4.7	13.4	12.0	8.7	-0.8	98496.1	62
896	10.4	53.3	2814	4.0	0.1	2.7	13.3	10.7	9.2	-0.8	98495.8	62
897	10.6	53.5	2904	4.0	0.1	2.3	13.5	10.9	9.6	-0.8	98495.8	62
898	11.2	53.6	2953	4.0	0.1	2.8	13.8	11.5	10.0	-0.8	98495.7	62
899	11.8	53.4	2992	4.0	0.1	4.3	14.0	12.1	9.6	-0.7	98495.8	62
900	12.0	54.0	3028	4.0	0.2	5.7	14.1	12.2	9.8	-0.7	98495.9	62
901	12.6	53.1	2968	4.0	0.2	6.0	13.8	12.8	10.1	-0.7	98495.9	62
902	10.7	53.0	2856	4.0	0.2	4.2	13.3	10.9	10.3	-0.7	98496.0	62
903	10.6	52.7	2866	4.0	0.3	2.8	13.3	10.9	8.0	-0.7	98496.1	62
904	11.0	53.2	2878	4.0	0.3	2.1	13.4	11.2	9.5	-0.7	98495.8	62
905	12.0	53.7	3072	4.0	0.3	5.8	14.3	12.3	9.0	-0.7	98495.6	63
906	13.3	53.6	3080	4.0	0.3	8.1	14.4	13.6	7.8	-0.7	98499.4	63
907	11.7	52.8	2970	4.0	0.3	8.1	13.8	12.0	6.2	-0.7	98509.3	63
908	12.5	52.3	2895	4.0	0.3	7.3	13.5	12.8	6.0	-0.7	98509.7	63
909	12.7	52.7	2891	4.0	0.3	6.9	13.5	13.0	8.3	-0.7	98509.3	63
910	11.7	53.5	2958	4.0	0.3	5.6	13.8	12.0	10.4	-0.7	98509.2	62
911	12.0	53.0	2958	4.0	0.3	6.2	13.8	12.3	10.2	-0.7	98509.1	62
912	10.3	53.2	2933	4.0	0.3	3.3	13.7	10.5	9.6	-0.7	98497.2	61
913	10.3	52.7	2898	4.0	0.3	2.8	13.5	10.5	9.4	-0.7	98496.9	61
914	11.7	52.7	2880	4.0	0.3	1.4	13.4	11.9	9.7	-0.7	98497.8	61
915	10.9	52.8	2917	4.0	0.3	1.5	13.6	11.1	9.1	-0.7	98510.2	61
916			2927	4.0	0.3	1.4	13.6	10.4	9.0	-0.7	98510.0	61
917	11.0	53.3	2921	4.0	0.3	1.1	13.6	11.3	8.4	-0.7	98510.1	61
918	11.6	53.3	2978	4.0	0.3	2.4	13.8	11.8	8.0	-0.7	98509.8	61
919	12.1	54.0	3006	4.0	0.3	4.1	14.0	12.4	7.8	-0.7	98509.5	61
920	10.8	53.1	2891	4.0	0.3	2.7	13.5	11.0	7.8	-0.7	98509.4	61
921	10.2	53.2	2639	4.0	0.3	0.9	13.3	11.0	9.3	-0.7	98509.4	62
922	9.6	53.4	2393	4.0	0.3	0.1	13.5	9.3	9.3	-0.7	98509.7	62
923	9.7	53.1	2419	4.0	0.3	-0.3	13.6	9.6	8.7	-0.7	98509.5	62
924	9.4	53.6	2270	4.0	0.3	-1.2	13.5	9.3	8.1	-0.7	98509.2	62
925	9.4	53.6	2273	4.0	0.3	-1.6	13.6	9.1	7.7	-0.7	98509.2	62
926	9.1	53.7	2096	4.0	0.3	-1.9	13.6	9.1	7.7	-0.7	98508.9	62
927	9.2	53.6	2172	4.0	0.3	-1.9	13.6	8.8	8.1	-0.7	98509.2	63
928	9.4	53.8	2255	4.0	0.3	-1.5	13.7	9.8	7.9	-0.7	98509.4	63
929	9.8	53.6	2490	4.0	0.3	-0.5	13.6	9.1	7.3	-0.7	98511.7	63
930	9.8	53.3	2469	4.0	0.3	-1.1	13.6	9.2	7.4	-0.7	98510.9	63
931	9.3	53.2	2225	4.0	0.3	-1.8	13.5	9.5	7.1	-0.7	98510.0	63
932	9.4	53.4	2256	4.0	0.3	-1.6	13.6	9.9	7.0	-0.7	98511.0	64
933	9.5	53.8	2321	4.0	0.3	-1.6	13.6	9.4	6.7	-0.7	98510.4	64
934	9.3	53.7	2241	4.0	0.3	-1.8	13.6	9.9	6.6	-0.7	98510.1	64
935	9.5	53.5	2343	4.0	0.3	-1.3	13.7	9.9	6.4	-0.7	98510.1	64
936	9.5	54.0	2352	4.0	0.3	-1.7	13.6	10.3	7.8	-0.7	98509.9	64
937	9.4	53.2	2286	4.0	0.3	-1.8	13.6	10.4	8.6	-0.7	98507.6	64
938	9.2	53.7	2185	4.0	0.3	-1.9	13.6	9.8	8.9	-0.7	98496.5	64
939	9.0	53.8	2068	4.0	0.3	-2.0	13.6	9.1	9.0	-0.7	98496.6	64
940	8.5	53.1	1789	4.0	0.3	-2.2	13.5	7.9	9.1	-0.7	98498.0	64
941	8.4	53.3	1715	4.0	0.3	-2.3	13.5	7.7	8.3	-0.7	98497.8	64
942	8.5	53.7	1776	4.0	0.3	-2.1	13.5	8.9	8.1	-0.7	98497.6	64
943	8.9	53.5	2018	4.0	0.3	-1.8	13.7	8.7	7.8	-0.7	98496.6	63
944	8.9	53.6	2025	4.0	0.3	-2.0	13.6	10.1	7.5	-0.7	98510.7	61
945	8.8	53.7	1950	4.0	0.3	-2.1	13.6	9.4	7.7	-0.7	98510.9	61
946	8.4	53.1	1720	4.0	0.3	-2.3	13.5	9.1	7.6	-0.7	98510.1	61
947	8.1	52.5	1544	4.0	0.3	-2.5	13.0	8.5	8.0	-0.7	98510.2	61
948	7.8	52.0	1364	4.0	0.3	-2.6	12.4	9.2	8.7	-0.7	98511.1	61
949	7.7	51.4	1318	4.0	0.3	-2.6	12.3	8.2	8.5	-0.7	98512.2	61
950	7.6	51.5	1306	4.0	0.3	-2.8	12.3	8.2	8.7	-0.7	98512.2	63
951	7.8	52.4	1400	4.0	0.3	-2.8	12.6	9.1	8.1	-0.7	98511.7	63
952	8.2	53.2	1571	4.0	0.3	-2.8	13.1	8.5	9.1	-0.7	98510.5	63
953	8.9	53.8	1980	4.0	0.3	-1.9	13.7	10.1	8.9	-0.7	98510.5	63
954	8.8	53.6	1953	4.0	0.3	-2.4	13.6	9.7	8.3	-0.7	98510.7	63
955	9.0	53.8	2048	4.0	0.3	-2.0	13.7	9.8	7.3	-0.7	98510.0	63
956	9.3	53.9	2217	4.0	0.3	-1.8	13.7	9.1	7.9	-0.7	98510.0	63
957			2689	4.0	0.3	0.1	13.7	9.2	7.3	-0.7	98511.2	63
958	10.6	53.6	2975	4.0	0.3	1.6	13.9	10.8	6.5	-0.7	98511.0	63
959			2935	4.0	0.3	1.5	13.6	10.4	6.3	-0.7	98510.8	63
960	10.7	54.0	2902	4.0	0.3	0.7	13.5	10.9	6.9	-0.7	98510.8	63
961			2813	4.0	0.3	-0.1	13.5	10.2	5.9	-0.7	98511.0	64
962			2778	4.0	0.3	-0.7	13.5	10.4	6.4	-0.7	98510.7	65
963	10.5	54.1	2867	4.0	0.3	-0.5	13.7	10.7	6.1	-0.7	98511.7	65
964	11.4	53.7	2988	4.0	0.3	1.4	13.9	11.6	7.9	-0.7	98511.0	65
965	11.2	53.6	2964	4.0	0.3	1.8	13.8	11.5	8.1	-0.7	98509.8	65
966	11.5	53.9	2949	4.0	0.3	2.1	13.7	11.7	9.1	-0.7	98509.4	65
967	11.1	53.7	2946	4.0	0.3	2.5	13.7	11.4	9.1	-0.7	98507.3	65
968	11.2	53.4	2917	4.0	0.3	2.1	13.6	11.4	7.8	-0.7	98497.0	63

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

Data Point #	Standardized Wind Speed	LAeq	Turbine Power Output (kW)	Reference Yaw Angle (°)	Yaw Angle (°)	Pitch Angle (°)	Rotor RPM	Nacelle Anemometer Wind Speed (m/s)	10m Anemometer Wind Speed (m/s)	Air Temperature (-C)	Pressure (kPa)	Relative Humidity (%)
969	10.6	53.1	2901	4.0	0.3	1.4	13.5	10.8	8.7	-0.7	98497.2	63
970	11.4	53.2	2969	4.0	0.3	2.7	13.8	11.7	8.2	-0.7	98496.6	63
971	10.8	53.0	2940	4.0	0.3	3.0	13.7	11.0	7.8	-0.7	98496.5	63
972	10.9	53.1	2949	4.0	0.3	3.5	13.8	11.1	9.1	-0.7	98497.4	63
973	11.8	52.8	2912	4.0	0.3	3.1	13.6	12.0	9.7	-0.7	98498.0	63
974	10.7	53.0	2864	4.0	0.3	1.5	13.4	10.9	8.8	-0.7	98498.4	63
975			2701	4.0	0.3	0.7	13.4	9.6	9.9	-0.7	98497.7	63
976	9.9	53.4	2521	4.0	0.3	-0.2	13.5	8.7	10.3	-0.7	98497.1	63
977	9.5	53.9	2332	4.0	0.3	-1.6	13.5	8.3	9.3	-0.7	98496.7	63
978	9.6	53.7	2373	4.0	0.3	-1.0	13.7	9.8	9.3	-0.7	98496.7	63
979			2671	4.0	0.3	-0.5	13.7	10.4	8.4	-0.7	98496.6	62
980	10.6	53.9	2926	4.0	0.3	-0.2	13.7	10.8	8.6	-0.7	98496.7	62
981	10.9	54.3	2954	4.0	0.3	0.5	13.8	11.1	9.0	-0.7	98496.9	62
982	10.8	54.1	2930	4.0	0.2	0.8	13.7	11.0	8.3	-0.7	98496.5	62
983			2829	4.0	0.2	-1.0	13.6	10.1	9.9	-0.8	98496.5	62
984			2724	4.0	0.2	-1.2	13.5	10.1	9.2	-0.8	98496.4	63
985	9.9	53.7	2528	4.0	0.2	-1.4	13.5	9.9	8.5	-0.8	98496.6	63
986	9.8	54.4	2469	4.0	0.2	-1.4	13.6	10.0	9.3	-0.8	98496.8	63
987	9.9	54.2	2558	4.0	0.2	-1.2	13.6	10.3	9.3	-0.8	98496.7	63
988			2661	4.0	0.2	-1.2	13.6	10.4	8.5	-0.8	98497.1	63
989			2792	4.0	0.2	-1.1	13.6	10.3	8.6	-0.8	98497.2	63
990	10.5	54.1	2948	4.0	0.2	0.1	13.8	10.7	8.3	-0.8	98496.3	63
991	10.3	53.6	3012	4.0	0.2	2.4	14.0	10.5	8.7	-0.8	98497.1	63
992			2952	4.0	0.2	2.4	13.7	10.4	8.5	-0.8	98497.3	63
993			2892	4.0	0.2	1.1	13.5	10.3	8.7	-0.8	98498.4	63
994			2851	4.0	0.2	0.5	13.5	10.1	8.0	-0.8	98498.0	63
995			2807	4.0	0.2	0.0	13.5	10.1	7.6	-0.8	98498.6	63
996	11.3	54.2	2869	4.0	0.2	0.1	13.7	11.5	9.0	-0.8	98497.4	64
997	10.4	54.1	2963	4.0	0.2	1.4	13.8	10.6	9.2	-0.8	98498.0	64
998	9.9	53.9	2525	4.0	0.2	-0.9	13.4	10.2	9.1	-0.8	98498.0	64
999	9.9	54.0	2549	4.0	0.2	-1.1	13.6	9.2	8.8	-0.8	98497.6	64
1000			2903	4.0	0.2	0.0	13.8	10.1	8.5	-0.8	98496.9	64
1001			2908	4.0	0.2	0.1	13.7	10.2	9.3	-0.8	98496.5	63
1002	10.8	54.2	2931	4.0	0.1	0.2	13.7	11.0	9.2	-0.8	98497.3	63
1003	11.4	53.6	2976	4.0	0.1	1.5	13.9	11.6	9.2	-0.8	98497.7	63
1004	11.1	53.5	2943	4.0	0.1	1.2	13.8	11.3	8.7	-0.8	98497.9	63
1005	11.2	53.3	2964	4.0	0.1	2.1	13.9	11.5	8.4	-0.8	98497.1	63
1006	10.7	53.1	2916	4.0	0.1	1.7	13.7	10.9	7.6	-0.8	98496.7	63
1007	10.1	53.5	2630	4.0	0.1	0.3	13.6	11.1	7.6	-0.8	98497.9	63
1008	11.0	53.9	2927	4.0	0.1	1.1	13.8	11.2	7.2	-0.8	98497.1	63
1009	10.8	53.5	2945	4.0	0.1	1.4	13.8	11.0	6.8	-0.8	98497.2	63
1010	10.8	53.5	2918	4.0	0.1	0.8	13.6	11.0	7.5	-0.8	98497.2	63
1011	11.5	53.5	2958	4.0	0.1	1.6	13.8	11.8	9.6	-0.8	98497.5	63
1012	11.2	53.8	2974	4.0	0.1	2.5	13.9	11.4	9.7	-0.8	98497.0	64
1013	11.3	53.6	2955	4.0	0.1	2.8	13.8	11.5	9.1	-0.8	98496.7	64
1014	11.1	53.5	2999	4.0	0.1	4.3	14.1	11.4	9.2	-0.8	98497.3	64
1015	10.9	53.3	2962	4.0	0.1	4.6	13.9	11.1	8.4	-0.8	98497.2	64
1016	11.1	53.8	2927	4.0	0.1	4.5	13.7	11.3	9.4	-0.8	98498.2	64
1017	11.8	54.0	2868	4.0	0.2	3.1	13.5	12.1	9.4	-0.8	98497.9	64
1018	11.0	53.8	2906	4.0	0.2	2.7	13.6	11.2	9.8	-0.8	98497.8	63
1019	11.8	53.8	2960	4.0	0.2	4.0	13.8	12.0	8.4	-0.8	98497.6	63
1020	11.0	53.0	2882	4.0	0.2	2.5	13.5	11.3	9.3	-0.8	98498.2	63
1021	12.0	53.5	2966	4.0	0.2	3.8	13.9	12.3	9.0	-0.8	98498.3	63
1022	11.5	53.2	2994	4.0	0.2	5.3	14.0	11.7	8.6	-0.8	98498.4	63
1023	11.4	53.0	2964	4.0	0.2	5.8	13.9	11.6	9.5	-0.8	98498.6	63
1024	12.3	53.4	2928	4.0	0.2	5.8	13.7	12.6	9.2	-0.8	98498.3	63
1025	11.5	53.2	2935	4.0	0.2	5.9	13.7	11.8	8.7	-0.8	98498.0	64
1026	12.2	53.3	2961	4.0	0.2	6.9	13.9	12.5	8.8	-0.8	98496.4	64
1027	12.0	53.0	2899	4.0	0.2	6.2	13.6	12.3	8.1	-0.8	98496.4	64
1028	11.4	53.4	2848	4.0	0.2	4.6	13.3	11.7	8.1	-0.8	98496.8	64
1029	12.4	53.0	2935	4.0	0.2	5.4	13.7	12.7	7.5	-0.8	98497.5	64
1030	11.2	52.8	2906	4.0	0.2	5.4	13.6	11.4	8.0	-0.8	98507.7	64
1031	11.5	53.1	2892	4.0	0.3	4.6	13.5	11.8	8.0	-0.8	98510.7	64
1032	12.0	53.0	2942	4.0	0.3	5.4	13.7	12.3	7.6	-0.8	98510.3	64
1033	12.4	53.4	2925	4.0	0.3	5.3	13.7	12.7	8.9	-0.8	98510.3	64
1034	12.5	52.5	2962	4.0	0.3	6.2	13.8	12.8	8.9	-0.8	98511.5	64
1035	11.9	52.7	2900	4.0	0.3	5.7	13.5	12.2	10.0	-0.8	98510.9	64
1036	11.2	53.4	2882	4.0	0.3	4.8	13.5	11.4	9.2	-0.8	98510.4	64
1037	11.5	53.8	2904	4.0	0.3	4.8	13.6	11.7	9.7	-0.8	98510.0	63
1038			2868	4.0	0.3	3.5	13.4	10.3	9.0	-0.8	98510.1	63
1039	11.6	53.8	2950	4.0	0.3	4.4	13.8	11.9	9.8	-0.8	98510.1	63
1040	11.0	52.5	2939	4.0	0.3	4.8	13.7	11.3	9.2	-0.8	98509.9	63
1041	10.5	52.9	2850	4.0	0.3	2.7	13.3	10.7	8.8	-0.8	98509.9	63
1042	11.4	53.1	2924	4.0	0.3	2.9	13.7	11.6	8.9	-0.8	98510.0	63
1043	11.0	53.1	2979	4.0	0.3	4.5	13.9	11.3	8.2	-0.8	98509.7	62
1044	11.9	52.8	2901	4.0	0.3	3.5	13.5	12.1	8.0	-0.8	98509.7	62
1045			2900	4.0	0.3	2.8	13.5	10.1	8.4	-0.8	98509.5	62
1046			2934	4.0	0.3	3.5	13.7	10.4	9.0	-0.8	98509.6	62
1047	11.0	53.1	2918	4.0	0.3	3.1	13.6	11.2	8.6	-0.8	98509.5	62
1048	11.1	53.0	2911	4.0	0.3	2.9	13.6	11.4	8.3	-0.8	98509.8	63
1049	11.2	53.2	2879	4.0	0.3	1.6	13.4	11.5	8.4	-0.8	98510.7	64
1050	10.3	53.2	2879	4.0	0.3	1.0	13.5	10.5	8.2	-0.8	98510.4	64
1051	10.5	53.8	2949	4.0	0.3	1.3	13.7	10.7	7.7	-0.8	98510.3	64
1052	11.2	53.3	2957	4.0	0.3	2.2	13.8	11.4	8.9	-0.8	98510.5	64
1053	10.7	53.1	2931	4.0	0.3	2.0	13.6	10.9	8.8	-0.8	98510.4	63
1054			2878	4.0	0.3	1.0	13.5	10.0	7.9	-0.8	98510.2	63
1055			2745	4.0	0.3	0.2	13.5	10.3	7.6	-0.8	98510.4	63
1056	10.7	53.5	2707	4.0	0.3	-0.3	13.5	10.9	7.5	-0.8	98510.1	63

Table E.01 Measurement data - Turbine ON

Project: North Kent Wind 1 LP - Turbine T33 - IEC 61400-11 Measurement
Report ID: 17283.01.T33.RP2

Created on: 2019-01-30

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

Data Point #	Standardized Wind Speed	LAeq	Turbine Power Output (kW)	Reference Yaw Angle (°)	Yaw Angle (°)	Pitch Angle (°)	Rotor RPM	Nacelle Anemometer Wind Speed (m/s)	10m Anemometer Wind Speed (m/s)	Air Temperature (-C)	Pressure (kPa)	Relative Humidity (%)
1057	10.2	53.7	2638	4.0	0.3	-1.0	13.5	10.8	9.2	-0.8	98510.8	63
1058	9.9	53.8	2524	4.0	0.3	-1.4	13.5	9.4	9.5	-0.8	98510.2	63
1059	9.8	53.8	2493	4.0	0.3	-1.4	13.6	9.8	9.2	-0.8	98510.1	63
1060	9.7	53.8	2438	4.0	0.3	-1.5	13.6	10.4	9.0	-0.8	98510.2	63
1061	9.7	53.9	2453	4.0	0.3	-1.5	13.6	10.2	9.6	-0.8	98511.4	63
1062	9.9	53.6	2547	4.0	0.3	-0.8	13.6	9.6	9.5	-0.8	98511.1	63
1063			2683	4.0	0.2	-0.6	13.6	9.2	9.2	-0.8	98510.0	63
1064			2809	4.0	0.2	-0.8	13.6	10.2	8.6	-0.8	98509.8	63
1065			2761	4.0	0.2	-1.1	13.6	10.4	9.0	-0.8	98509.5	62
1066	10.3	53.8	2946	4.0	0.2	-0.1	13.7	10.5	8.5	-0.8	98509.8	62
1067	10.4	53.6	2947	4.0	0.2	0.3	13.8	10.6	8.4	-0.8	98509.5	62
1068			2959	4.0	0.2	1.1	13.8	10.1	8.5	-0.8	98509.3	62
1069	10.8	53.4	2875	4.0	0.2	0.0	13.5	11.0	9.0	-0.8	98509.8	62
1070	11.1	53.6	2882	4.0	0.2	-0.5	13.6	11.3	9.0	-0.8	98509.9	62
1071	10.9	53.6	2908	4.0	0.2	-0.8	13.6	11.1	8.9	-0.8	98509.6	62
1072			2833	4.0	0.2	-1.0	13.5	9.9	9.2	-0.8	98509.6	63
1073	11.0	52.7	2957	4.0	0.2	4.4	13.8	11.2	8.3	-1.0	98602.8	64
1074	11.3	52.8	2915	4.0	0.2	4.1	13.6	11.5	8.1	-1.0	98602.9	64
1075	11.2	52.9	2854	4.0	0.2	2.6	13.4	11.4	8.1	-1.0	98602.0	64
1076	10.6	53.4	2898	4.0	0.2	2.2	13.6	10.8	8.2	-1.0	98601.7	64
1077	11.1	53.1	2982	4.0	0.2	4.1	13.9	11.4	8.3	-1.0	98602.0	64
1078	12.1	53.4	2991	4.0	0.2	5.3	14.0	12.3	7.8	-1.0	98602.3	64
1079	11.2	52.8	2957	4.0	0.2	5.7	13.8	11.4	8.7	-1.0	98603.0	64
1080	11.7	52.6	2897	4.0	0.2	5.0	13.6	11.9	9.0	-1.0	98601.9	64
1081	11.4	52.9	2918	4.0	0.2	5.0	13.6	11.7	8.4	-1.0	98602.6	64
1082	12.5	52.9	2914	4.0	0.2	4.8	13.6	12.8	9.1	-0.9	98601.4	64
1083	11.8	53.5	2946	4.0	0.2	5.6	13.8	12.1	9.9	-0.9	98601.3	64
1084	11.3	53.1	2909	4.0	0.2	5.3	13.6	11.5	8.9	-0.9	98602.4	64
1085	11.2	52.5	2845	4.0	0.2	3.4	13.3	11.5	8.5	-0.9	98602.3	64
1086	10.6	53.0	2859	4.0	0.2	2.1	13.3	10.8	8.1	-0.9	98601.0	64
1087	12.1	53.1	2925	4.0	0.2	2.7	13.7	12.4	8.5	-0.9	98600.0	64
1088	11.2	53.0	2946	4.0	0.2	3.2	13.7	11.5	8.7	-0.9	98600.9	64
1089	11.1	53.0	2990	4.0	0.2	4.6	14.0	11.3	7.0	-0.9	98600.9	64
1090	11.7	52.6	2954	4.0	0.2	5.0	13.8	11.9	7.7	-0.9	98600.0	64
1091	10.9	52.9	2916	4.0	0.2	4.6	13.6	11.1	9.2	-0.9	98599.6	64
1092	12.0	53.0	2937	4.0	0.2	4.9	13.7	12.3	9.0	-0.9	98599.5	64
1093	12.5	52.5	2885	4.0	0.2	4.0	13.5	12.8	9.1	-0.9	98599.1	64
1094	11.4	52.6	2836	4.0	0.2	1.9	13.2	11.6	8.7	-0.9	98598.4	63
1095			2781	4.0	0.2	0.9	13.4	10.2	8.4	-0.9	98598.3	63
1096			2700	4.0	0.2	0.5	13.5	9.0	9.0	-0.9	98598.0	63
1097	10.3	53.0	2728	4.0	0.2	0.2	13.6	10.5	8.6	-0.9	98598.0	63
1098	10.0	53.5	2574	4.0	0.2	-0.8	13.5	9.7	7.9	-0.9	98598.1	63
1099	9.8	53.9	2469	4.0	0.2	-1.4	13.5	10.4	7.4	-0.9	98598.8	63
1100	9.6	53.8	2362	4.0	0.2	-1.6	13.6	9.9	6.7	-0.9	98607.4	63
1101	9.8	54.0	2477	4.0	0.2	-1.4	13.6	10.3	7.7	-0.9	98611.7	63
1102	9.8	54.1	2485	4.0	0.2	-1.4	13.6	9.5	8.0	-0.9	98611.9	63
1103	10.1	54.2	2622	4.0	0.2	-1.2	13.6	10.2	8.9	-0.9	98611.5	63
1104	9.8	53.8	2508	4.0	0.2	-1.4	13.5	11.2	7.8	-0.9	98611.3	63
1105	9.8	53.9	2478	4.0	0.2	-1.2	13.6	9.5	8.3	-0.9	98611.4	63
1106	9.8	53.7	2489	4.0	0.2	-1.3	13.6	8.8	8.7	-0.9	98611.2	63
1107	9.7	53.7	2412	4.0	0.2	-1.5	13.6	8.4	8.1	-0.9	98611.1	63
1108	9.7	53.6	2430	4.0	0.2	-1.4	13.6	9.8	8.0	-0.9	98611.2	63
1109	10.0	54.1	2580	4.0	0.2	-1.3	13.6	9.6	8.6	-0.9	98611.0	63
1110	9.9	53.7	2525	4.0	0.2	-1.4	13.5	9.9	7.4	-0.9	98610.9	63
1111	9.4	53.6	2261	4.0	0.2	-1.8	13.5	8.7	7.9	-0.9	98610.7	63
1112	9.6	53.6	2370	4.0	0.2	-1.6	13.7	9.1	8.7	-0.9	98611.0	63
1113	9.8	53.8	2477	4.0	0.2	-1.1	13.7	9.1	9.2	-0.9	98611.6	63
1114	9.7	53.7	2416	4.0	0.2	-1.6	13.6	10.0	8.8	-0.9	98612.6	63
1115	9.2	53.5	2164	4.0	0.2	-1.8	13.6	9.7	8.3	-0.9	98612.2	63
1116	9.2	53.7	2188	4.0	0.2	-1.8	13.6	8.5	8.3	-0.9	98611.6	63
1117	9.3	53.8	2222	4.0	0.2	-1.8	13.6	8.5	7.8	-0.9	98599.6	61
1118	8.9	53.4	1998	4.0	0.2	-2.0	13.6	9.0	8.2	-0.9	98597.1	61
1119	8.8	53.5	1971	4.0	0.2	-2.0	13.6	8.8	8.7	-0.9	98597.2	61
1120	9.0	53.7	2036	4.0	0.2	-2.0	13.7	9.2	8.6	-0.9	98596.8	61
1121	9.3	53.6	2240	4.0	0.2	-1.7	13.7	9.7	8.9	-0.9	98597.1	61
1122	9.7	53.7	2459	4.0	0.2	-1.2	13.7	9.5	8.3	-0.9	98599.7	61
1123	9.7	53.7	2444	4.0	0.2	-1.4	13.7	9.8	8.0	-0.9	98612.6	63
1124	10.0	53.6	2584	4.0	0.2	-0.7	13.6	10.5	7.7	-0.9	98612.0	63
1125	9.5	53.7	2344	4.0	0.2	-1.6	13.6	9.7	7.3	-0.9	98612.0	63
1126	9.6	53.7	2380	4.0	0.2	-1.3	13.6	9.1	8.2	-0.9	98611.1	63
1127	9.4	54.1	2282	4.0	0.2	-1.7	13.6	8.4	7.1	-0.9	98611.2	63
1128	9.6	54.0	2389	4.0	0.2	-0.6	13.6	8.5	7.0	-0.9	98610.9	63
1129	9.4	54.4	2271	4.0	0.2	-1.6	13.6	10.4	7.3	-0.9	98611.4	63
1130	9.4	54.4	2277	4.0	0.2	-1.7	13.6	9.6	7.1	-0.9	98612.2	64
1131	9.4	54.4	2260	4.0	0.2	-1.7	13.6	9.8	7.4	-0.9	98611.8	64
1132	9.2	54.5	2190	4.0	0.2	-1.6	13.6	10.2	7.5	-0.9	98612.3	64
1133	9.7	54.8	2431	4.0	0.2	-0.8	13.7	10.9	8.2	-0.9	98611.6	64
1134	9.8	54.4	2493	4.0	0.2	-1.1	13.6	10.3	9.2	-0.9	98612.0	64
1135	9.5	54.4	2328	4.0	0.2	-1.4	13.6	9.3	7.3	-0.9	98611.8	62
1136	10.0	54.2	2595	4.0	0.2	-0.4	13.7	10.9	8.2	-0.9	98612.3	62
1137	10.6	54.2	2660	4.0	0.2	-0.8	13.6	10.8	9.0	-0.9	98611.7	62
1138	11.2	54.3	2965	4.0	0.2	1.1	14.0	11.5	9.0	-0.9	98612.4	62
1139	11.2	54.0	3061	4.0	0.2	4.7	14.4	11.5	9.5	-0.9	98612.1	62
1140	11.7	53.6	2989	4.0	0.2	5.6	14.0	12.0	8.9	-0.9	98611.8	62
1141	10.9	53.0	2859	4.0	0.2	4.0	13.5	11.1	10.0	-1.0	98611.8	62
1142	11.6	53.8	2846	4.0	0.2	2.9	13.4	11.8	9.6	-1.0	98611.1	62
1143	11.0	53.6	2870	4.0	0.2	2.4	13.5	11.2	9.8	-1.0	98610.5	62
1144	11.2	53.6	2901	4.0	0.2	2.7	13.6	11.5	9.3	-1.0	98610.3	62

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

Data Point #	Standardized Wind Speed	LAeq	Turbine Power Output (kW)	Reference Yaw Angle (°)	Yaw Angle (°)	Pitch Angle (°)	Rotor RPM	Nacelle Anemometer Wind Speed (m/s)	10m Anemometer Wind Speed (m/s)	Air Temperature (-C)	Pressure (kPa)	Relative Humidity (%)
1145	10.5	53.6	2887	4.0	0.2	2.3	13.6	10.7	9.0	-1.0	98610.4	62
1146			2823	4.0	0.2	1.2	13.4	10.3	9.3	-1.0	98610.3	62
1147	10.8	53.6	2848	4.0	0.2	0.9	13.5	11.0	8.5	-1.0	98610.8	61
1148	10.7	54.2	2900	4.0	0.2	1.0	13.6	10.9	8.6	-1.0	98611.3	61
1149			2860	4.0	0.2	0.3	13.5	10.0	8.2	-1.0	98611.1	61
1150	11.4	54.3	2931	4.0	0.2	1.1	13.7	11.7	8.4	-1.0	98610.9	61
1151	11.0	54.0	2762	4.0	0.2	-0.1	13.5	11.3	7.9	-1.0	98611.8	61
1152	12.1	55.2	2878	4.0	0.2	0.7	13.9	12.3	8.3	-1.0	98612.6	61
1153	11.9	53.6	3029	4.0	0.2	6.8	14.2	12.1	7.9	-1.0	98610.9	62
1154	12.0	53.0	2956	4.0	0.2	7.3	13.9	12.2	9.0	-1.0	98609.8	62
1155	11.8	52.4	2900	4.0	0.2	6.8	13.6	12.1	8.8	-1.0	98609.7	62
1156	11.9	52.5	2866	4.0	0.2	5.9	13.5	12.1	10.0	-1.0	98609.8	62
1157	13.0	52.7	2893	4.0	0.2	5.7	13.6	13.3	10.3	-1.0	98609.8	62
1158	11.8	53.5	2943	4.0	0.2	6.7	13.8	12.0	10.2	-1.0	98610.9	62
1159	11.8	53.5	2882	4.0	0.2	5.8	13.5	12.0	10.0	-1.0	98611.3	62
1160	11.3	53.5	2879	4.0	0.2	5.4	13.5	11.6	9.6	-1.0	98611.0	62
1161	11.8	53.1	2894	4.0	0.2	5.1	13.6	12.1	9.3	-1.0	98611.3	62
1162	12.3	53.5	2934	4.0	0.2	5.7	13.7	12.5	10.0	-1.0	98611.1	62
1163	11.7	53.3	2884	4.0	0.2	4.8	13.5	11.9	9.1	-1.0	98610.4	62
1164	11.1	53.2	2876	4.0	0.2	4.1	13.5	11.3	9.0	-1.0	98610.3	62
1165	11.0	52.9	2896	4.0	0.2	3.9	13.5	11.3	9.4	-1.0	98611.0	62
1166	11.1	52.8	2921	4.0	0.2	4.0	13.7	11.3	9.6	-1.0	98610.1	62
1167	10.7	53.0	2891	4.0	0.2	3.3	13.5	10.9	8.9	-1.0	98610.4	62
1168	11.6	53.3	2891	4.0	0.2	2.7	13.5	11.8	9.3	-1.0	98610.4	62
1169			2891	4.0	0.2	2.1	13.5	10.3	8.3	-1.0	98610.0	62
1170	11.9	54.0	2877	4.0	0.2	1.2	13.4	12.1	9.1	-1.0	98609.3	62
1171	11.0	53.4	2843	4.0	0.2	0.7	13.5	11.3	8.5	-1.0	98608.6	62
1172	10.3	53.7	2767	4.0	0.2	0.0	13.5	10.5	8.6	-1.0	98608.5	62
1173			2792	4.0	0.2	-0.3	13.6	10.0	8.6	-1.0	98608.6	62
1174	10.3	53.6	2779	4.0	0.2	-0.9	13.5	10.6	7.8	-1.0	98608.8	62
1175	9.6	53.8	2405	4.0	0.2	-1.5	13.5	10.1	8.1	-1.0	98609.4	62
1176	9.2	54.2	2164	4.0	0.2	-1.7	13.6	9.2	7.9	-1.0	98608.7	63
1177			2663	4.0	0.2	0.2	13.7	8.4	9.4	-1.0	98609.3	63
1178	10.6	53.7	2743	4.0	0.2	-0.1	13.6	10.8	9.8	-1.0	98609.5	63
1179	10.4	54.2	2798	4.0	0.2	-0.3	13.6	10.6	8.6	-1.0	98609.8	63
1180	12.1	54.7	3096	4.0	0.2	3.9	14.5	12.3	8.5	-1.0	98609.3	63
1181	11.7	54.1	3103	4.0	0.2	6.5	14.5	12.0	8.1	-1.0	98609.2	63
1182	12.4	53.0	2966	4.0	0.2	6.4	13.8	12.7	7.9	-1.0	98608.0	62
1183	11.0	52.2	2868	4.0	0.2	4.8	13.4	11.3	7.5	-1.0	98607.7	62
1184	10.7	52.1	2877	4.0	0.2	4.0	13.4	11.0	6.8	-1.0	98608.6	62
1185	11.1	52.9	2875	4.0	0.2	3.1	13.4	11.4	7.6	-1.0	98617.9	62
1186	8.9	53.8	2017	4.0	4.9	-1.3	13.7	9.6	6.6	-1.9	95879.6	67
1187	9.0	54.7	2073	4.0	4.9	-1.2	13.8	9.6	5.9	-1.9	96030.9	68
1188	9.7	54.6	2459	4.0	4.9	-0.3	13.9	10.1	8.1	-1.9	96212.0	68
1189			2750	4.0	4.9	0.2	13.8	10.0	8.8	-1.9	96452.0	68
1190	10.0	54.0	2593	4.0	4.9	-0.7	13.7	9.5	8.3	-1.9	96134.5	68
1191	9.9	54.2	2563	4.0	4.9	-0.7	13.7	10.2	7.6	-1.9	95783.3	68
1192	9.9	54.1	2518	4.0	4.9	-0.8	13.8	9.6	7.0	-1.9	96083.9	68
1193	9.9	54.3	2548	4.0	4.9	-0.8	13.8	10.0	7.4	-1.9	95889.6	68
1194	10.0	54.4	2578	4.0	3.8	-0.7	13.8	9.5	8.3	-1.9	95870.0	68
1195	9.8	54.0	2498	4.0	2.0	-0.8	13.7	9.6	9.2	-1.9	95775.7	68
1196	9.3	54.2	2208	4.0	2.0	-1.1	13.7	9.5	9.1	-1.9	98267.9	68
1197	9.3	54.7	2233	4.0	2.0	-0.6	13.8	9.3	8.6	-1.9	98227.2	68
1198	10.7	53.8	2788	4.0	2.0	1.2	13.8	10.9	8.6	-1.9	98465.3	68
1199			2939	4.0	2.0	1.2	13.8	10.4	9.3	-1.9	98146.0	67
1200			2906	4.0	1.8	1.0	13.7	10.0	8.0	-1.9	98119.4	67
1201			2945	4.0	331.4	0.7	13.8	11.4	7.9	-1.9	97028.0	67
1202	10.3	54.0	2755	4.0	359.6	-0.2	13.6	10.5	8.3	-1.9	96608.9	67
1203	10.1	54.1	2628	4.0	359.6	-0.6	13.7	10.2	8.6	-1.9	97316.2	67
1204	10.1	54.2	2618	4.0	359.5	-0.6	13.7	10.4	7.5	-1.9	98008.5	67
1205			2750	4.0	359.6	-0.5	13.7	9.9	8.6	-1.9	99089.4	67
1206			2776	4.0	359.6	-0.5	13.7	9.8	8.6	-1.9	99089.2	67
1207	10.8	54.1	2826	4.0	359.5	-0.4	13.7	11.0	8.9	-1.9	99089.1	67
1208	9.8	54.4	2475	4.0	359.5	-0.9	13.6	10.4	9.2	-1.9	99088.5	67
1209	9.3	53.9	2234	4.0	359.6	-1.2	13.7	9.1	8.5	-1.9	99085.7	67
1210	9.4	54.2	2277	4.0	359.5	-1.1	13.8	8.5	8.3	-1.9	99053.6	67
1211	9.8	54.5	2464	4.0	359.5	-0.9	13.8	9.9	7.2	-1.9	96049.0	67
1212	9.2	54.2	2192	4.0	359.5	-1.2	13.7	10.1	7.2	-1.9	96092.2	67
1213			2088	4.0	297.6	-1.3	13.7	9.2	7.0	-1.9	97052.7	67
1214	9.2	54.0	2161	4.0	2.0	-1.2	13.8	9.3	7.7	-1.9	96962.9	67
1215	9.7	54.1	2418	4.0	2.0	-0.2	13.9	8.7	8.9	-1.9	97571.6	67
1216	10.0	54.0	2598	4.0	2.0	0.1	13.8	10.4	8.9	-1.9	94806.0	67
1217	9.9	54.0	2549	4.0	2.0	-0.6	13.7	10.5	8.0	-1.9	94385.2	67
1218	10.3	54.3	2661	4.0	2.1	-0.6	13.7	10.5	9.2	-1.9	95131.9	67
1219	9.8	54.4	2491	4.0	2.1	-0.9	13.7	8.5	8.3	-1.9	95369.9	67
1220	9.9	54.5	2565	4.0	2.1	-0.4	13.8	9.7	7.8	-1.9	95211.8	67
1221	10.2	54.4	2652	4.0	2.1	-0.6	13.7	10.3	8.4	-1.9	94955.7	67
1222	9.8	54.4	2495	4.0	2.1	-0.9	13.7	9.4	8.5	-1.9	97342.7	67
1223	9.7	54.2	2409	4.0	2.0	-1.0	13.7	9.3	8.7	-1.9	98567.9	66
1224	9.5	54.4	2321	4.0	2.0	-1.1	13.8	10.0	9.1	-1.9	98945.9	66
1225	9.6	54.3	2404	4.0	3.7	-0.9	13.8	10.8	9.0	-1.9	97974.2	66
1226	9.2	54.3	2178	4.0	4.5	-1.1	13.8	8.8	8.8	-1.9	99102.7	66
1227	9.3	54.6	2234	4.0	4.5	-1.1	13.8	9.4	8.6	-1.9	99102.3	66
1228	8.9	54.9	2010	4.0	4.5	-1.3	13.7	8.5	8.4	-1.9	99102.0	66
1229	8.4	54.2	1742	4.0	4.5	-1.6	13.6	8.3	8.5	-1.9	99101.4	66
1230	8.3	54.2	1635	4.0	4.5	-1.7	13.3	8.7	8.1	-1.9	99101.1	66
1231	8.2	53.6	1612	4.0	4.5	-1.7	13.3	9.0	8.3	-1.9	99101.1	66
1232	8.6	54.6	1819	4.0	4.5	-1.5	13.7	9.1	8.4	-1.9	99100.9	66

Table E.01 Measurement data - Turbine ON

Project: North Kent Wind 1 LP - Turbine T33 - IEC 61400-11 Measurement
Report ID: 17283.01.T33.RP2

Created on: 2019-01-30

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

Data Point #	Standardized Wind Speed	LAeq	Turbine Power Output (kW)	Reference Yaw Angle (°)	Yaw Angle (°)	Pitch Angle (°)	Rotor RPM	Nacelle Anemometer Wind Speed (m/s)	10m Anemometer Wind Speed (m/s)	Air Temperature (°C)	Pressure (kPa)	Relative Humidity (%)
1233	8.8	55.0	1974	4.0	4.5	-1.4	13.8	9.2	8.4	-1.9	99100.0	66
1234	9.0	54.4	2036	4.0	4.4	-1.3	13.8	9.0	7.7	-1.9	99098.3	66
1235	9.0	54.4	2058	4.0	4.4	-1.3	13.8	9.4	7.7	-1.9	99095.6	66

Table E.02 Measurement data - Background

Project: North Kent Wind 1 LP - Turbine T33 - IEC 61400-11 Measurement

Report ID: 17283.01.T33.RP2

Created on: 2019-01-30

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

Data Point #	Standardized Wind Speed	LAeq	Rotor RPM	10m Anemometer Wind Speed (m/s)	Air Temperature (-C)	Pressure (kPa)	Relative Humidity (%)
1			0.6	10.6	0	97991.4	85
2			0.6	10.6	0	97991.3	85
3			0.6	9.5	0	97991.1	85
4			0.6	10.1	0	97991.2	85
5			0.7	10.6	0	97991.2	85
6			0.6	11.0	0	97991.6	85
7			0.6	10.7	0	97991.4	85
8			0.8	9.2	0	97991.9	85
9			0.7	9.8	0	97991.4	85
10			0.7	10.1	0	97995.2	85
11			0.7	10.1	0	98005.8	85
12			0.8	11.4	0	98005.7	85
13			0.7	11.4	0	98005.8	85
14			0.7	11.5	0	98005.6	85
15			0.6	11.0	0	98005.7	85
16			0.7	10.5	0	98005.8	85
17			0.8	9.9	0	98006.1	84
18			0.7	9.7	0	98006.0	84
19			0.7	9.3	0	98006.0	84
20			0.9	11.2	0	98006.2	84
21			0.7	10.4	0	98006.0	84
22			0.8	9.9	0	98006.2	84
23			0.7	11.3	0	98006.4	84
24			0.6	12.6	0	98006.4	84
25			0.8	11.3	0	98006.1	84
26			0.7	10.8	0	98006.2	84
27			0.5	10.8	0	98006.2	84
28			0.7	11.1	0	98006.4	84
29			0.7	11.3	0	98006.2	84
30			0.7	10.5	0	98006.3	84
31			0.7	10.6	0	98006.1	84
32			0.6	11.1	0	98005.9	84
33			0.6	10.7	0	98006.2	84
34			0.9	10.9	0	98006.2	84
35			0.8	10.7	0	98006.2	84
36			0.7	10.4	0	98006.2	84
37			0.7	10.1	0	98006.6	84
38			0.7	10.3	0	98006.7	84
39			0.7	10.3	0	98006.4	84
40			0.8	11.3	0	98008.5	84
41			0.7	11.4	0	98020.4	84
42			0.7	11.8	0	98020.1	84
43			0.7	10.9	0	98020.4	84
44			0.7	11.3	0	98020.8	84
45			0.8	11.4	0	98020.8	84
46			0.7	12.2	0	98021.0	84
47			0.7	11.1	0	98020.7	84
48			0.8	10.8	0	98021.1	84
49			0.5	10.9	0	98020.8	84
50			0.7	9.6	0	98020.7	84
51			0.8	9.4	0	98020.5	84
52			0.6	9.9	0	98020.5	84
53			0.7	9.3	0	98020.9	84
54			0.8	8.6	0	98020.8	84
55			0.7	9.7	0	98020.7	84
56			0.7	12.3	0	98021.0	84
57			0.7	11.4	0	98021.0	84
58			0.6	12.0	0	98021.7	84
59			0.8	12.6	0	98021.1	84
60			0.7	12.6	0	98020.7	84
61			0.7	12.6	0	98020.4	84
62			0.7	12.5	0	98020.6	84
63			0.9	12.3	0	98020.6	84
64			0.9	13.0	0	98020.8	84
65			0.8	13.6	0	98020.6	83
66			0.8	12.5	0	98020.9	83
67			0.8	11.0	0	98020.7	83
68			0.6	11.6	0	98020.7	83
69			0.7	11.5	0	98020.5	83
70			0.7	12.0	0	98020.6	83
71			0.7	12.3	0	98020.8	83
72			0.6	12.8	0	98020.5	83
73			0.5	12.6	0	98020.5	83
74			0.6	13.7	0	98020.5	83
75			0.7	13.0	0	98021.0	83
76			1.0	12.5	0	98020.8	83
77			0.9	12.3	0	98020.9	82
78			0.9	12.2	0	98021.3	82
79			0.8	13.3	0	98021.2	82
80			0.8	12.6	0	98021.1	82
81			0.6	11.6	0	98021.0	82
82			0.5	10.9	0	98020.9	82
83			0.6	9.5	0	98021.0	82

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

Data Point #	Standardized Wind Speed	LAeq	Rotor RPM	10m Anemometer Wind Speed (m/s)	Air Temperature (-C)	Pressure (kPa)	Relative Humidity (%)
84			0.7	10.1	0	98020.9	82
85			0.7	9.4	0	98020.9	82
86			0.5	9.4	0	98020.8	82
87			0.7	9.4	0	98020.8	82
88			0.6	11.8	0	98020.7	82
89			0.6	10.8	0	98021.0	83
90			0.7	11.3	0	98021.0	83
91			0.7	11.5	0	98020.9	83
92			0.7	10.6	0	98020.9	83
93			0.8	10.1	0	98021.0	83
94			0.7	11.3	0	98021.0	83
95			0.8	11.1	0	98021.0	83
96			0.8	10.8	0	98021.0	83
97			0.7	9.8	0	98021.1	83
98			0.8	9.4	0	98021.2	83
99			0.7	9.7	0	98021.8	83
100			0.7	11.0	0	98021.4	83
101			0.8	11.0	0	98021.2	83
102			0.6	11.9	0	98021.5	83
103			0.7	10.4	0	98021.4	83
104			0.8	11.9	0	98021.3	83
105			0.8	11.8	0	98021.6	83
106			0.8	10.9	0	98021.7	83
107			0.8	11.3	0	98021.5	83
108			0.6	10.6	0	98021.5	83
109			0.7	11.2	0	98021.7	83
110			0.7	12.6	0	98021.8	83
111			0.6	11.4	0	98022.3	83
112			0.7	11.5	0	98024.2	83
113			0.7	13.3	0	98035.0	83
114			0.7	13.7	0	98035.0	83
115			0.7	12.6	0	98035.2	83
116	10.9	39.6	0.5	9.3	-1	94583.3	62
117	8.8	39.7	0.5	7.5	-1	94707.8	62
118	9.8	40.9	0.5	8.3	-1	94705.3	62
119	11.6	43.0	0.5	9.8	-1	97272.7	62
120	11.9	41.0	0.7	10.0	-1	98345.4	62
121	10.9	42.9	0.5	9.3	-1	98583.2	62
122	11.2	43.9	0.6	9.5	-1	98341.3	62
123			0.7	9.1	-1	97993.4	62
124			0.5	8.2	-1	98236.7	62
125	10.1	46.2	0.5	8.6	-1	97571.0	62
126			0.5	8.7	-1	97914.9	63
127	10.3	44.6	0.5	8.7	-1	97935.0	63
128	10.8	46.0	0.6	9.1	-1	98094.8	63
129	10.5	42.3	0.5	8.9	-1	98556.5	63
130	10.8	46.3	0.5	9.2	-1	97943.4	63
131	9.6	43.0	0.5	8.1	-1	97119.4	63
132	9.1	43.7	0.6	7.7	-1	97540.5	62
133	10.2	45.3	0.5	8.6	-1	97583.0	62
134	11.5	45.1	0.4	9.8	-1	98552.2	62
135	10.2	44.7	0.5	8.7	-1	98635.3	62
136	10.3	45.0	0.5	8.7	-1	98635.5	62
137	10.2	43.3	0.3	8.7	-1	98626.6	62
138	9.0	42.3	0.3	7.6	-1	97585.0	61
139	10.6	47.2	0.5	9.0	-1	96600.8	61
140	10.5	45.0	0.5	8.9	-1	98302.7	61
141	12.1	42.7	0.4	10.2	-1	98612.9	61
142	11.1	46.1	0.4	9.4	-1	98112.0	61
143	10.1	45.3	0.4	8.6	-1	98608.3	61
144	11.6	40.6	0.4	9.8	-1	98016.8	61
145	11.0	41.7	0.4	9.3	-1	97586.3	61
146	10.7	40.8	0.4	9.1	-1	97757.7	61
147	11.5	42.0	0.4	9.7	-1	98332.5	61
148	10.6	39.5	0.4	9.0	-1	98618.6	61
149	10.4	41.1	0.4	8.8	-1	98096.9	61
150	9.5	41.2	0.4	8.1	-1	98488.4	61
151	9.5	42.2	0.5	8.1	-1	98645.2	61
152	10.0	44.8	0.4	8.5	-1	98645.0	61
153	10.4	43.9	0.4	8.8	-1	98644.9	61
154	9.1	43.9	0.3	7.7	-1	98644.7	61
155	9.1	45.9	0.2	7.7	-1	98644.9	61
156	8.1	45.3	0.2	6.9	-1	98644.5	63
157	8.5	42.6	0.3	7.2	-1	98644.1	64
158	8.8	39.6	0.4	7.4	-1	98643.7	64
159	8.9	39.3	0.5	7.5	-1	98642.9	64
160	8.3	39.2	0.7	7.0	-1	98641.6	64
161	8.2	39.8	0.5	6.9	-1	98639.2	64
162	9.4	41.4	0.5	7.9	-1	98635.8	64
163	10.5	44.4	0.4	8.9	-1	98630.6	64
164	11.2	44.2	0.3	9.5	-1	98616.6	64
165	10.0	42.8	0.4	8.5	-1	98527.1	64
166	8.9	41.3	0.5	7.6	-1	97061.2	64

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

Data Point #	Standardized Wind Speed	LAeq	Rotor RPM	10m Anemometer Wind Speed (m/s)	Air Temperature (-C)	Pressure (kPa)	Relative Humidity (%)
167	10.1	40.9	0.4	8.5	-1	98002.0	64
168	10.9	40.7	0.5	9.2	-1	97740.2	63
169	9.4	40.8	0.4	8.0	-1	96949.4	62
170	11.0	41.0	0.4	9.4	-1	96728.4	62
171	12.0	44.4	0.4	10.2	-1	97177.6	62
172	10.4	43.2	0.4	8.8	-1	97446.4	62
173	8.8	42.3	0.5	7.5	-1	97834.2	62
174	8.8	41.4	0.3	7.4	-1	98275.0	63
175	10.1	40.2	0.4	8.6	-1	98403.6	63
176	9.0	39.8	0.5	7.6	-1	98093.2	63
177	8.5	39.4	0.5	7.2	-1	97567.1	63
178	10.5	42.3	0.6	8.9	-1	97393.7	63
179	10.2	42.3	0.5	8.6	-1	97672.1	63
180	9.8	42.2	0.5	8.3	-1	98243.5	62
181	8.2	45.0	0.4	7.0	-1	98623.8	62
182	9.6	44.6	0.4	8.1	-1	98623.2	62
183	10.8	44.2	0.5	9.2	-1	98622.3	62
184	11.4	42.7	0.4	9.6	-1	98621.4	62
185	10.6	42.8	0.4	9.0	-1	98620.6	62
186	9.7	40.7	0.5	8.2	-1	98621.5	61
187	9.3	40.9	0.5	7.9	-1	98614.4	61
188	10.2	39.9	0.4	8.6	-1	98608.1	61
189	10.2	39.7	0.4	8.6	-1	98593.0	61
190	9.7	39.3	0.4	8.2	-1	98403.8	61
191	9.2	39.8	0.4	7.8	-1	98616.0	61
192	8.3	41.7	0.4	7.1	-1	98624.0	62
193	9.1	47.1	0.4	7.7	-1	98611.1	62
194	9.9	46.8	0.4	8.4	-1	98570.7	62
195	11.4	42.1	0.6	9.7	-1	98621.5	62
196	11.4	44.1	0.5	9.6	-1	98616.6	62
197	10.2	43.8	0.3	8.6	-1	98607.1	62
198	9.7	41.3	0.4	8.2	-1	98300.7	61
199	11.7	41.5	0.3	9.9	-1	97537.0	61
200	11.0	40.1	0.5	9.4	-1	97547.5	61
201	11.1	39.1	0.5	9.4	-1	97390.5	61
202	10.1	42.1	0.4	8.5	-1	97223.8	61
203	9.7	40.0	0.4	8.3	-1	97439.7	61
204	10.8	43.5	0.4	9.1	-1	98634.4	62
205	10.2	44.7	0.6	8.7	-1	98632.6	62
206	10.6	42.8	0.5	9.0	-1	98632.9	62
207	10.1	40.3	0.5	8.6	-1	98632.8	62
208	8.4	39.5	0.5	7.1	-1	98633.2	62
209	8.6	39.3	0.5	7.3	-1	98633.0	62
210	8.8	39.5	0.3	7.4	-1	98633.1	63
211	10.2	38.4	0.3	8.6	-1	98633.2	63
212	10.6	39.4	0.4	9.0	-1	98633.5	63
213	9.2	41.3	0.4	7.8	-1	98632.8	63
214	9.9	40.3	0.5	8.4	-1	98632.9	63
215	9.9	41.8	0.5	8.4	-1	98632.8	63
216	9.9	40.3	0.5	8.3	-1	98631.5	62
217	9.8	42.1	0.5	8.3	-1	98631.1	62
218	8.7	45.2	0.5	7.4	-1	98626.8	62
219	9.7	43.7	0.5	8.2	-1	98533.7	62
220	10.2	47.2	0.4	8.6	-1	93388.3	62
221	7.9	44.8	0.4	6.7	-1	93046.4	62
222	8.5	42.9	0.6	7.2	-1	95783.9	63
223	9.6	44.2	0.4	8.1	-1	97485.7	63
224	10.7	43.9	0.5	9.1	-1	97483.4	63
225	11.0	43.9	0.5	9.3	-1	97244.3	63
226	9.9	42.4	0.5	8.4	-1	96821.7	63
227	10.9	42.4	0.5	9.2	-1	98591.3	63
228	10.8	44.2	0.4	9.1	-1	98632.8	63
229	9.4	42.6	0.4	8.0	-1	98632.3	63
230	10.6	44.1	0.4	8.9	-1	98632.2	63
231	10.8	41.5	0.5	9.1	-1	98631.9	63
232	9.3	39.7	0.6	7.9	-1	98633.2	63
233	8.6	43.1	0.5	7.3	-1	98632.9	63
234	8.1	40.2	0.5	6.9	-1	98632.5	64
235	8.6	41.3	0.3	7.3	-1	98632.0	64
236	9.1	39.8	0.4	7.7	-1	98630.6	64
237	8.8	40.9	0.4	7.5	-1	98618.2	64
238	8.8	40.2	0.4	7.5	-1	98589.2	64
239	10.2	39.8	0.4	8.6	-1	98605.4	64
240	10.6	38.9	0.4	8.9	-1	98428.0	64
241	11.9	39.4	0.4	10.1	-1	98628.8	64
242	11.5	40.9	0.4	9.7	-1	98621.4	64
243	11.8	39.3	0.4	10.0	-1	97599.2	64
244	11.3	39.9	0.3	9.5	-1	96927.3	64
245	11.7	40.2	0.4	9.9	-1	95779.9	64
246	10.7	42.6	0.3	9.0	-1	93846.9	63
247	9.1	41.6	0.4	7.7	-1	94163.0	63
248	9.4	41.1	0.4	7.9	-1	95801.8	63
249	9.2	40.6	0.4	7.8	-1	96572.2	63

Table E.02 Measurement data - Background

Project: North Kent Wind 1 LP - Turbine T33 - IEC 61400-11 Measurement

Report ID: 17283.01.T33.RP2

Created on: 2019-01-30

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

Data Point #	Standardized Wind Speed	LAeq	Rotor RPM	10m Anemometer Wind Speed (m/s)	Air Temperature (-C)	Pressure (kPa)	Relative Humidity (%)
250	10.3	39.3	0.4	8.7	-1	96122.9	63
251	9.8	44.6	0.5	8.3	-1	97010.4	63
252	9.5	42.8	0.6	8.1	-1	97476.5	63
253	9.5	41.8	0.5	8.1	-1	98372.6	63
254	9.2	42.1	0.5	7.8	-1	96772.2	63
255	8.1	40.5	0.5	6.8	-1	95909.1	63
256	8.7	44.9	0.5	7.4	-1	96557.5	63
257	10.7	44.3	0.5	9.0	-1	96223.2	63
258	10.2	44.2	0.7	8.6	-1	96440.9	63
259	9.2	42.2	0.7	7.8	-1	97820.3	63
260	9.7	42.9	0.7	8.2	-1	97470.9	63
261	10.6	44.9	0.6	9.0	-1	97214.9	63
262	11.0	43.4	0.4	9.3	-1	97481.7	63
263			0.5	8.6	-1	97647.5	63
264	10.3	46.9	0.4	8.7	-1	97969.3	63
265	10.7	41.2	0.5	9.1	-1	97419.5	63
266	11.5	45.2	0.5	9.7	-1	97482.0	63
267	11.8	45.9	0.4	10.0	-1	98569.4	63
268	10.5	43.9	0.3	8.9	-1	98191.6	63
269	10.9	46.5	0.4	9.2	-1	98540.6	63
270	10.2	45.1	0.4	8.7	-1	98542.7	62
271			0.5	9.0	-1	98274.1	62
272	10.9	43.7	0.5	9.3	-1	96738.0	62
273	10.6	44.9	0.5	9.0	-1	96532.7	62
274			0.6	9.2	-1	96338.0	62
275	10.1	45.2	0.5	8.5	-1	97617.6	62
276	10.7	46.8	0.4	9.1	-1	97649.2	62
277	11.2	46.1	0.5	9.5	-1	97779.9	62
278	10.5	47.0	0.6	8.9	-1	98249.4	62
279			0.5	8.3	-1	98012.1	62
280			0.4	8.5	-1	98228.7	62
281			0.4	9.6	-1	97496.9	62
282			0.4	8.7	-1	97428.4	63
283			0.4	8.4	-1	97472.2	64
284			0.4	7.6	-1	96702.5	64
285			0.4	9.0	-1	96590.7	64
286			0.5	10.2	-1	97587.3	64
287			0.5	10.5	-1	97819.5	64
288			0.5	9.8	-1	98522.6	62
289			0.5	9.3	-1	97596.3	62
290			0.5	8.4	-1	97660.0	62
291	10.3	47.5	0.5	8.7	-1	98573.5	62
292	9.5	47.4	0.5	8.0	-1	98240.3	62
293	9.4	47.0	0.4	8.0	-1	96762.6	62
294	9.2	46.7	0.5	7.8	-1	97587.5	63
295	9.1	45.2	0.6	7.7	-1	97727.2	63
296	9.7	45.0	0.5	8.2	-1	97192.8	63
297	10.1	44.6	0.4	8.5	-1	96975.8	63
298	10.9	43.9	0.4	9.2	-1	97472.6	63
299	12.6	44.1	0.3	10.7	-1	97908.2	63
300	12.0	46.9	0.4	10.2	-1	97985.2	62
301	11.2	46.6	0.4	9.4	-1	97965.9	62
302	11.6	45.4	0.4	9.8	-1	98019.2	62
303			0.5	9.3	-1	97295.1	62
304	11.1	46.8	0.5	9.4	-1	97136.4	62
305	11.0	47.2	0.5	9.3	-1	97260.4	62
306	10.2	43.1	0.5	8.7	-1	97611.5	61
307	10.2	43.0	0.5	8.6	-1	98194.6	61
308	10.3	44.6	0.5	8.7	-1	98597.0	61
309	10.5	42.4	0.5	8.9	-1	98606.7	61
310	10.1	42.3	0.4	8.5	-1	98607.0	61
311	10.6	44.9	0.4	9.0	-1	98598.5	61
312	10.3	43.2	0.3	8.7	-1	98574.1	62
313	11.2	42.7	0.4	9.5	-1	98538.0	62
314			0.3	6.5	-1	98522.4	63
315			0.3	7.7	-1	98522.0	63
316			0.3	9.3	-1	98521.9	63
317			0.3	8.9	-1	98523.5	63
318			0.3	9.2	-1	98512.5	62
319			0.3	9.1	-1	98509.6	62
320			0.3	8.9	-1	98510.3	62
321			0.3	8.8	-1	98512.0	62
322			0.3	9.5	-1	98511.8	62
323			0.3	10.6	-1	98509.9	62
324			0.3	10.2	-1	98509.8	61
325			0.3	9.5	-1	98509.8	61
326			0.3	8.2	-1	98510.1	61
327			0.3	8.0	-1	98510.1	61
328			0.3	8.0	-1	98509.8	61
329	9.9	47.5	0.3	8.4	-1	98510.1	61
330	9.4	46.1	0.3	8.0	-1	98509.9	62
331	8.9	46.3	0.3	7.6	-1	98509.8	62
332	9.3	45.9	0.3	7.9	-1	98509.8	62

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

Data Point #	Standardized Wind Speed	LAeq	Rotor RPM	10m Anemometer Wind Speed (m/s)	Air Temperature (-C)	Pressure (kPa)	Relative Humidity (%)
333	9.0	45.4	0.2	7.7	-1	98510.0	62
334	8.8	44.3	0.3	7.5	-1	98509.9	62
335	9.6	43.9	0.3	8.1	-1	98509.9	62
336	8.4	43.2	0.4	7.1	-1	98511.0	62
337	8.3	42.3	0.3	7.1	-1	98510.1	62
338	10.1	43.0	0.3	8.5	-1	98511.9	62
339	10.2	43.8	0.3	8.7	-1	98510.8	62
340	10.2	47.5	0.3	8.6	-1	98511.3	62
341			0.3	8.6	-1	98510.7	62
342			0.3	8.0	-1	98511.6	62
343			0.3	8.6	-1	98511.0	62
344	10.5	44.6	0.3	8.9	-1	98509.7	62
345	9.9	44.4	0.3	8.4	-1	98509.9	62
346	9.5	41.6	0.3	8.1	-1	98510.1	62
347	8.8	43.4	0.4	7.4	-1	98510.0	62
348	8.9	47.4	0.3	7.5	-1	98509.8	63
349	9.8	42.9	0.3	8.3	-1	98509.6	63
350	9.2	46.6	0.3	7.8	-1	98509.8	63
351	10.7	43.8	0.3	9.0	-1	98509.8	63
352	11.6	44.0	0.3	9.8	-1	98510.5	63
353	11.7	45.5	0.3	9.9	-1	98511.9	63
354	10.9	47.3	0.4	9.2	-1	98511.8	61
355	8.7	44.9	0.4	7.4	-1	98511.5	61
356			0.3	7.8	-1	98511.3	61
357	9.8	46.6	0.2	8.3	-1	98511.9	61
358	11.3	45.0	0.3	9.6	-1	98510.9	61
359	10.3	45.9	0.3	8.7	-1	98511.4	61
360	10.7	42.6	0.3	9.0	-1	98511.5	62
361	10.9	45.5	0.2	9.2	-1	98511.9	62
362	10.7	43.1	0.1	9.0	-1	98511.8	62
363	10.7	44.9	0.2	9.1	-1	98511.8	62
364	11.8	45.0	0.3	9.9	-1	98511.0	62
365	11.9	43.8	0.4	10.1	-1	98509.5	62
366	11.3	45.6	0.3	9.5	-1	98509.4	61
367	11.6	46.2	0.4	9.9	-1	98509.4	61
368			0.4	10.2	-1	98509.9	61
369	13.2	44.4	0.4	11.2	-1	98509.7	61
370			0.4	10.1	-1	98510.1	61
371	10.9	45.7	0.4	9.3	-1	98509.8	61
372	11.7	44.8	0.4	9.9	-1	98499.4	61
373	12.4	46.1	0.4	10.5	-1	98496.3	61
374	12.1	46.1	0.3	10.3	-1	98495.7	61
375	11.6	45.5	0.3	9.8	-1	98496.4	61
376	12.3	42.6	0.4	10.4	-1	98497.2	61
377	10.8	43.7	0.2	9.1	-1	98496.8	61
378	10.0	44.4	0.3	8.4	-1	98496.4	60
379	9.9	42.7	0.4	8.4	-1	98496.4	60
380	9.5	43.7	0.4	8.0	-1	98496.9	60
381	10.8	43.8	0.4	9.1	-1	98497.7	60
382	11.8	44.5	0.3	10.0	-1	98497.2	60
383	11.9	46.5	0.4	10.1	-1	98496.6	60
384	12.8	46.7	0.3	10.8	-1	98498.2	61
385	12.5	45.7	0.4	10.6	-1	98498.0	61
386	12.1	43.8	0.2	10.2	-1	98497.4	61
387	12.8	45.6	0.3	10.8	-1	98495.9	61
388	11.1	41.9	0.2	9.4	-1	98495.6	61
389	12.1	42.2	0.3	10.3	-1	98496.2	61
390	11.5	45.6	0.3	9.7	-1	98506.6	60
391	11.6	45.2	0.3	9.8	-1	98509.8	60
392	12.3	42.7	0.3	10.4	-1	98509.7	60
393	11.3	40.6	0.4	9.6	-1	98509.0	60
394	10.9	40.3	0.4	9.2	-1	98508.8	60
395	9.9	41.6	0.4	8.3	-1	98508.8	60
396	9.4	44.7	0.3	8.0	-1	98509.1	61
397	9.3	43.3	0.3	7.9	-1	98509.2	61
398	8.6	45.2	0.4	7.3	-1	98508.9	61
399	10.3	42.7	0.3	8.7	-1	98509.1	61
400	10.0	46.3	0.3	8.5	-1	98508.8	61
401	10.4	43.8	0.2	8.8	-1	98508.6	61
402	9.8	46.1	0.2	8.3	-1	98499.5	62
403	10.7	44.0	0.2	9.0	-1	98496.0	63
404	10.5	44.5	0.3	8.9	-1	98495.5	63
405	12.3	43.9	0.3	10.4	-1	98495.3	63
406	11.5	44.0	0.3	9.7	-1	98496.6	63
407	12.4	47.3	0.4	10.5	-1	98496.0	63
408			0.4	10.4	-1	98495.4	62
409			0.3	9.7	-1	98495.7	62
410	10.3	43.6	0.4	8.7	-1	98496.0	62
411			0.4	9.8	-1	98495.5	62
412	10.7	44.8	0.4	9.1	-1	98495.3	62
413	10.4	46.2	0.3	8.8	-1	98495.4	62
414	9.5	42.1	0.4	8.1	-1	98495.0	62
415	10.0	41.6	0.4	8.5	-1	98495.2	62

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

Data Point #	Standardized Wind Speed	LAeq	Rotor RPM	10m Anemometer Wind Speed (m/s)	Air Temperature (-C)	Pressure (kPa)	Relative Humidity (%)
416	9.3	41.0	0.4	7.9	-1	98495.0	62
417	11.0	44.2	0.3	9.3	-1	98495.2	62
418	10.7	45.1	0.3	9.1	-1	98495.0	62
419	13.3	42.1	0.3	11.3	-1	98495.0	62
420	12.4	41.5	0.3	10.5	-1	98495.3	61
421	10.7	43.5	0.3	9.1	-1	98495.5	60
422	10.0	42.3	0.3	8.4	-1	98495.2	60
423	11.2	41.5	0.2	9.5	-1	98495.5	60
424	11.0	41.4	0.4	9.3	-1	98495.4	60
425	11.8	44.9	0.3	10.0	-1	98495.1	60
426	11.3	43.3	0.3	9.6	-1	98495.1	60
427	11.7	42.9	0.2	9.9	-1	98495.6	60
428			0.3	9.6	-1	98496.2	60
429	10.7	45.7	0.3	9.0	-1	98495.7	60
430	10.6	42.0	0.3	9.0	-1	98495.3	60
431	9.4	40.6	0.3	8.0	-1	98496.0	60
432	9.0	41.2	0.2	7.6	-1	98496.1	61
433	9.8	41.2	0.2	8.3	-1	98496.0	62
434	9.3	41.2	0.2	7.9	-1	98496.0	62
435	9.6	41.1	0.2	8.1	-1	98496.5	62
436	9.9	41.0	0.2	8.4	-1	98496.6	62
437	11.1	43.9	0.2	9.4	-1	98496.0	62
438	11.2	44.9	0.2	9.5	-1	98495.8	61
439	11.9	44.7	0.2	10.1	-1	98495.8	61
440	11.3	44.2	0.3	9.6	-1	98496.8	61
441	9.9	44.0	0.4	8.4	-1	98495.8	61
442	10.2	44.3	0.4	8.7	-1	98495.1	61
443	10.8	44.1	0.4	9.1	-1	98495.9	61
444	11.5	42.4	0.3	9.8	-1	98497.1	61
445	10.5	43.1	0.3	8.9	-1	98496.7	61
446	10.1	43.7	0.3	8.5	-1	98496.4	61
447	10.2	42.1	0.3	8.7	-1	98496.5	61
448	11.6	41.5	0.3	9.8	-1	98496.8	61
449	11.2	44.0	0.4	9.5	-1	98496.6	61
450	10.2	44.3	0.3	8.6	-1	98496.9	61
451	9.6	42.4	0.3	8.2	-1	98496.2	61
452	10.4	41.2	0.4	8.8	-1	98496.7	61
453	10.3	41.3	0.3	8.7	-1	98497.1	61
454	11.7	42.0	0.3	9.9	-1	98496.9	61
455	10.3	40.1	0.4	8.7	-1	98497.1	61
456	11.4	45.0	0.3	9.6	-1	98496.1	62
457	10.7	44.4	0.2	9.1	-1	98495.7	62
458	12.3	41.1	0.3	10.4	-1	98496.1	62
459	10.2	45.6	0.3	8.6	-1	98495.8	62
460	9.7	43.2	0.3	8.2	-1	98495.9	62
461	9.9	45.8	0.4	8.3	-1	98495.6	62
462	9.6	45.2	0.3	8.1	-1	98495.6	62
463	10.7	43.9	0.3	9.1	-1	98495.6	62
464	12.0	44.8	0.4	10.1	-1	98495.3	62
465	11.7	45.1	0.3	9.9	-1	98495.8	62
466	11.2	46.6	0.4	9.5	-1	98495.9	62
467	11.6	43.9	0.3	9.8	-1	98496.0	62
468	10.6	42.6	0.2	9.0	-1	98497.0	61
469	10.8	42.2	0.2	9.1	-1	98496.3	61
470	11.1	43.5	0.3	9.4	-1	98496.7	61
471	10.4	42.2	0.3	8.8	-1	98496.8	61
472	10.9	44.4	0.4	9.2	-1	98495.5	61
473	10.9	46.6	0.2	9.2	-1	98495.0	61
474	9.4	44.8	0.3	8.0	-1	98495.2	62
475	8.4	45.5	0.2	7.1	-1	98496.1	62
476	8.7	44.4	0.4	7.3	-1	98496.0	62
477	9.0	41.5	0.7	7.6	-1	98496.0	62
478	10.4	42.8	0.4	8.8	-1	98524.7	63
479	10.0	43.2	0.4	8.4	-1	98524.9	63
480	10.3	43.2	0.2	8.7	-1	98524.6	63
481	9.2	42.6	0.0	7.8	-1	98524.1	64
482	8.3	42.4	0.0	7.1	-1	98523.9	64
483	9.2	41.2	0.2	7.8	-1	98524.8	64
484	9.7	40.6	0.2	8.2	-1	98524.8	64
485	9.0	39.5	0.2	7.6	-1	98523.8	64
486	8.7	40.3	0.2	7.3	-1	98523.6	63
487	9.7	39.4	0.1	8.2	-1	98525.1	63
488	10.2	42.1	0.2	8.6	-1	98525.5	63
489	9.6	40.1	0.2	8.1	-1	98525.6	63
490	8.9	41.0	0.3	7.5	-1	98525.6	63
491	7.9	41.4	0.3	6.7	-1	98525.0	63
492	8.5	39.7	0.3	7.2	-1	98525.2	63
493	8.4	41.1	0.2	7.1	-1	98524.4	64
494	8.7	42.9	0.2	7.4	-1	98524.1	64
495	9.7	41.8	0.2	8.2	-1	98524.0	64
496	9.8	44.6	0.1	8.3	-1	98524.2	64
497	10.2	44.7	0.0	8.6	-1	98524.2	64
498	10.5	45.0	0.0	8.9	-1	98524.0	63

Table E.02 Measurement data - Background

Project: North Kent Wind 1 LP - Turbine T33 - IEC 61400-11 Measurement

Report ID: 17283.01.T33.RP2

Created on: 2019-01-30

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

Data Point #	Standardized Wind Speed	LAeq	Rotor RPM	10m Anemometer Wind Speed (m/s)	Air Temperature (-C)	Pressure (kPa)	Relative Humidity (%)
499	10.2	42.7	0.0	8.7	-1	98524.2	63
500	8.8	41.4	0.0	7.5	-1	98524.3	63
501	8.8	41.2	0.1	7.4	-1	98524.7	63
502	9.9	41.1	0.1	8.4	-1	98524.9	63
503	10.7	41.8	0.1	9.0	-1	98526.0	63
504	10.0	41.6	0.1	8.5	-1	98524.7	63
505	9.1	40.0	0.3	7.7	-1	98523.8	63
506	9.1	39.8	0.2	7.7	-1	98525.0	63
507	10.1	39.0	0.2	8.5	-1	98524.6	63
508	10.0	40.8	0.3	8.5	-1	98524.4	63
509	9.9	40.6	0.2	8.4	-1	98524.5	63
510	8.8	41.0	0.2	7.5	-1	98524.6	63
511	9.7	42.2	0.1	8.2	-1	98525.0	64
512	10.1	42.4	0.2	8.5	-1	98525.4	64
513	9.7	39.0	0.3	8.2	-1	98525.0	64
514	9.8	40.6	0.2	8.3	-1	98525.4	64
515	9.7	42.5	0.2	8.2	-1	98525.1	64
516	10.1	39.4	0.3	8.5	-1	98524.8	63
517	10.5	39.9	0.4	8.8	-1	98524.9	63
518	10.5	42.6	0.4	8.9	-1	98524.5	63
519	10.1	40.5	0.3	8.6	-1	98524.7	63
520	11.3	39.6	0.3	9.5	-1	98525.3	63
521	9.9	41.0	0.3	8.4	-1	98525.8	63
522	9.2	42.3	0.3	7.8	-1	98525.2	63
523	8.6	42.5	0.3	7.3	-1	98525.3	64
524	8.8	41.2	0.3	7.4	-1	98524.7	64
525	9.0	41.4	0.4	7.6	-1	98524.8	64
526	8.9	43.5	0.4	7.6	-1	98524.9	64
527	7.8	43.8	0.3	6.6	-1	98524.8	64
528	7.7	44.3	0.3	6.5	-1	98525.1	65
529	8.4	43.7	0.5	7.1	-1	98525.0	65
530	9.1	42.4	0.4	7.7	-1	98524.9	65
531	9.7	42.5	0.4	8.2	-1	98525.0	65
532	8.8	43.4	0.4	7.4	-1	98525.5	65
533	8.2	44.0	0.4	6.9	-1	98525.0	65
534	8.4	42.3	0.4	7.1	-1	98525.3	65
535	10.0	40.9	0.4	8.5	-1	98525.3	65
536	11.1	40.0	0.4	9.4	-1	98525.7	65
537	10.8	38.8	0.3	9.1	-1	98524.8	65
538	11.7	39.4	0.3	9.9	-1	98524.7	65
539	9.2	39.1	0.3	7.8	-1	98524.9	65
540	8.7	40.7	0.4	7.4	-1	98523.5	64
541	8.4	40.5	0.4	7.1	-1	98523.4	64
542	8.2	42.2	0.3	6.9	-1	98523.2	64
543	9.3	41.2	0.4	7.8	-1	98523.5	64
544	10.0	40.1	0.4	8.5	-1	98524.3	64
545	9.5	40.5	0.3	8.0	-1	98524.0	64
546	10.9	40.6	0.3	9.2	-1	98524.0	65
547	9.8	45.0	0.2	8.3	-1	98524.0	65
548	9.4	42.5	0.3	8.0	-1	98523.8	65
549	10.1	41.2	0.2	8.6	-1	98523.0	65
550	9.6	41.8	0.2	8.2	-1	98523.5	65
551	9.2	41.0	0.2	7.8	-1	98523.5	65
552	10.4	41.4	0.1	8.8	-1	98523.4	64
553	9.2	40.4	0.1	7.8	-1	98523.3	64
554	10.0	39.4	0.1	8.5	-1	98523.2	64
555	10.0	39.9	0.2	8.5	-1	98523.2	64
556	8.9	41.0	0.3	7.5	-1	98523.1	64
557	10.2	42.0	0.3	8.7	-1	98523.8	64
558	9.9	40.9	0.4	8.4	-1	98524.7	64
559	8.9	43.1	0.3	7.5	-1	98524.6	64
560	7.9	41.4	0.3	6.7	-1	98524.8	64
561	8.4	45.7	0.3	7.1	-1	98524.9	64
562	9.3	42.5	0.2	7.9	-1	98524.4	64
563	10.5	44.2	0.3	8.9	-1	98526.0	64
564	10.7	41.2	0.3	9.0	-1	98524.1	65
565	10.1	40.4	0.2	8.6	-1	98524.1	65
566	9.5	41.0	0.2	8.1	-1	98524.5	65
567	9.3	42.3	0.3	7.9	-1	98524.5	65
568	8.5	41.7	0.3	7.2	-1	98523.8	65
569	10.2	42.7	0.4	8.6	-1	98524.2	65
570	11.3	41.6	0.3	9.5	-1	98525.7	66
571	12.5	40.1	0.3	10.5	-1	98524.4	66
572	10.7	41.6	0.4	9.1	-1	98523.4	66
573	11.9	41.7	0.3	10.1	-1	98523.9	66
574	10.5	39.2	0.3	8.9	-1	98523.4	66
575	10.5	43.1	0.3	8.9	-1	98523.6	66
576	10.2	41.8	0.4	8.7	-1	98523.9	65
577	8.9	42.8	0.3	7.5	-1	98523.7	65
578	10.0	46.0	0.3	8.5	-1	98523.8	65
579	9.8	45.0	0.3	8.3	-1	98525.1	65
580	9.7	41.2	0.4	8.3	-1	98524.8	65
581	9.2	41.7	0.4	7.8	-1	98529.7	65

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

Data Point #	Standardized Wind Speed	LAeq	Rotor RPM	10m Anemometer Wind Speed (m/s)	Air Temperature (-C)	Pressure (kPa)	Relative Humidity (%)
582	8.9	42.9	0.3	7.6	-1	98538.2	65
583	8.9	40.7	0.3	7.5	-1	98538.2	65
584	10.9	40.2	0.3	9.2	-1	98538.2	65
585	10.4	43.4	0.4	8.8	-1	98537.7	65
586	10.7	44.1	0.4	9.1	-1	98537.7	65
587	11.2	41.7	0.4	9.5	-1	98536.7	65
588	11.6	41.0	0.4	9.8	-1	98525.1	64
589	12.1	41.5	0.4	10.3	-1	98525.0	64
590	10.3	42.3	0.3	8.7	-1	98524.5	64
591	9.7	40.6	0.3	8.2	-1	98524.5	64
592	10.1	45.1	0.3	8.5	-1	98524.8	64
593	11.1	41.9	0.4	9.4	-1	98527.4	65
594	11.6	44.4	0.3	9.9	-1	98524.4	65
595	11.1	43.1	0.3	9.4	-1	98524.6	65
596	10.3	41.9	0.4	8.8	-1	98524.1	65
597	10.9	42.2	0.3	9.2	-1	98524.0	65
598	11.5	41.5	0.3	9.8	-1	98523.9	65
599	10.5	40.7	0.3	8.9	-1	98526.5	65
600	10.5	41.0	0.3	8.9	-1	98524.3	65
601	10.9	39.0	0.2	9.2	-1	98524.4	65
602	11.2	40.4	0.3	9.5	-1	98524.6	65
603	10.1	40.4	0.5	8.5	-1	98525.0	65
604	9.3	41.0	0.4	7.9	-1	98524.5	65
605	8.6	40.6	0.3	7.3	-1	98530.8	65
606	9.3	40.4	0.3	7.9	-1	98538.3	66
607	10.5	39.7	0.3	8.9	-1	98538.0	66
608	9.0	39.4	0.3	7.6	-1	98537.7	66
609	8.6	39.6	0.3	7.3	-1	98537.8	66
610	7.9	39.5	0.2	6.7	-1	98537.9	66
611	8.4	38.0	0.3	7.1	-1	98537.6	66
612	9.4	39.5	0.3	8.0	-1	98537.6	67
613	10.1	39.7	0.3	8.6	-1	98538.8	67
614	9.2	39.8	0.2	7.8	-1	98539.9	67
615	9.4	39.7	0.3	8.0	-1	98539.8	67
616	9.1	40.6	0.4	7.7	-1	98539.3	67
617	10.5	41.6	0.3	8.9	-1	98539.2	66
618	9.7	41.2	0.3	8.2	-1	98538.1	66
619	10.0	40.8	0.3	8.5	-1	98538.3	66
620	10.1	41.6	0.3	8.6	-1	98538.2	66
621	10.9	41.7	0.3	9.2	-1	98539.1	66
622	10.9	41.1	0.3	9.3	-1	98538.9	66
623	9.5	39.7	0.3	8.1	-1	98538.3	66
624	8.5	41.5	0.3	7.2	-1	98538.1	66
625	8.1	43.0	0.4	6.8	-1	98538.1	66
626	9.5	45.9	0.4	8.0	-1	98538.0	66
627	8.5	47.4	0.2	7.2	-1	98538.6	66
628	7.9	44.4	0.2	6.7	-1	98540.1	66
629	8.0	42.4	0.2	6.8	-1	98540.3	66
630	7.8	41.2	0.2	6.6	-1	98539.0	66
631	9.2	40.6	0.2	7.8	-1	98538.9	66
632	10.9	40.9	0.2	9.3	-1	98539.4	66
633	11.5	42.1	0.2	9.8	-1	98540.4	66
634	11.3	42.3	0.1	9.6	-1	98539.9	66
635	10.9	41.3	0.2	9.2	-1	98540.3	65
636	10.5	41.0	0.2	8.9	-1	98539.7	64
637	8.8	39.2	0.3	7.5	-1	98538.9	64
638	7.6	42.4	0.3	6.5	-1	98539.1	64
639	8.1	41.3	0.4	6.9	-1	98539.1	64
640	9.8	41.6	0.4	8.3	-1	98538.7	64
641	10.1	40.9	0.1	8.6	-1	98538.7	64
642	11.2	38.7	0.1	9.5	-1	98539.3	65
643	11.2	39.3	0.3	9.5	-1	98539.3	65
644	10.9	40.7	0.3	9.3	-1	98539.8	65
645	10.9	41.9	0.4	9.3	-1	98539.3	65
646	11.1	43.0	0.4	9.4	-1	98539.2	65
647	10.9	40.7	0.4	9.2	-1	98538.9	64
648	10.5	41.7	0.3	8.9	-1	98538.0	64
649	9.5	41.8	0.2	8.0	-1	98537.7	64
650	8.8	41.7	0.2	7.5	-1	98538.1	64
651	7.5	39.8	0.2	6.4	-1	98537.9	64
652	7.7	41.5	0.3	6.5	-1	98538.1	64
653	9.2	41.2	0.4	7.8	-1	98538.4	65
654	9.3	40.4	0.4	7.9	-1	98539.7	66
655	9.3	41.7	0.3	7.9	-1	98539.2	66
656	10.1	42.4	0.3	8.6	-1	98539.5	66
657	11.3	40.3	0.4	9.5	-1	98539.4	66
658	10.2	41.3	0.4	8.6	-1	98538.8	66
659	10.1	42.7	0.4	8.6	-1	98538.0	65
660	9.6	40.7	0.4	8.1	-1	98537.9	64
661	10.0	41.1	0.4	8.4	-1	98538.0	64
662	10.6	43.0	0.3	8.9	-1	98538.3	64
663	9.3	41.2	0.3	7.9	-1	98538.7	64
664	8.3	47.5	0.3	7.0	-1	98538.7	64

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

Data Point #	Standardized Wind Speed	LAeq	Rotor RPM	10m Anemometer Wind Speed (m/s)	Air Temperature (-C)	Pressure (kPa)	Relative Humidity (%)
665	9.3	43.4	0.3	7.8	-1	98543.6	64
666	9.5	42.2	0.3	8.0	-1	98552.5	65
667	9.2	39.1	0.2	7.8	-1	98552.5	65
668	8.1	40.9	0.1	6.8	-1	98552.6	65
669	7.8	39.4	0.2	6.6	-1	98552.6	65
670	7.8	41.2	0.2	6.6	-1	98552.5	65
671	7.5	42.8	0.3	6.3	-1	98552.9	65
672	7.3	42.6	0.2	6.2	-1	98552.6	66
673	8.3	41.4	0.3	7.0	-1	98552.6	66
674	9.4	42.0	0.3	7.9	-1	98552.7	66
675	7.3	42.4	0.3	6.1	-1	98552.7	66
676	8.3	42.5	0.4	7.0	-1	98552.3	66
677	9.4	41.6	0.4	7.9	-1	98552.9	66
678	9.1	40.2	0.4	7.7	-1	98552.7	65
679	9.6	40.5	0.4	8.1	-1	98552.7	65
680	9.9	40.3	0.4	8.4	-1	98552.4	65
681	8.8	42.6	0.4	7.5	-1	98552.5	65
682	9.5	47.7	0.3	8.0	-1	98552.8	65
683	10.5	46.3	0.5	8.9	-1	98552.5	65
684			0.5	8.7	-1	98552.7	64
685	10.4	43.4	0.4	8.8	-1	98552.4	64
686	10.9	42.5	0.4	9.3	-1	98552.4	64
687	10.1	44.1	0.4	8.6	-1	98552.0	64
688	9.7	41.5	0.4	8.2	-1	98553.1	64
689	9.0	41.2	0.5	7.6	-1	98552.5	64
690	9.0	41.6	0.5	7.6	-1	98552.6	64
691	9.3	40.8	0.4	7.9	-1	98552.7	64
692	9.8	40.0	0.3	8.3	-1	98552.7	64
693	8.5	39.9	0.3	7.2	-1	98552.8	64
694	8.3	39.4	0.4	7.0	-1	98552.9	64
695	8.6	40.5	0.3	7.3	-1	98552.0	64
696	9.9	40.2	0.3	8.4	-1	98552.9	65
697	9.2	39.3	0.3	7.8	-1	98554.0	65
698	9.8	38.9	0.4	8.3	-1	98553.3	65
699	9.0	39.4	0.4	7.6	-1	98552.8	65
700	9.6	39.2	0.4	8.1	-1	98552.8	65
701	8.5	37.8	0.4	7.2	-1	98557.5	65
702	9.9	38.4	0.4	8.4	-1	98565.6	65
703	9.5	39.4	0.3	8.0	-1	98565.3	65
704	9.8	38.0	0.3	8.3	-1	98565.1	65
705	10.3	39.3	0.3	8.7	-1	98565.8	65
706	10.2	38.6	0.4	8.6	-1	98565.2	65
707	9.6	40.3	0.4	8.1	-1	98564.2	64
708	9.9	40.9	0.3	8.4	-1	98564.0	64
709	9.8	40.6	0.4	8.3	-1	98564.1	64
710	9.2	39.4	0.3	7.8	-1	98564.0	64
711	10.4	39.1	0.4	8.8	-1	98564.2	64
712	10.0	39.0	0.4	8.4	-1	98564.5	64
713	9.0	39.5	0.4	7.6	-1	98564.1	64
714	10.5	40.0	0.4	8.9	-1	98564.2	65
715	12.6	39.3	0.4	10.7	-1	98564.3	65
716	11.7	40.1	0.3	9.9	-1	98564.4	65
717	11.2	44.9	0.3	9.5	-1	98564.3	65
718	10.8	44.0	0.4	9.1	-1	98564.1	65
719	11.0	39.6	0.3	9.3	-1	98559.8	64
720	10.6	42.2	0.4	9.0	-1	98551.7	63
721	10.0	42.2	0.4	8.5	-1	98552.3	63
722	10.3	41.9	0.4	8.7	-1	98552.0	63
723	10.1	40.1	0.4	8.6	-1	98552.4	63
724	10.3	40.4	0.4	8.8	-1	98552.2	63
725	9.3	39.0	0.3	7.8	-1	98556.7	64
726	11.3	39.2	0.3	9.6	-1	98565.7	65
727	11.2	40.3	0.3	9.5	-1	98565.7	65
728	10.8	39.9	0.3	9.1	-1	98566.4	65
729	10.6	40.3	0.3	8.9	-1	98567.1	65
730	10.3	41.3	0.3	8.7	-1	98566.0	65
731	10.4	40.7	0.3	8.8	-1	98565.7	64
732	10.5	39.1	0.4	8.9	-1	98565.9	64
733	9.8	41.2	0.3	8.3	-1	98566.5	64
734	10.6	39.9	0.4	9.0	-1	98566.8	64
735	9.5	43.1	0.3	8.0	-1	98566.5	64
736	8.7	45.2	0.3	7.4	-1	98566.7	64
737	10.1	42.8	0.3	8.5	-1	98567.2	64
738	11.7	44.7	0.4	9.9	-1	98566.7	65
739	12.4	43.2	0.4	10.5	-1	98566.9	65
740	11.5	44.0	0.3	9.8	-1	98566.6	65
741	11.1	43.5	0.3	9.4	-1	98566.9	65
742	10.7	40.2	0.3	9.0	-1	98567.2	65
743	9.4	39.1	0.3	8.0	-1	98568.0	64
744	10.5	41.3	0.3	8.9	-1	98566.7	64
745	9.2	42.2	0.3	7.8	-1	98567.3	64
746	8.4	40.6	0.3	7.1	-1	98567.1	64
747	9.6	38.5	0.3	8.1	-1	98566.6	64

Table E.02 Measurement data - Background

Project: North Kent Wind 1 LP - Turbine T33 - IEC 61400-11 Measurement

Report ID: 17283.01.T33.RP2

Created on: 2019-01-30

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

Data Point #	Standardized Wind Speed	LAeq	Rotor RPM	10m Anemometer Wind Speed (m/s)	Air Temperature (-C)	Pressure (kPa)	Relative Humidity (%)
748	9.8	39.2	0.3	8.3	-1	98566.2	64
749	9.9	39.7	0.3	8.4	-1	98565.9	64
750	9.3	41.1	0.4	7.9	-1	98566.0	64
751	10.5	39.2	0.3	8.9	-1	98565.9	64
752	11.5	42.8	0.2	9.8	-1	98567.0	64
753	11.1	44.2	0.2	9.4	-1	98567.6	64
754	9.4	45.6	0.3	8.0	-1	98566.9	64
755	10.9	42.3	0.4	9.2	-1	98566.9	64
756	10.7	43.3	0.3	9.1	-1	98566.7	64
757	10.6	42.0	0.3	9.0	-1	98566.6	64
758	10.2	40.7	0.3	8.6	-1	98566.1	64
759	11.3	41.7	0.3	9.5	-1	98566.6	64
760	9.8	41.2	0.3	8.3	-1	98566.3	64
761	9.6	41.1	0.3	8.2	-1	98577.2	65
762	8.8	39.9	0.3	7.4	-1	98579.0	65
763	9.9	40.4	0.3	8.4	-1	98579.3	65
764	9.8	38.8	0.4	8.3	-1	98579.5	65
765	9.0	41.7	0.3	7.6	-1	98579.0	65
766	9.2	39.9	0.4	7.8	-1	98579.4	65
767	10.4	39.3	0.4	8.8	-1	98579.4	65
768	9.8	41.7	0.4	8.3	-1	98579.2	65
769	9.1	41.8	0.4	7.7	-1	98579.1	65
770	8.3	40.7	0.4	7.0	-1	98579.1	65
771	7.5	41.1	0.3	6.4	-1	98579.1	65
772	7.6	40.2	0.4	6.5	-1	98578.9	65
773	8.6	40.7	0.3	7.3	-1	98579.2	66
774	8.8	40.1	0.3	7.5	-1	98579.1	66
775	8.8	39.4	0.3	7.5	-1	98579.5	66
776	11.5	41.0	0.4	9.7	-1	98579.4	66
777	10.7	42.0	0.4	9.1	-1	98579.1	66
778	11.0	42.9	0.3	9.3	-1	98579.1	66
779	10.7	45.0	0.3	9.1	-1	98578.9	64
780	10.1	43.0	0.3	8.6	-1	98579.8	64
781	10.7	42.4	0.4	9.0	-1	98578.3	64
782	10.3	42.2	0.3	8.8	-1	98578.6	64
783	10.0	41.0	0.3	8.4	-1	98579.0	64
784	10.3	40.8	0.3	8.7	-1	98579.0	64
785	10.1	42.6	0.3	8.6	-1	98579.3	64
786	11.0	41.5	0.3	9.3	-1	98579.9	64
787	10.7	41.2	0.3	9.1	-1	98579.9	64
788	10.4	41.6	0.3	8.8	-1	98580.1	64
789	9.5	42.2	0.3	8.1	-1	98579.9	64
790	11.1	41.7	0.4	9.4	-1	98579.6	64
791	10.8	42.5	0.3	9.2	-1	98579.4	64
792	10.4	40.8	0.3	8.8	-1	98578.9	63
793	10.3	41.8	0.3	8.7	-1	98578.5	63
794	11.1	39.1	0.4	9.4	-1	98578.6	63
795	10.5	40.4	0.4	8.9	-1	98578.3	63
796	9.5	42.8	0.4	8.1	-1	98577.7	63
797	9.4	40.4	0.4	8.0	-1	98578.1	64
798	10.0	41.7	0.4	8.5	-1	98578.7	64
799	10.0	39.6	0.4	8.5	-1	98579.1	64
800	10.0	41.0	0.4	8.5	-1	98579.2	64
801	9.8	41.4	0.4	8.3	-1	98579.1	64
802	10.2	40.6	0.4	8.6	-1	98580.3	64
803	11.0	40.7	0.4	9.3	-1	98579.8	65
804	12.1	40.6	0.4	10.3	-1	98579.8	65
805	11.9	41.7	0.5	10.0	-1	98580.3	65
806	11.0	40.8	0.4	9.3	-1	98579.8	65
807	11.1	40.9	0.4	9.4	-1	98579.8	65
808	11.8	43.8	0.4	10.0	-1	98580.2	64
809	11.1	39.7	0.3	9.4	-1	98580.3	63
810	11.0	39.2	0.3	9.3	-1	98579.8	63
811	10.9	39.9	0.3	9.2	-1	98579.4	63
812	10.1	40.6	0.4	8.6	-1	98580.0	63
813	9.1	40.7	0.4	7.7	-1	98580.2	63
814	9.1	39.9	0.4	7.7	-1	98580.4	63
815	8.4	41.4	0.4	7.1	-1	98580.2	63
816	8.9	39.9	0.4	7.6	-1	98580.1	63
817	8.4	41.4	0.4	7.1	-1	98580.0	63
818	8.4	39.8	0.3	7.1	-1	98579.1	63
819	7.5	39.1	0.2	6.3	-1	98579.6	63
820	7.8	40.8	0.3	6.6	-1	98579.8	63
821	7.9	39.3	0.3	6.7	-1	98579.8	64
822	8.7	41.7	0.3	7.4	-1	98579.7	64
823	8.0	40.5	0.2	6.8	-1	98579.3	64
824	7.4	40.7	0.3	6.2	-1	98579.5	64
825	8.6	40.6	0.6	7.3	-1	98579.0	64
826	9.5	40.3	0.4	8.0	-1	98579.4	63
827	9.3	38.8	0.2	7.8	-1	98578.8	63
828	7.7	38.7	0.2	6.5	-1	98579.1	63
829	7.6	39.0	0.3	6.4	-1	98579.3	63
830	7.3	38.2	0.4	6.2	-1	98579.1	63

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

Data Point #	Standardized Wind Speed	LAeq	Rotor RPM	10m Anemometer Wind Speed (m/s)	Air Temperature (-C)	Pressure (kPa)	Relative Humidity (%)
831	7.7	38.1	0.5	6.5	-1	98579.4	63
832	8.1	36.5	0.4	6.8	-1	98579.0	63
833	7.6	37.0	0.4	6.4	-1	98579.1	64
834	7.3	37.2	0.4	6.2	-1	98579.1	64
835	8.0	39.0	0.3	6.8	-1	98579.3	64
836	8.0	38.7	0.4	6.7	-1	98578.5	64
837	7.3	38.8	0.5	6.2	-1	98578.5	64
838	8.1	42.6	0.4	6.8	-1	98577.8	65
839	9.6	42.6	0.4	8.2	-1	98578.2	65
840	8.8	42.5	0.4	7.4	-1	98578.3	65
841	9.0	39.2	0.3	7.7	-1	98578.7	65
842	10.1	42.6	0.3	8.6	-1	98579.0	65
843	9.3	43.2	0.3	7.9	-1	98578.7	65
844	8.8	41.0	0.3	7.5	-1	98578.7	64
845	9.2	42.6	0.3	7.8	-1	98579.1	64
846	9.6	42.6	0.3	8.2	-1	98579.2	64
847	8.9	41.8	0.3	7.6	-1	98579.3	64
848	8.8	40.8	0.2	7.5	-1	98579.7	64
849	9.4	42.1	0.3	7.9	-1	98579.4	64
850	9.8	42.8	0.3	8.3	-1	98579.2	64
851	8.7	43.7	0.3	7.3	-1	98579.3	64
852	9.1	40.9	0.4	7.7	-1	98579.3	64
853	9.3	39.4	0.3	7.9	-1	98578.3	64
854	8.5	39.3	0.3	7.2	-1	98578.9	64
855	8.1	39.6	0.3	6.9	-1	98578.7	64
856	7.7	40.1	0.4	6.5	-1	98578.3	64
857	8.1	40.9	0.3	6.9	-1	98579.0	64
858	8.2	42.4	0.3	7.0	-1	98578.7	64
859	7.7	40.7	0.3	6.5	-1	98578.2	64
860	7.3	42.6	0.3	6.2	-1	98579.7	64
861	7.3	45.2	0.4	6.2	-1	98579.2	64
862	7.2	41.6	0.3	6.1	-1	98578.4	66
863	7.6	42.8	0.3	6.4	-1	98579.1	67
864	7.5	42.8	0.2	6.4	-1	98578.9	67
865	8.0	42.8	0.3	6.8	-1	98578.9	67
866	9.0	40.1	0.2	7.6	-1	98579.3	67
867	9.7	41.9	0.2	8.2	-1	98579.5	67
868	8.3	39.7	0.2	7.0	-1	98580.2	66
869	8.3	37.9	0.2	7.0	-1	98578.7	66
870	9.7	40.6	0.2	8.2	-1	98578.8	66
871	8.5	41.6	0.2	7.2	-1	98578.8	66
872	9.2	38.8	0.2	7.8	-1	98578.7	66
873	9.6	40.2	0.3	8.2	-1	98579.1	66
874	8.7	40.8	0.3	7.4	-1	98580.9	65
875	8.9	40.9	0.2	7.5	-1	98580.3	65
876	8.5	40.4	0.2	7.2	-1	98579.3	65
877	9.8	42.0	0.3	8.3	-1	98578.2	65
878	8.8	41.5	0.2	7.5	-1	98578.7	65
879	9.4	41.3	0.3	8.0	-1	98580.3	65
880	9.7	41.9	0.3	8.2	-1	98589.5	65
881	9.1	41.1	0.3	7.7	-1	98593.8	65
882	8.8	39.9	0.2	7.4	-1	98591.9	65
883	8.6	39.7	0.3	7.3	-1	98591.8	65
884	8.6	39.5	0.3	7.3	-1	98593.5	65
885	8.4	39.2	0.2	7.2	-1	98592.1	65
886	8.2	38.9	0.2	6.9	-1	98591.3	65
887	7.6	39.4	0.2	6.5	-1	98591.5	65
888	7.7	38.9	0.4	6.5	-1	98591.0	65
889	8.9	39.7	0.4	7.5	-1	98592.3	65
890	9.5	39.3	0.4	8.0	-1	98592.4	65
891	7.9	40.1	0.5	6.6	-1	98591.8	65
892	7.4	39.3	0.4	6.2	-1	98591.7	65
893	11.8	42.4	0.3	10.0	-1	98617.8	62
894	12.0	40.1	0.3	10.2	-1	98617.8	62
895	12.1	41.4	0.3	10.3	-1	98617.4	62
896	12.9	41.4	0.3	10.9	-1	98617.2	62
897	11.9	43.8	0.3	10.1	-1	98617.3	62
898	11.0	40.9	0.3	9.3	-1	98616.3	61
899	11.1	42.6	0.3	9.4	-1	98617.5	60
900	10.7	41.1	0.3	9.1	-1	98618.8	60
901	10.1	42.8	0.3	8.5	-1	98619.3	60
902	9.6	40.5	0.3	8.1	-1	98618.6	60
903	9.3	38.7	0.3	7.9	-1	98618.4	60
904	10.5	42.6	0.3	8.9	-1	98617.6	61
905	10.7	42.8	0.3	9.1	-1	98617.3	62
906	8.7	41.3	0.4	7.4	-1	98617.2	62
907	9.7	40.1	0.5	8.2	-1	98617.0	62
908	9.4	40.4	0.3	8.0	-1	98617.8	62
909	8.2	41.2	0.2	7.0	-1	98616.8	62
910	8.6	39.2	0.2	7.3	-1	98616.9	62
911	8.1	41.3	0.1	6.9	-1	98616.8	63
912	9.1	41.0	0.2	7.7	-1	98616.9	63
913	8.6	41.0	0.2	7.3	-1	98616.4	63

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

Data Point #	Standardized Wind Speed	LAeq	Rotor RPM	10m Anemometer Wind Speed (m/s)	Air Temperature (-C)	Pressure (kPa)	Relative Humidity (%)
914	7.9	41.6	0.2	6.7	-1	98615.7	63
915	8.8	40.9	0.3	7.4	-1	98615.2	63
916	9.3	40.0	0.3	7.9	-1	98615.5	63
917	9.4	42.1	0.3	8.0	-1	98615.6	64
918	10.2	43.2	0.2	8.6	-1	98615.8	64
919	10.7	39.4	0.2	9.1	-1	98615.9	64
920	9.4	42.6	0.2	8.0	-1	98616.7	64
921	8.9	40.7	0.3	7.5	-1	98616.4	64
922	10.1	39.3	0.3	8.6	-1	98616.4	64
923	10.9	41.8	0.2	9.2	-1	98615.8	64
924	10.8	41.9	0.3	9.2	-1	98616.4	64
925	10.9	42.4	0.3	9.2	-1	98616.7	64
926	10.6	39.4	0.3	9.0	-1	98615.9	64
927	9.6	39.5	0.2	8.1	-1	98616.5	64
928	9.8	38.6	0.2	8.3	-1	98616.2	63
929	10.2	39.7	0.2	8.7	-1	98616.7	63
930	8.9	42.0	0.2	7.5	-1	98616.4	63
931	8.7	41.6	0.1	7.3	-1	98616.6	63
932	9.6	40.5	0.2	8.1	-1	98617.1	63
933	9.5	38.2	0.3	8.0	-1	98616.6	63
934	8.7	38.7	0.4	7.4	-1	98616.5	63
935	7.5	39.9	0.3	6.4	-1	98616.9	63
936	8.0	40.7	0.2	6.8	-1	98616.8	63
937	9.3	40.3	0.3	7.9	-1	98616.8	63
938	8.8	43.3	0.3	7.5	-1	98616.6	63
939	9.6	45.5	0.2	8.1	-1	98616.6	63
940	11.2	41.7	0.2	9.5	-1	98616.5	64
941	12.1	43.0	0.2	10.3	-1	98616.5	64
942	10.0	44.3	0.3	8.5	-1	98616.7	64
943	10.8	44.0	0.2	9.1	-1	98616.2	64
944	9.9	43.8	0.2	8.3	-1	98616.6	64
945	10.8	45.2	0.2	9.1	-1	98616.5	64
946	11.6	41.8	0.3	9.8	-1	98616.2	63
947	10.5	41.4	0.2	8.9	-1	98616.0	63
948	9.5	41.7	0.3	8.0	-1	98615.9	63
949	10.8	45.1	0.3	9.1	-1	98616.0	63
950	10.9	44.9	0.2	9.2	-1	98616.1	63
951	11.0	43.6	0.2	9.3	-1	98616.0	63
952	10.8	40.5	0.3	9.2	-1	98616.0	63
953	8.9	45.0	0.5	7.5	-2	99061.8	67
954	10.0	45.5	0.4	8.4	-2	99061.5	67
955	11.7	45.4	0.5	9.9	-2	99061.6	67
956	13.0	47.4	0.5	11.0	-2	99061.7	67
957	11.6	45.1	0.5	9.8	-2	99061.7	66
958	12.2	46.4	0.5	10.3	-2	99061.7	66
959	12.0	47.7	0.5	10.2	-2	99061.7	66
960			0.5	9.2	-2	99061.8	66
961	9.6	48.0	0.5	8.1	-2	99061.8	66
962			0.4	6.8	-2	99066.8	67
963	7.7	44.0	0.3	6.5	-2	99074.5	67
964	7.8	46.7	0.4	6.6	-2	99074.7	67
965	9.3	46.1	0.3	7.9	-2	99074.9	67
966	9.8	45.0	0.4	8.3	-2	99074.9	67
967	8.9	44.7	0.5	7.5	-2	99074.6	67
968	9.0	45.3	0.4	7.7	-2	99069.7	67
969	9.2	42.8	0.4	7.8	-2	99062.0	68
970	7.9	42.4	0.4	6.7	-2	99061.8	68
971	9.0	44.4	0.3	7.6	-2	99062.0	68
972	10.2	42.9	0.4	8.7	-2	99062.1	68
973	9.4	43.8	0.5	8.0	-2	99062.1	68
974	9.3	45.6	0.4	7.9	-2	99062.1	67
975	9.9	45.4	0.3	8.4	-2	99062.2	67
976	9.8	43.5	0.3	8.3	-2	99062.2	67
977	11.0	42.8	0.5	9.3	-2	99062.4	67
978	11.0	41.7	0.4	9.3	-2	99062.5	67
979	10.5	45.3	0.3	8.9	-2	99062.5	67
980			0.4	8.4	-2	99062.3	67
981	9.2	45.6	0.2	7.8	-2	99062.3	67
982	9.0	45.5	0.3	7.6	-2	99062.3	67
983	10.4	43.4	0.3	8.8	-2	99062.0	67
984	9.5	45.3	0.2	8.0	-2	99062.0	67
985	10.2	43.6	0.4	8.6	-2	99062.0	67
986	11.2	44.7	0.5	9.5	-2	99061.9	67
987	10.0	42.3	0.4	8.4	-2	99061.9	67
988	9.1	43.7	0.4	7.7	-2	99061.9	67
989	9.2	43.7	0.3	7.8	-2	99062.1	67
990	10.5	43.6	0.4	8.9	-2	99061.8	67
991	9.6	46.5	0.3	8.1	-2	99061.8	67
992	8.3	45.8	0.3	7.1	-2	99061.9	67
993	8.1	45.3	0.4	6.9	-2	99062.0	67
994	8.3	44.9	0.4	7.0	-2	99062.1	67
995	9.5	44.0	0.4	8.0	-2	99062.3	67
996	9.0	42.6	0.3	7.6	-2	99062.0	67

Table E.02 Measurement data - Background

Project: North Kent Wind 1 LP - Turbine T33 - IEC 61400-11 Measurement
Report ID: 17283.01.T33.RP2

Created on: 2019-01-30

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

Data Point #	Standardized Wind Speed	LAeq	Rotor RPM	10m Anemometer Wind Speed (m/s)	Air Temperature (·C)	Pressure (kPa)	Relative Humidity (%)
997	10.1	41.3	0.3	8.5	-2	99062.0	67
998	9.4	41.9	0.3	8.0	-2	99062.1	67
999	8.7	43.1	0.3	7.3	-2	99062.3	66
1000	7.9	42.5	0.4	6.7	-2	99062.5	67
1001	8.9	41.6	0.5	7.6	-2	99062.2	66
1002	9.9	42.9	0.4	8.4	-2	99062.1	66
1003	8.8	42.3	0.4	7.5	-2	99062.1	66
1004	7.8	41.8	0.5	6.6	-2	99062.3	67
1005	8.3	40.8	0.4	7.0	-2	99062.2	67
1006	7.8	41.2	0.3	6.6	-2	99062.3	67
1007	9.8	41.4	0.3	8.3	-2	99062.1	67
1008	9.2	40.2	0.4	7.8	-2	99062.1	67
1009	9.6	41.4	0.3	8.1	-2	99062.3	67
1010	9.3	41.7	0.4	7.9	-2	99062.2	67
1011	8.6	42.8	0.5	7.3	-2	99062.2	67
1012	9.0	42.5	0.4	7.6	-2	99062.4	67
1013	9.1	42.3	0.4	7.7	-2	99062.4	67
1014	8.6	43.1	0.4	7.3	-2	99062.4	67
1015	9.3	41.6	0.4	7.9	-2	99062.6	67
1016	8.8	40.5	0.5	7.4	-2	99062.7	67
1017	9.1	41.2	0.4	7.7	-2	99062.6	67
1018	9.0	41.1	0.3	7.6	-2	99062.7	67
1019	8.1	40.4	0.4	6.9	-2	99062.8	67
1020	8.2	41.2	0.4	6.9	-2	99062.5	67
1021	8.5	42.2	0.4	7.2	-2	99062.7	67
1022	9.0	42.3	0.4	7.7	-2	99062.8	67
1023	7.9	42.0	0.4	6.7	-2	99062.9	67
1024	8.2	43.3	0.3	7.0	-2	99063.2	67
1025	7.6	42.7	0.3	6.4	-2	99063.0	67
1026	7.4	43.6	0.3	6.3	-2	99063.2	67
1027	7.3	42.5	0.3	6.2	-2	99063.3	67
1028	6.0	42.1	0.3	5.1	-2	99073.3	68
1029	7.4	42.2	0.3	6.2	-2	99075.9	68
1030	8.0	42.9	0.3	6.8	-2	99076.1	68
1031	7.1	43.3	0.4	6.0	-2	99076.3	68
1032	7.3	42.8	0.4	6.2	-2	99076.3	68
1033	7.6	44.8	0.3	6.4	-2	99076.1	68
1034	7.9	45.7	0.3	6.7	-2	99076.1	68
1035	8.8	46.4	0.4	7.5	-2	99076.0	68
1036	8.4	46.0	0.4	7.1	-2	99076.1	68
1037	9.9	43.0	0.4	8.4	-2	99076.2	68
1038	9.7	42.7	0.3	8.2	-2	99076.1	68
1039	10.6	41.9	0.3	8.9	-2	99076.1	68
1040	10.0	43.9	0.3	8.5	-2	99066.2	67
1041	8.8	43.0	0.3	7.4	-2	99063.6	67
1042	8.0	42.1	0.4	6.7	-2	99063.4	67
1043	9.0	45.7	0.5	7.7	-2	99063.5	67
1044	10.2	44.9	0.6	8.7	-2	99063.6	67
1045			0.4	8.5	-2	99063.7	67
1046	9.8	47.5	0.4	8.3	-2	99063.7	67
1047	8.8	47.3	0.5	7.5	-2	99064.0	67
1048	10.1	45.4	0.4	8.5	-2	99063.6	67
1049	10.4	46.9	0.5	8.8	-2	99063.7	67
1050	9.4	47.5	0.5	8.0	-2	99063.9	67
1051	9.0	46.2	0.4	7.6	-2	99064.0	67
1052	8.9	45.6	0.4	7.5	-2	99065.2	67
1053	9.7	44.6	0.4	8.2	-2	99064.1	67
1054	11.6	45.4	0.4	9.9	-2	99063.9	67
1055	11.0	43.2	0.3	9.3	-2	99063.8	67
1056	9.7	43.7	0.4	8.2	-2	99063.8	67
1057	9.8	44.1	0.5	8.3	-2	99064.1	67
1058	10.9	45.5	0.4	9.2	-2	99065.2	67
1059	10.9	44.2	0.4	9.3	-2	99064.3	67
1060	10.4	45.9	0.4	8.8	-2	99064.1	67
1061	9.1	46.0	0.6	7.7	-2	99063.9	67
1062	8.9	46.2	0.6	7.5	-2	99064.0	67
1063	8.6	44.9	0.5	7.3	-2	99063.9	67
1064	8.9	45.5	0.4	7.5	-2	99073.7	67
1065			0.4	7.5	-2	99076.6	68
1066	8.0	44.6	0.4	6.8	-2	99076.1	68
1067			0.4	6.4	-2	99076.4	68
1068	8.1	45.4	0.4	6.9	-2	99075.9	68
1069	10.1	44.4	0.4	8.5	-2	99076.0	68
1070	8.7	44.4	0.4	7.3	-2	99075.7	67
1071	9.2	45.7	0.4	7.8	-2	99075.6	67
1072	10.2	46.3	0.4	8.6	-2	99075.5	67
1073	9.0	44.4	0.3	7.6	-2	99075.7	67
1074	8.8	44.5	0.4	7.5	-2	99075.6	67
1075	8.2	44.8	0.5	6.9	-2	99076.0	67
1076	8.4	45.4	0.5	7.1	-2	99076.0	68
1077	8.5	46.6	0.4	7.2	-2	99076.0	68
1078	8.2	47.0	0.4	6.9	-2	99076.4	68
1079	6.7	47.1	0.4	5.7	-2	99076.5	68

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

Data Point #	Standardized Wind Speed	LAeq	Rotor RPM	10m Anemometer Wind Speed (m/s)	Air Temperature (·C)	Pressure (kPa)	Relative Humidity (%)
1080	7.2	45.6	0.4	6.1	-2	99076.5	68
1081	7.5	43.3	0.4	6.4	-2	99080.2	68
1082	7.8	42.2	0.5	6.6	-2	99089.8	68
1083	8.2	41.4	0.4	7.0	-2	99090.6	68
1084	7.6	42.7	0.5	6.4	-2	99090.6	68
1085	7.7	40.7	0.5	6.5	-2	99089.6	68
1086	7.4	41.8	0.4	6.3	-2	99089.7	68
1087	9.1	41.9	0.4	7.7	-2	99088.3	68

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Appendix F
Supplementary Information for the Regulator

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CB-P/S
OCPS
Accrédité CCN
TM

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Appendix F.01
Calibration Certificates

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SCC Accredited
CB-P/S
OCPS
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ISO17025

As Left RECALIBRATION CERTIFICATE

Sales Region:	Americas
Account:	Aercoustics Engineering Limited
Instrument:	LMS SCADAS
Manufacturer:	Siemens Industry Software B.V.
Type:	SCR202
Serial number(s):	22143211
Calibration method:	Two calibrated external standards (DC voltage and frequency) are used to calibrate the internal LMS 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 22.9°C ± 0.3°C and a relative humidity of 42% ± 5%.
Calibration date:	June 22, 2018
Results:	The calibration results, together with their associated uncertainties, are included in this calibration certificate. Calibration results within specification.
Uncertainty:	The reported expanded uncertainty of measurement is stated as the standard uncertainty of measurement multiplied by the coverage factor k=2, which for a normal distribution corresponds to a coverage probability of approximately 95%. The standard uncertainty of measurement has been determined in accordance with publication EA-4/02.
Traceability:	The measurements have been executed using methods for which the traceability to international standards has been demonstrated towards the Raad voor Accreditatie.

Breda, June 22, 2018

Calibration performed by:

A.v.Aalst Customer Support 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.

Reproduction of the complete certificate is allowed. Parts of the certificate may only be reproduced with written approval of the calibration laboratory.

This certificate is issued provided that neither Siemens Industry Software B.V. nor the Raad voor Accreditatie assumes any liability.

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1 Explanation of the factory calibration procedure

The production process of an LMS 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 LMS 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	201702735.00	21 July 2017
Calibration software	2.14.0002	NA	NA	NA

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

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3 System configuration

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

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4 V8_E_h18s0

4.1 Gain Accuracy after Adjustment

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

AdcBw 102400Hz, Range 0.316V Alternating voltage 100mV < IR <= 316mV Spec: <= ±0.100% Uncertainty: 66µV	
Chan	Value
0,1,x,0	-0.034 mV, -0.015%
0,1,x,1	-0.033 mV, -0.015%
0,1,x,2	-0.033 mV, -0.015%
0,1,x,3	-0.033 mV, -0.015%
0,1,x,4	-0.033 mV, -0.015%
0,1,x,5	-0.032 mV, -0.015%
0,1,x,6	-0.033 mV, -0.015%
0,1,x,7	-0.033 mV, -0.015%
0,2,x,0	-0.033 mV, -0.015%
0,2,x,1	-0.033 mV, -0.015%
0,2,x,2	-0.034 mV, -0.015%
0,2,x,3	-0.033 mV, -0.015%
0,2,x,4	-0.034 mV, -0.015%
0,2,x,5	-0.033 mV, -0.015%
0,2,x,6	-0.033 mV, -0.015%
0,2,x,7	-0.033 mV, -0.015%

AdcBw 102400Hz, Range 1V Alternating voltage 316mV < IR <= 1V Spec: <= ±0.100% Uncertainty: 120µV	
Chan	Value
0,1,x,0	-0.077 mV, -0.011%
0,1,x,1	-0.075 mV, -0.011%
0,1,x,2	-0.075 mV, -0.011%
0,1,x,3	-0.075 mV, -0.011%
0,1,x,4	-0.078 mV, -0.011%
0,1,x,5	-0.075 mV, -0.011%
0,1,x,6	-0.077 mV, -0.011%
0,1,x,7	-0.076 mV, -0.011%
0,2,x,0	-0.074 mV, -0.010%
0,2,x,1	-0.074 mV, -0.011%
0,2,x,2	-0.076 mV, -0.011%
0,2,x,3	-0.075 mV, -0.011%
0,2,x,4	-0.076 mV, -0.011%
0,2,x,5	-0.075 mV, -0.011%
0,2,x,6	-0.075 mV, -0.011%
0,2,x,7	-0.074 mV, -0.010%

AdcBw 102400Hz, Range 3.16V Alternating voltage 1V < IR <= 3.16V Spec: <= ±0.100% Uncertainty: 310µV	
Chan	Value
0,1,x,0	-0.170 mV, -0.008%
0,1,x,1	-0.161 mV, -0.007%
0,1,x,2	-0.164 mV, -0.007%
0,1,x,3	-0.163 mV, -0.007%
0,1,x,4	-0.168 mV, -0.008%
0,1,x,5	-0.162 mV, -0.007%
0,1,x,6	-0.168 mV, -0.008%
0,1,x,7	-0.163 mV, -0.007%
0,2,x,0	-0.160 mV, -0.007%
0,2,x,1	-0.163 mV, -0.007%
0,2,x,2	-0.161 mV, -0.007%
0,2,x,3	-0.159 mV, -0.007%
0,2,x,4	-0.164 mV, -0.007%
0,2,x,5	-0.163 mV, -0.007%
0,2,x,6	-0.160 mV, -0.007%
0,2,x,7	-0.163 mV, -0.007%

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AdcBw 102400Hz, Range 10V Alternating voltage 3.16V < IR <= 10V Spec: <= ±0.100% Uncertainty: 530µV	
Chan	Value
0,1,x,0	-0.243 mV, -0.006%
0,1,x,1	-0.241 mV, -0.006%
0,1,x,2	-0.237 mV, -0.006%
0,1,x,3	-0.234 mV, -0.006%
0,1,x,4	-0.244 mV, -0.006%
0,1,x,5	-0.232 mV, -0.006%
0,1,x,6	-0.236 mV, -0.006%
0,1,x,7	-0.233 mV, -0.006%
0,2,x,0	-0.230 mV, -0.006%
0,2,x,1	-0.232 mV, -0.006%
0,2,x,2	-0.234 mV, -0.006%
0,2,x,3	-0.232 mV, -0.006%
0,2,x,4	-0.229 mV, -0.006%
0,2,x,5	-0.232 mV, -0.006%
0,2,x,6	-0.233 mV, -0.006%
0,2,x,7	-0.226 mV, -0.006%

AdcBw 51200Hz, Range 1V Alternating voltage 316mV < IR <= 1V Spec: <= ±0.100% Uncertainty: 120µV	
Chan	Value
0,1,x,0	-0.021 mV, -0.003%
0,1,x,1	-0.020 mV, -0.003%
0,1,x,2	-0.021 mV, -0.003%
0,1,x,3	-0.021 mV, -0.003%
0,1,x,4	-0.022 mV, -0.003%
0,1,x,5	-0.020 mV, -0.003%
0,1,x,6	-0.021 mV, -0.003%
0,1,x,7	-0.020 mV, -0.003%
0,2,x,0	-0.020 mV, -0.003%
0,2,x,1	-0.019 mV, -0.003%
0,2,x,2	-0.019 mV, -0.003%
0,2,x,3	-0.020 mV, -0.003%
0,2,x,4	-0.021 mV, -0.003%
0,2,x,5	-0.020 mV, -0.003%
0,2,x,6	-0.020 mV, -0.003%
0,2,x,7	-0.020 mV, -0.003%

AdcBw 51200Hz, Range 10V Alternating voltage 3.16V < IR <= 10V Spec: <= ±0.100% Uncertainty: 530µV	
Chan	Value
0,1,x,0	-0.074 mV, -0.002%
0,1,x,1	-0.074 mV, -0.002%
0,1,x,2	-0.068 mV, -0.002%
0,1,x,3	-0.065 mV, -0.002%
0,1,x,4	-0.076 mV, -0.002%
0,1,x,5	-0.066 mV, -0.002%
0,1,x,6	-0.068 mV, -0.002%
0,1,x,7	-0.066 mV, -0.002%
0,2,x,0	-0.065 mV, -0.002%
0,2,x,1	-0.064 mV, -0.002%
0,2,x,2	-0.068 mV, -0.002%
0,2,x,3	-0.068 mV, -0.002%
0,2,x,4	-0.067 mV, -0.002%
0,2,x,5	-0.068 mV, -0.002%
0,2,x,6	-0.073 mV, -0.002%
0,2,x,7	-0.068 mV, -0.002%

AdcBw 51200Hz, Range 0.316V Alternating voltage 100mV < IR <= 316mV Spec: <= ±0.100% Uncertainty: 66µV	
Chan	Value
0,1,x,0	-0.010 mV, -0.005%
0,1,x,1	-0.010 mV, -0.005%
0,1,x,2	-0.010 mV, -0.005%
0,1,x,3	-0.010 mV, -0.005%
0,1,x,4	-0.011 mV, -0.005%
0,1,x,5	-0.010 mV, -0.005%
0,1,x,6	-0.011 mV, -0.005%
0,1,x,7	-0.010 mV, -0.005%
0,2,x,0	-0.011 mV, -0.005%
0,2,x,1	-0.010 mV, -0.005%
0,2,x,2	-0.010 mV, -0.005%
0,2,x,3	-0.010 mV, -0.005%
0,2,x,4	-0.011 mV, -0.005%
0,2,x,5	-0.010 mV, -0.005%
0,2,x,6	-0.010 mV, -0.005%
0,2,x,7	-0.010 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	-0.069 mV, -0.003%
0,1,x,1	-0.065 mV, -0.003%
0,1,x,2	-0.068 mV, -0.003%
0,1,x,3	-0.068 mV, -0.003%
0,1,x,4	-0.072 mV, -0.003%
0,1,x,5	-0.068 mV, -0.003%
0,1,x,6	-0.068 mV, -0.003%
0,1,x,7	-0.065 mV, -0.003%
0,2,x,0	-0.065 mV, -0.003%
0,2,x,1	-0.065 mV, -0.003%
0,2,x,2	-0.065 mV, -0.003%
0,2,x,3	-0.065 mV, -0.003%
0,2,x,4	-0.067 mV, -0.003%
0,2,x,5	-0.066 mV, -0.003%
0,2,x,6	-0.066 mV, -0.003%
0,2,x,7	-0.069 mV, -0.003%

AdcBw 25600Hz, 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	-0.002 mV, -0.001%
0,1,x,2	-0.002 mV, -0.001%
0,1,x,3	-0.002 mV, -0.001%
0,1,x,4	-0.002 mV, -0.001%
0,1,x,5	-0.002 mV, -0.001%
0,1,x,6	-0.002 mV, -0.001%
0,1,x,7	-0.002 mV, -0.001%
0,2,x,0	-0.002 mV, -0.001%
0,2,x,1	-0.002 mV, -0.001%
0,2,x,2	-0.002 mV, -0.001%
0,2,x,3	-0.002 mV, -0.001%
0,2,x,4	-0.002 mV, -0.001%
0,2,x,5	-0.002 mV, -0.001%
0,2,x,6	-0.002 mV, -0.001%
0,2,x,7	-0.001 mV, -0.001%

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AdcBw 25600Hz, Range 1V Alternating voltage 316mV < IR <= 1V Spec: <= ±0.100% Uncertainty: 120µV	
Chan	Value
0,1,x,0	-0.012 mV, -0.002%
0,1,x,1	-0.012 mV, -0.002%
0,1,x,2	-0.013 mV, -0.002%
0,1,x,3	-0.013 mV, -0.002%
0,1,x,4	-0.013 mV, -0.002%
0,1,x,5	-0.012 mV, -0.002%
0,1,x,6	-0.013 mV, -0.002%
0,1,x,7	-0.012 mV, -0.002%
0,2,x,0	-0.012 mV, -0.002%
0,2,x,1	-0.011 mV, -0.002%
0,2,x,2	-0.012 mV, -0.002%
0,2,x,3	-0.012 mV, -0.002%
0,2,x,4	-0.013 mV, -0.002%
0,2,x,5	-0.012 mV, -0.002%
0,2,x,6	-0.012 mV, -0.002%
0,2,x,7	-0.012 mV, -0.002%

AdcBw 25600Hz, Range 10V Alternating voltage 3.16V < IR <= 10V Spec: <= ±0.100% Uncertainty: 530µV	
Chan	Value
0,1,x,0	-0.053 mV, -0.001%
0,1,x,1	-0.048 mV, -0.001%
0,1,x,2	-0.047 mV, -0.001%
0,1,x,3	-0.046 mV, -0.001%
0,1,x,4	-0.050 mV, -0.001%
0,1,x,5	-0.039 mV, -0.001%
0,1,x,6	-0.049 mV, -0.001%
0,1,x,7	-0.048 mV, -0.001%
0,2,x,0	-0.038 mV, -0.001%
0,2,x,1	-0.045 mV, -0.001%
0,2,x,2	-0.045 mV, -0.001%
0,2,x,3	-0.040 mV, -0.001%
0,2,x,4	-0.042 mV, -0.001%
0,2,x,5	-0.047 mV, -0.001%
0,2,x,6	-0.055 mV, -0.001%
0,2,x,7	-0.051 mV, -0.001%

AdcBw 25600Hz, Range 3.16V Alternating voltage 1V < IR <= 3.16V Spec: <= ±0.100% Uncertainty: 310µV	
Chan	Value
0,1,x,0	-0.030 mV, -0.001%
0,1,x,1	-0.025 mV, -0.001%
0,1,x,2	-0.027 mV, -0.001%
0,1,x,3	-0.027 mV, -0.001%
0,1,x,4	-0.027 mV, -0.001%
0,1,x,5	-0.023 mV, -0.001%
0,1,x,6	-0.028 mV, -0.001%
0,1,x,7	-0.026 mV, -0.001%
0,2,x,0	-0.021 mV, -0.001%
0,2,x,1	-0.022 mV, -0.001%
0,2,x,2	-0.025 mV, -0.001%
0,2,x,3	-0.023 mV, -0.001%
0,2,x,4	-0.028 mV, -0.001%
0,2,x,5	-0.027 mV, -0.001%
0,2,x,6	-0.026 mV, -0.001%
0,2,x,7	-0.029 mV, -0.001%

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4.2 Residual Offset after Adjustment

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

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

AdcBw 102400Hz, Range 3.16V Direct voltage 1V < IR <= 3.16V Spec: <= ±3.160 mV Uncertainty: 8µV	
Chan	Value
0,1,x,0	0.003 mV
0,1,x,1	0.006 mV
0,1,x,2	0.007 mV
0,1,x,3	0.001 mV
0,1,x,4	-0.006 mV
0,1,x,5	0.001 mV
0,1,x,6	0.000 mV
0,1,x,7	-0.006 mV
0,2,x,0	0.005 mV
0,2,x,1	0.011 mV
0,2,x,2	0.003 mV
0,2,x,3	-0.005 mV
0,2,x,4	-0.007 mV
0,2,x,5	0.000 mV
0,2,x,6	0.014 mV
0,2,x,7	0.019 mV

AdcBw 51200Hz, Range 0.316V Direct voltage IR <= 316mV Spec: <= ±0.316 mV Uncertainty: 4.8µV	
Chan	Value
0,1,x,0	0.004 mV
0,1,x,1	0.005 mV
0,1,x,2	0.004 mV
0,1,x,3	0.001 mV
0,1,x,4	-0.002 mV
0,1,x,5	0.001 mV
0,1,x,6	0.002 mV
0,1,x,7	-0.002 mV
0,2,x,0	0.003 mV
0,2,x,1	0.004 mV
0,2,x,2	0.001 mV
0,2,x,3	0.001 mV
0,2,x,4	0.001 mV
0,2,x,5	0.004 mV
0,2,x,6	0.003 mV
0,2,x,7	0.005 mV

AdcBw 51200Hz, Range 3.16V Direct voltage 1V < IR <= 3.16V Spec: <= ±3.160 mV Uncertainty: 8µV	
Chan	Value
0,1,x,0	-0.002 mV
0,1,x,1	0.007 mV
0,1,x,2	0.002 mV
0,1,x,3	0.013 mV
0,1,x,4	0.002 mV
0,1,x,5	0.005 mV
0,1,x,6	0.002 mV
0,1,x,7	-0.009 mV
0,2,x,0	0.002 mV
0,2,x,1	0.009 mV
0,2,x,2	-0.001 mV
0,2,x,3	0.002 mV
0,2,x,4	-0.010 mV
0,2,x,5	0.011 mV
0,2,x,6	0.008 mV
0,2,x,7	0.012 mV

AdcBw 102400Hz, Range 1V Direct voltage 316mV < IR <= 1V Spec: <= ±1.000 mV Uncertainty: 5.2µV	
Chan	Value
0,1,x,0	0.006 mV
0,1,x,1	0.008 mV
0,1,x,2	0.003 mV
0,1,x,3	-0.003 mV
0,1,x,4	-0.002 mV
0,1,x,5	-0.000 mV
0,1,x,6	0.001 mV
0,1,x,7	-0.003 mV
0,2,x,0	0.003 mV
0,2,x,1	0.009 mV
0,2,x,2	0.004 mV
0,2,x,3	0.004 mV
0,2,x,4	0.001 mV
0,2,x,5	0.008 mV
0,2,x,6	0.006 mV
0,2,x,7	0.008 mV

AdcBw 102400Hz, Range 10V Direct voltage 3.16V < IR <= 10V Spec: <= ±10.000 mV Uncertainty: 21µV	
Chan	Value
0,1,x,0	0.006 mV
0,1,x,1	-0.009 mV
0,1,x,2	0.011 mV
0,1,x,3	-0.022 mV
0,1,x,4	0.004 mV
0,1,x,5	0.014 mV
0,1,x,6	-0.017 mV
0,1,x,7	-0.051 mV
0,2,x,0	0.010 mV
0,2,x,1	0.023 mV
0,2,x,2	-0.004 mV
0,2,x,3	-0.017 mV
0,2,x,4	-0.050 mV
0,2,x,5	0.019 mV
0,2,x,6	0.036 mV
0,2,x,7	0.048 mV

AdcBw 51200Hz, Range 1V Direct voltage 316mV < IR <= 1V Spec: <= ±1.000 mV Uncertainty: 5.2µV	
Chan	Value
0,1,x,0	0.004 mV
0,1,x,1	0.003 mV
0,1,x,2	0.003 mV
0,1,x,3	0.002 mV
0,1,x,4	-0.001 mV
0,1,x,5	0.001 mV
0,1,x,6	0.001 mV
0,1,x,7	-0.003 mV
0,2,x,0	0.003 mV
0,2,x,1	0.004 mV
0,2,x,2	0.010 mV
0,2,x,3	0.001 mV
0,2,x,4	-0.003 mV
0,2,x,5	0.005 mV
0,2,x,6	0.004 mV
0,2,x,7	0.007 mV

AdcBw 51200Hz, Range 10V Direct voltage 3.16V < IR <= 10V Spec: <= ±10.000 mV Uncertainty: 21µV	
Chan	Value
0,1,x,0	-0.028 mV
0,1,x,1	-0.011 mV
0,1,x,2	0.014 mV
0,1,x,3	0.015 mV
0,1,x,4	-0.030 mV
0,1,x,5	0.018 mV
0,1,x,6	-0.003 mV
0,1,x,7	-0.010 mV
0,2,x,0	0.029 mV
0,2,x,1	0.011 mV
0,2,x,2	-0.013 mV
0,2,x,3	-0.013 mV
0,2,x,4	-0.033 mV
0,2,x,5	0.014 mV
0,2,x,6	-0.005 mV
0,2,x,7	0.033 mV

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AdcBw 25600Hz, Range 0.316V Direct voltage IR <= 316mV Spec: <= ±0.316 mV Uncertainty: 4.8µV	
Chan	Value
0,1,x,0	0.001 mV
0,1,x,1	0.002 mV
0,1,x,2	0.004 mV
0,1,x,3	0.001 mV
0,1,x,4	-0.004 mV
0,1,x,5	0.001 mV
0,1,x,6	0.003 mV
0,1,x,7	-0.002 mV
0,2,x,0	0.003 mV
0,2,x,1	0.003 mV
0,2,x,2	0.002 mV
0,2,x,3	0.000 mV
0,2,x,4	0.001 mV
0,2,x,5	0.002 mV
0,2,x,6	0.004 mV
0,2,x,7	0.003 mV

AdcBw 25600Hz, Range 3.16V Direct voltage 1V < IR <= 3.16V Spec: <= ±3.160 mV Uncertainty: 8µV	
Chan	Value
0,1,x,0	-0.006 mV
0,1,x,1	-0.006 mV
0,1,x,2	0.003 mV
0,1,x,3	0.001 mV
0,1,x,4	-0.008 mV
0,1,x,5	0.001 mV
0,1,x,6	0.012 mV
0,1,x,7	-0.008 mV
0,2,x,0	0.010 mV
0,2,x,1	0.000 mV
0,2,x,2	0.006 mV
0,2,x,3	0.003 mV
0,2,x,4	-0.000 mV
0,2,x,5	0.004 mV
0,2,x,6	-0.003 mV
0,2,x,7	0.005 mV

AdcBw 25600Hz, Range 1V Direct voltage 316mV < IR <= 1V Spec: <= ±1.000 mV Uncertainty: 5.2µV	
Chan	Value
0,1,x,0	0.000 mV
0,1,x,1	-0.001 mV
0,1,x,2	0.004 mV
0,1,x,3	0.002 mV
0,1,x,4	-0.006 mV
0,1,x,5	0.002 mV
0,1,x,6	0.004 mV
0,1,x,7	-0.002 mV
0,2,x,0	0.005 mV
0,2,x,1	-0.001 mV
0,2,x,2	0.001 mV
0,2,x,3	0.000 mV
0,2,x,4	-0.001 mV
0,2,x,5	0.003 mV
0,2,x,6	0.004 mV
0,2,x,7	0.004 mV

AdcBw 25600Hz, Range 10V Direct voltage 3.16V < IR <= 10V Spec: <= ±10.000 mV Uncertainty: 21µV	
Chan	Value
0,1,x,0	-0.024 mV
0,1,x,1	-0.028 mV
0,1,x,2	0.001 mV
0,1,x,3	0.016 mV
0,1,x,4	-0.014 mV
0,1,x,5	-0.002 mV
0,1,x,6	-0.003 mV
0,1,x,7	-0.002 mV
0,2,x,0	0.036 mV
0,2,x,1	-0.015 mV
0,2,x,2	0.020 mV
0,2,x,3	0.020 mV
0,2,x,4	-0.038 mV
0,2,x,5	-0.008 mV
0,2,x,6	0.025 mV
0,2,x,7	0.004 mV

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4.3 Total Harmonic Distortion

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

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

Chan	Value
0,1,x,0	13.337 µV, -109.5dB
0,1,x,1	13.822 µV, -109.2dB
0,1,x,2	13.554 µV, -109.4dB
0,1,x,3	13.677 µV, -109.3dB
0,1,x,4	14.148 µV, -109.0dB
0,1,x,5	14.016 µV, -109.1dB
0,1,x,6	13.985 µV, -109.1dB
0,1,x,7	14.739 µV, -108.7dB
0,2,x,0	13.926 µV, -109.2dB
0,2,x,1	14.379 µV, -108.9dB
0,2,x,2	13.675 µV, -109.3dB
0,2,x,3	14.390 µV, -108.9dB
0,2,x,4	14.053 µV, -109.1dB
0,2,x,5	14.799 µV, -108.6dB
0,2,x,6	13.634 µV, -109.3dB
0,2,x,7	15.140 µV, -108.4dB

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

Chan	Value
0,1,x,0	3.313 µV, -106.6dB
0,1,x,1	3.234 µV, -106.8dB
0,1,x,2	3.480 µV, -106.2dB
0,1,x,3	3.130 µV, -107.1dB
0,1,x,4	3.246 µV, -106.8dB
0,1,x,5	3.126 µV, -107.1dB
0,1,x,6	3.622 µV, -105.8dB
0,1,x,7	3.333 µV, -106.5dB
0,2,x,0	3.285 µV, -106.7dB
0,2,x,1	3.383 µV, -106.4dB
0,2,x,2	2.897 µV, -107.7dB
0,2,x,3	3.032 µV, -107.4dB
0,2,x,4	3.458 µV, -106.2dB
0,2,x,5	3.698 µV, -105.6dB
0,2,x,6	3.689 µV, -105.7dB
0,2,x,7	3.572 µV, -105.9dB

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

Chan	Value
0,1,x,0	7.196 µV, -109.8dB
0,1,x,1	7.308 µV, -109.7dB
0,1,x,2	7.072 µV, -110.0dB
0,1,x,3	7.240 µV, -109.8dB
0,1,x,4	7.223 µV, -109.8dB
0,1,x,5	7.389 µV, -109.6dB
0,1,x,6	8.118 µV, -108.8dB
0,1,x,7	8.662 µV, -108.2dB
0,2,x,0	7.395 µV, -109.6dB
0,2,x,1	8.087 µV, -108.8dB
0,2,x,2	6.729 µV, -110.4dB
0,2,x,3	7.082 µV, -110.0dB
0,2,x,4	7.783 µV, -109.2dB
0,2,x,5	8.621 µV, -108.3dB
0,2,x,6	6.749 µV, -110.4dB
0,2,x,7	9.396 µV, -107.5dB

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

Chan	Value
0,1,x,0	2.917 µV, -97.7dB
0,1,x,1	2.970 µV, -97.5dB
0,1,x,2	3.155 µV, -97.0dB
0,1,x,3	2.997 µV, -97.5dB
0,1,x,4	2.978 µV, -97.5dB
0,1,x,5	2.984 µV, -97.5dB
0,1,x,6	3.242 µV, -96.8dB
0,1,x,7	3.011 µV, -97.4dB
0,2,x,0	2.811 µV, -98.0dB
0,2,x,1	3.024 µV, -97.4dB
0,2,x,2	2.635 µV, -98.6dB
0,2,x,3	2.804 µV, -98.0dB
0,2,x,4	2.946 µV, -97.6dB
0,2,x,5	3.248 µV, -96.8dB
0,2,x,6	3.291 µV, -96.6dB
0,2,x,7	2.980 µV, -97.5dB

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4.4 RMS Noise

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

Range 10V, Bw 80kHz Not in Scope Spec: < 311.0000µVrms	
Chan	Value
0,1,x,0	219.4912µVrms
0,1,x,1	216.7287µVrms
0,1,x,2	213.5008µVrms
0,1,x,3	211.6015µVrms
0,1,x,4	213.6775µVrms
0,1,x,5	212.5682µVrms
0,1,x,6	214.2083µVrms
0,1,x,7	212.6309µVrms
0,2,x,0	215.2145µVrms
0,2,x,1	230.0707µVrms
0,2,x,2	236.8022µVrms
0,2,x,3	217.6088µVrms
0,2,x,4	213.2856µVrms
0,2,x,5	213.0714µVrms
0,2,x,6	223.8589µVrms
0,2,x,7	213.6467µVrms

Range 10V, Bw 40kHz Not in Scope Spec: < 42.0000µVrms	
Chan	Value
0,1,x,0	30.7155µVrms
0,1,x,1	29.8572µVrms
0,1,x,2	29.4535µVrms
0,1,x,3	29.8768µVrms
0,1,x,4	29.9021µVrms
0,1,x,5	29.6341µVrms
0,1,x,6	30.2264µVrms
0,1,x,7	29.5980µVrms
0,2,x,0	29.8302µVrms
0,2,x,1	32.7797µVrms
0,2,x,2	33.1010µVrms
0,2,x,3	30.6564µVrms
0,2,x,4	30.2540µVrms
0,2,x,5	30.6264µVrms
0,2,x,6	31.5756µVrms
0,2,x,7	30.5333µVrms

Range 10V, Bw 20kHz Noise 3.16V < IR <= 10V Spec: <= 29.000 µV Uncertainty: 3.4nV	
Chan	Value
0,1,x,0	20.634 µV
0,1,x,1	20.484 µV
0,1,x,2	20.603 µV
0,1,x,3	20.016 µV
0,1,x,4	20.425 µV
0,1,x,5	20.417 µV
0,1,x,6	20.417 µV
0,1,x,7	20.169 µV
0,2,x,0	20.185 µV
0,2,x,1	20.663 µV
0,2,x,2	20.523 µV
0,2,x,3	20.854 µV
0,2,x,4	20.663 µV
0,2,x,5	20.753 µV
0,2,x,6	20.665 µV
0,2,x,7	20.714 µV

Range 0.316V, Bw 80kHz Not in Scope Spec: < 10.5000µVrms	
Chan	Value
0,1,x,0	7.3100µVrms
0,1,x,1	7.3283µVrms
0,1,x,2	7.1895µVrms
0,1,x,3	7.2018µVrms
0,1,x,4	7.1340µVrms
0,1,x,5	7.2194µVrms
0,1,x,6	7.2695µVrms
0,1,x,7	7.1547µVrms
0,2,x,0	7.2610µVrms
0,2,x,1	7.6732µVrms
0,2,x,2	7.7941µVrms
0,2,x,3	7.2664µVrms
0,2,x,4	7.1386µVrms
0,2,x,5	7.2384µVrms
0,2,x,6	7.5883µVrms
0,2,x,7	7.1820µVrms

Range 0.316V, Bw 40kHz Not in Scope Spec: < 2.8000µVrms	
Chan	Value
0,1,x,0	2.0805µVrms
0,1,x,1	2.0711µVrms
0,1,x,2	2.0652µVrms
0,1,x,3	2.0675µVrms
0,1,x,4	2.0651µVrms
0,1,x,5	2.0765µVrms
0,1,x,6	2.0759µVrms
0,1,x,7	2.0642µVrms
0,2,x,0	2.0484µVrms
0,2,x,1	2.1001µVrms
0,2,x,2	2.1513µVrms
0,2,x,3	2.0566µVrms
0,2,x,4	2.0533µVrms
0,2,x,5	2.0627µVrms
0,2,x,6	2.0731µVrms
0,2,x,7	2.0493µVrms

Range 0.316V, Bw 20kHz Noise IR <= 316mV Spec: <= 1.980 µV Uncertainty: 2.0nV	
Chan	Value
0,1,x,0	1.472 µV
0,1,x,1	1.479 µV
0,1,x,2	1.470 µV
0,1,x,3	1.471 µV
0,1,x,4	1.462 µV
0,1,x,5	1.466 µV
0,1,x,6	1.479 µV
0,1,x,7	1.467 µV
0,2,x,0	1.456 µV
0,2,x,1	1.459 µV
0,2,x,2	1.492 µV
0,2,x,3	1.466 µV
0,2,x,4	1.456 µV
0,2,x,5	1.455 µV
0,2,x,6	1.457 µV
0,2,x,7	1.450 µV

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4.5 Spurious Free Floor

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

Range 10V, Bw 80kHz Not in Scope Spec: < 40.0000µV	
Chan	Value
0,1,x,0	20.0249µV
0,1,x,1	20.0868µV
0,1,x,2	20.2110µV
0,1,x,3	19.8084µV
0,1,x,4	19.9002µV
0,1,x,5	17.7317µV
0,1,x,6	17.2711µV
0,1,x,7	23.4957µV
0,2,x,0	19.0752µV
0,2,x,1	20.5292µV
0,2,x,2	21.0525µV
0,2,x,3	20.2035µV
0,2,x,4	18.6087µV
0,2,x,5	18.1188µV
0,2,x,6	21.2995µV
0,2,x,7	18.3366µV

Range 10V, Bw 40kHz Not in Scope Spec: < 3.0000µV	
Chan	Value
0,1,x,0	1.8141µV
0,1,x,1	1.5600µV
0,1,x,2	1.5992µV
0,1,x,3	1.6127µV
0,1,x,4	1.6059µV
0,1,x,5	1.5218µV
0,1,x,6	2.4156µV
0,1,x,7	2.2373µV
0,2,x,0	1.4688µV
0,2,x,1	1.9192µV
0,2,x,2	2.0544µV
0,2,x,3	1.6560µV
0,2,x,4	1.7163µV
0,2,x,5	1.9976µV
0,2,x,6	2.2116µV
0,2,x,7	1.7323µV

Range 10V, Bw 20kHz Spurious 3.16V < IR <= 10V Spec: <= 2.300 µV Uncertainty: 3.4nV	
Chan	Value
0,1,x,0	1.482 µV
0,1,x,1	1.399 µV
0,1,x,2	1.250 µV
0,1,x,3	1.193 µV
0,1,x,4	1.235 µV
0,1,x,5	1.967 µV
0,1,x,6	1.867 µV
0,1,x,7	1.348 µV
0,2,x,0	1.712 µV
0,2,x,1	1.449 µV
0,2,x,2	1.251 µV
0,2,x,3	1.385 µV
0,2,x,4	1.180 µV
0,2,x,5	1.167 µV
0,2,x,6	1.636 µV
0,2,x,7	1.935 µV

ICP Not in Scope Spec: < 0.2600µVp	
Chan	Value
0,1,x,0	0.0757µVp
0,1,x,1	0.0853µVp
0,1,x,2	0.1011µVp
0,1,x,3	0.0964µVp
0,1,x,4	0.0975µVp
0,1,x,5	0.0963µVp
0,1,x,6	0.0825µVp
0,1,x,7	0.0942µVp
0,2,x,0	0.1036µVp
0,2,x,1	0.0925µVp
0,2,x,2	0.0894µVp
0,2,x,3	0.0997µVp
0,2,x,4	0.0903µVp
0,2,x,5	0.0998µVp
0,2,x,6	0.1001µVp
0,2,x,7	0.1153µVp

Range 0.316V, Bw 80kHz Not in Scope Spec: < 1.2000µV	
Chan	Value
0,1,x,0	0.5309µV
0,1,x,1	0.6797µV
0,1,x,2	0.6848µV
0,1,x,3	0.6206µV
0,1,x,4	0.5994µV
0,1,x,5	0.6219µV
0,1,x,6	0.7514µV
0,1,x,7	0.7443µV
0,2,x,0	0.6628µV
0,2,x,1	0.7874µV
0,2,x,2	0.6251µV
0,2,x,3	0.6021µV
0,2,x,4	0.5972µV
0,2,x,5	0.7104µV
0,2,x,6	0.6221µV
0,2,x,7	0.7279µV

Range 0.316V, Bw 40kHz Not in Scope Spec: < 0.1600µV	
Chan	Value
0,1,x,0	0.0870µV
0,1,x,1	0.1009µV
0,1,x,2	0.0819µV
0,1,x,3	0.0939µV
0,1,x,4	0.0780µV
0,1,x,5	0.0822µV
0,1,x,6	0.0876µV
0,1,x,7	0.0818µV
0,2,x,0	0.0929µV
0,2,x,1	0.0884µV
0,2,x,2	0.1121µV
0,2,x,3	0.0809µV
0,2,x,4	0.0931µV
0,2,x,5	0.0947µV
0,2,x,6	0.0896µV
0,2,x,7	0.1212µV

Range 0.316V, Bw 20kHz Spurious IR <= 316mV Spec: <= 0.130 µV Uncertainty: 2.0nV	
Chan	Value
0,1,x,0	0.055 µV
0,1,x,1	0.072 µV
0,1,x,2	0.061 µV
0,1,x,3	0.060 µV
0,1,x,4	0.062 µV
0,1,x,5	0.059 µV
0,1,x,6	0.064 µV
0,1,x,7	0.063 µV
0,2,x,0	0.063 µV
0,2,x,1	0.058 µV
0,2,x,2	0.069 µV
0,2,x,3	0.062 µV
0,2,x,4	0.058 µV
0,2,x,5	0.058 µV
0,2,x,6	0.062 µV
0,2,x,7	0.067 µV

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4.6 Inter-channel Crosstalk

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

Range 0.316V, F 1K5 Crosstalk 100mV < IR <= 316mV Spec: <= -120.0dB Uncertainty: 68nV	
Chan	Value
0,1,x,0	0.134 µV, -131.4dB
0,1,x,1	0.130 µV, -131.7dB
0,1,x,2	0.124 µV, -132.1dB
0,1,x,3	0.093 µV, -134.7dB
0,1,x,4	0.093 µV, -134.6dB
0,1,x,5	0.087 µV, -135.1dB
0,1,x,6	0.096 µV, -134.4dB
0,1,x,7	0.115 µV, -132.8dB
0,2,x,0	0.128 µV, -131.9dB
0,2,x,1	0.115 µV, -132.8dB
0,2,x,2	0.131 µV, -131.7dB
0,2,x,3	0.105 µV, -133.6dB
0,2,x,4	0.105 µV, -133.5dB
0,2,x,5	0.075 µV, -136.5dB
0,2,x,6	0.113 µV, -132.9dB
0,2,x,7	0.133 µV, -131.5dB

Range 0.316V, F 15K Crosstalk 100mV < IR <= 316mV Spec: <= -107.0dB Uncertainty: 68nV	
Chan	Value
0,1,x,0	0.815 µV, -115.8dB
0,1,x,1	1.335 µV, -111.5dB
0,1,x,2	1.348 µV, -111.4dB
0,1,x,3	1.390 µV, -111.1dB
0,1,x,4	1.373 µV, -111.2dB
0,1,x,5	1.346 µV, -111.4dB
0,1,x,6	1.161 µV, -112.7dB
0,1,x,7	1.099 µV, -113.2dB
0,2,x,0	0.802 µV, -115.9dB
0,2,x,1	1.341 µV, -111.4dB
0,2,x,2	1.393 µV, -111.1dB
0,2,x,3	1.354 µV, -111.3dB
0,2,x,4	1.337 µV, -111.5dB
0,2,x,5	1.321 µV, -111.6dB
0,2,x,6	1.217 µV, -112.3dB
0,2,x,7	1.063 µV, -113.4dB

Range 10V, F 1K5 Crosstalk 3.16V < IR <= 10V Spec: <= -108.0dB Uncertainty: 1.3µV	
Chan	Value
0,1,x,0	0.188 µV, -128.5dB
0,1,x,1	0.331 µV, -123.6dB
0,1,x,2	0.263 µV, -125.6dB
0,1,x,3	0.457 µV, -120.8dB
0,1,x,4	0.063 µV, -137.9dB
0,1,x,5	0.330 µV, -123.6dB
0,1,x,6	0.550 µV, -119.2dB
0,1,x,7	0.478 µV, -120.4dB
0,2,x,0	0.399 µV, -122.0dB
0,2,x,1	0.580 µV, -118.7dB
0,2,x,2	0.474 µV, -120.5dB
0,2,x,3	0.518 µV, -119.7dB
0,2,x,4	0.523 µV, -119.6dB
0,2,x,5	0.422 µV, -121.5dB
0,2,x,6	0.314 µV, -124.0dB
0,2,x,7	0.415 µV, -121.6dB

Range 10V, F 15K Crosstalk 3.16V < IR <= 10V Spec: <= -105.0dB Uncertainty: 1.3µV	
Chan	Value
0,1,x,0	0.995 µV, -114.0dB
0,1,x,1	1.324 µV, -111.5dB
0,1,x,2	1.675 µV, -109.5dB
0,1,x,3	1.559 µV, -110.1dB
0,1,x,4	1.887 µV, -108.5dB
0,1,x,5	1.436 µV, -110.8dB
0,1,x,6	1.511 µV, -110.4dB
0,1,x,7	1.215 µV, -112.3dB
0,2,x,0	0.869 µV, -115.2dB
0,2,x,1	1.436 µV, -110.8dB
0,2,x,2	1.687 µV, -109.4dB
0,2,x,3	1.528 µV, -110.3dB
0,2,x,4	1.583 µV, -110.0dB
0,2,x,5	1.671 µV, -109.5dB
0,2,x,6	1.659 µV, -109.6dB
0,2,x,7	1.174 µV, -112.6dB

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4.7 Inter-channel Phase Match

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

Range 10V, F 9k9 Not in Scope Spec: < 0.3000°	
Chan	Value
0,1,x,0	0.0171°
0,1,x,1	0.0310°
0,1,x,2	0.0241°
0,1,x,3	0.0175°
0,1,x,4	0.0240°
0,1,x,5	0.0228°
0,1,x,6	0.0159°
0,1,x,7	0.0291°
0,2,x,0	0.0310°
0,2,x,1	0.0195°
0,2,x,2	0.0212°
0,2,x,3	0.0177°
0,2,x,4	0.0161°
0,2,x,5	0.0220°
0,2,x,6	0.0196°
0,2,x,7	0.0281°

Range 10V, F 19k9 Not in Scope Spec: < 0.4000°	
Chan	Value
0,1,x,0	0.0342°
0,1,x,1	0.0619°
0,1,x,2	0.0485°
0,1,x,3	0.0339°
0,1,x,4	0.0473°
0,1,x,5	0.0461°
0,1,x,6	0.0311°
0,1,x,7	0.0590°
0,2,x,0	0.0619°
0,2,x,1	0.0391°
0,2,x,2	0.0424°
0,2,x,3	0.0361°
0,2,x,4	0.0322°
0,2,x,5	0.0438°
0,2,x,6	0.0398°
0,2,x,7	0.0557°

Range 0.316V, F 9k9 Not in Scope Spec: < 0.4500°	
Chan	Value
0,1,x,0	0.0469°
0,1,x,1	0.0646°
0,1,x,2	0.0682°
0,1,x,3	0.0606°
0,1,x,4	0.0656°
0,1,x,5	0.0526°
0,1,x,6	0.0466°
0,1,x,7	0.0449°
0,2,x,0	0.0540°
0,2,x,1	0.0684°
0,2,x,2	0.0511°
0,2,x,3	0.0631°
0,2,x,4	0.0834°
0,2,x,5	0.0710°
0,2,x,6	0.0834°
0,2,x,7	0.0588°

Range 0.316V, F 19k9 Not in Scope Spec: < 0.9000°	
Chan	Value
0,1,x,0	0.0920°
0,1,x,1	0.1274°
0,1,x,2	0.1355°
0,1,x,3	0.1188°
0,1,x,4	0.1292°
0,1,x,5	0.1079°
0,1,x,6	0.0957°
0,1,x,7	0.0870°
0,2,x,0	0.1082°
0,2,x,1	0.1360°
0,2,x,2	0.1020°
0,2,x,3	0.1269°
0,2,x,4	0.1675°
0,2,x,5	0.1429°
0,2,x,6	0.1675°
0,2,x,7	0.1186°

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5.1 Gain Accuracy after Adjustment

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

BW 25k6 **Alternating voltage 3.16V < IR <= 10V** **Spec: <= ±0.100%** **Uncertainty: 530µV**	
Chan	Value
0,x,x,0	0.362 mV, 0.009%
0,x,x,1	0.469 mV, 0.012%

BW 51k2 **Alternating voltage 3.16V < IR <= 10V** **Spec: <= ±0.100%** **Uncertainty: 530µV**	
Chan	Value
0,x,x,0	0.462 mV, 0.012%
0,x,x,1	0.607 mV, 0.015%

BW 102k4 **Not in Scope** **Spec: 1.00000 ±0.10%**	
Chan	Value
0,x,x,0	1.00011, 0.01%
0,x,x,1	1.00015, 0.02%

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CALIBRATION RvA K 159
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West Caldwell Calibration Laboratories Inc.

Certificate of Calibration

for

MICROPHONE UNIT

Manufactured by:	BRUEL & KJAER
Model No:	4189-A-021
Serial No:	2622170
Calibration Recall No:	28047

Submitted By:

Customer:

Company: Aercoustics Engineering LTD

Address:

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.

West Caldwell Calibration Laboratories' calibration control system meets the requirements, ISO 10012-1 MIL-STD-45662A, ANSI/NCSL Z540-1, IEC Guide 25, ISO 9001:2008 and ISO 17025.

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

Approved by: FC

Felix Christopher (QA Mgr.)

Calibration Date: 20-Sep-17

Certificate No: 28047 - 1

ISO/IEC 17025:2005

ACCREDITED

Calibration Lab. Cert. # 1533.01

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

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.: 2622170**
Mic. Model No.: 4189 — **Serial No.: 2625197**
Preamp. Model No.: 2671 — **Serial No.: 2614901**
Company: Aercoustics Engineering LTD — **I. D. No.: XXXX**

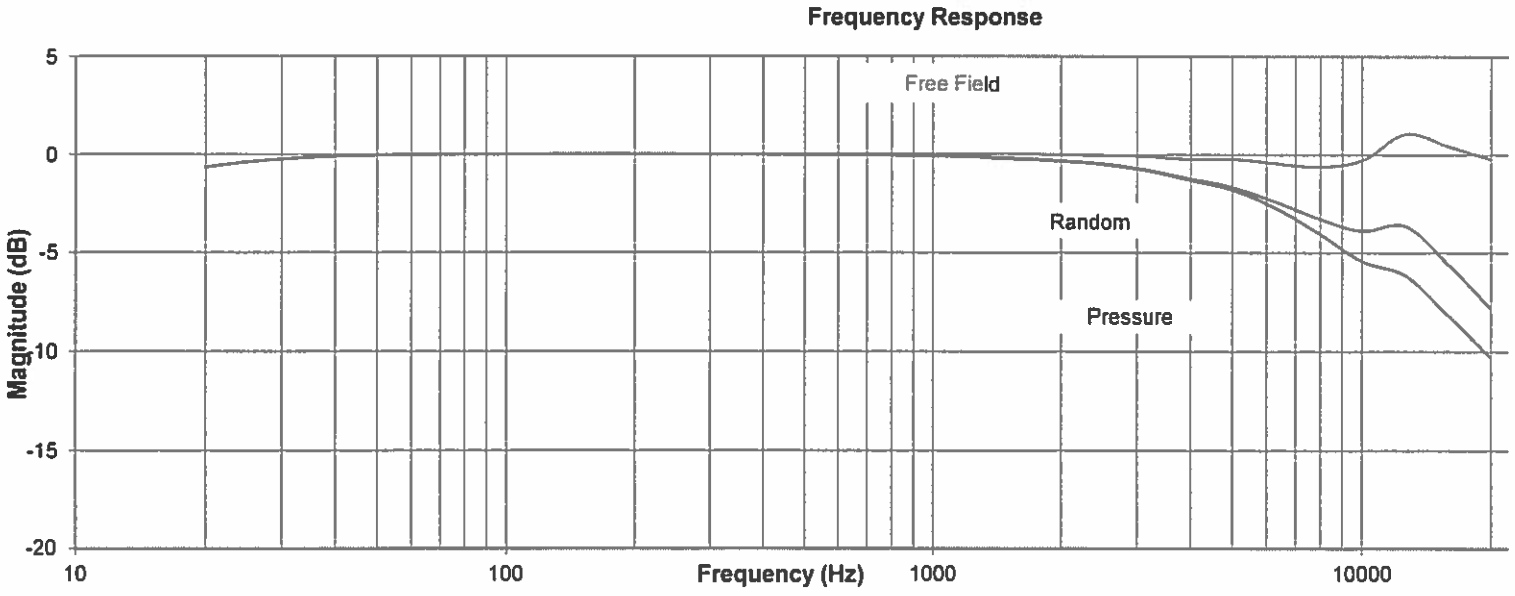
Calibration results:

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

Combined Sensitivity @ **250** **Hz** **and pressure of** **99.456** **kPa**
(Sens. with mic. and preamp.) **0** Volts Polarization voltage (External):
-26.69 dB re.1V/Pascal
46.31 mV/Pascal
0.69 Ko (- dB re 50 mV/Pascal)
Sensitivity: **Pass**
Freq. Response: **Pass**
All tests: **Pass**

Ambient Temperature:	21.6	°C
Ambient Humidity:	53.6	% RH
Ambient Pressure:	99.456	kPa
Calibration Date:	20-Sep-2017	
Calibration Due:	20-Sep-2018	
Report Number:	28047	-1
Control Number:	28047	

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: 683/284413-14
The expanded uncertainty of calibration: 0.079dB 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 9001:2008, ISO 17025

Measurements performed by: .....
James Zhu

Calibrated on WCCL system type 9700

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

Calibration Data Record

for

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

Frequency Response (Reference = 0 dB @ 250Hz)

Frequency [Hz]	Pressure [dB]	Free Field (dB)	Random (dB)
19.95	-0.65	-0.65	-0.65
25.12	-0.38	-0.38	-0.38
31.62	-0.21	-0.21	-0.21
39.81	-0.10	-0.10	-0.10
50.12	-0.04	-0.04	-0.04
63.10	-0.01	-0.01	-0.01
79.43	0.00	0.00	0.00
100.00	0.00	0.00	0.00
125.89	0.00	0.00	0.00
158.49	0.01	0.01	0.01
199.53	0.00	0.00	0.00
251.19	0.00	0.00	0.00
316.23	0.00	0.00	0.00
398.11	-0.01	0.00	-0.01
501.19	-0.01	0.01	-0.01
630.96	-0.02	0.02	-0.02
794.33	-0.04	0.03	-0.04
1000.00	-0.07	0.02	-0.09
1258.93	-0.11	0.04	-0.14
1584.89	-0.20	0.02	-0.25
1995.26	-0.33	-0.01	-0.34
2511.89	-0.51	-0.03	-0.47
3162.28	-0.81	-0.10	-0.77
3981.07	-1.30	-0.23	-1.21
5011.87	-1.80	-0.22	-1.66
6309.57	-2.72	-0.44	-2.41
7943.28	-4.00	-0.62	-3.25
10000.00	-5.41	-0.28	-3.87
12589.25	-6.14	1.05	-3.63
15848.93	-8.16	0.43	-5.57
19952.62	-10.27	-0.22	-7.79

Freq. response: Expanded Uncertainty (dB) with coverage factor K = 2
20 to 63Hz 0.1dB, 63 to 12.5kHz 0.094dB, 12.5k to 16kHz 0.10dB, 16k to 20kHz 0.5dB.

Instruments used for calibration:			Date of Cal.	Traceability No.	Re-cal. Due Date
Brüel & Kjær	4226	S/N 1445428	3-Nov-2016	683/284413-14	3-Nov-2017
Brüel & Kjær	3560	S/N 2202374	3-Nov-2016	683/284413-14	3-Nov-2017
HP	33120A	S/N 36043716	1-Oct-2016	,287708	1-Oct-2017
HP	34401A	S/N 36064102	1-Oct-2016	,287708	1-Oct-2017

Cal. Date: 20-Sep-2017 **Tested by: James Zhu**

Calibrated on WCCL system type 9700

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

West Caldwell Calibration Laboratories Inc.

Certificate of Calibration

for

SOUND CALIBRATOR

Manufactured by:	BRUEL & KJAER
Model No:	4231
Serial No:	2513183
Calibration Recall No:	29177

Submitted By:

Customer:

Company: Aercoustics Engineering LTD.

Address:

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. 4231 BRUE

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

Within (X)

tolerance of the indicated specification. See attached Report of Calibration.
The information supplied relates to the calibrated item listed above.
West Caldwell Calibration Laboratories' calibration control system meets the requirements, ISO 10012-1 MIL-STD-45662A, ANSI/NCSL Z540-1, IEC Guide 25, ISO 9001:2008 and ISO 17025.

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

Approved by: FC

Calibration Date: 11-Sep-18

Felix Christopher (QA Mgr.)

Certificate No: 29177 - 1

ISO/IEC 17025:2005

ACCREDITED

Calibration Lab. Cert. # 1533.01

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

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

REPORT OF CALIBRATION

for

Brüel & Kjær Sound Calibrator **Model No.: 4231** **Serial No.: 2513183**
Company: Aercoustics Engineering LTD. **ID No.: XXXX**

Calibration results:

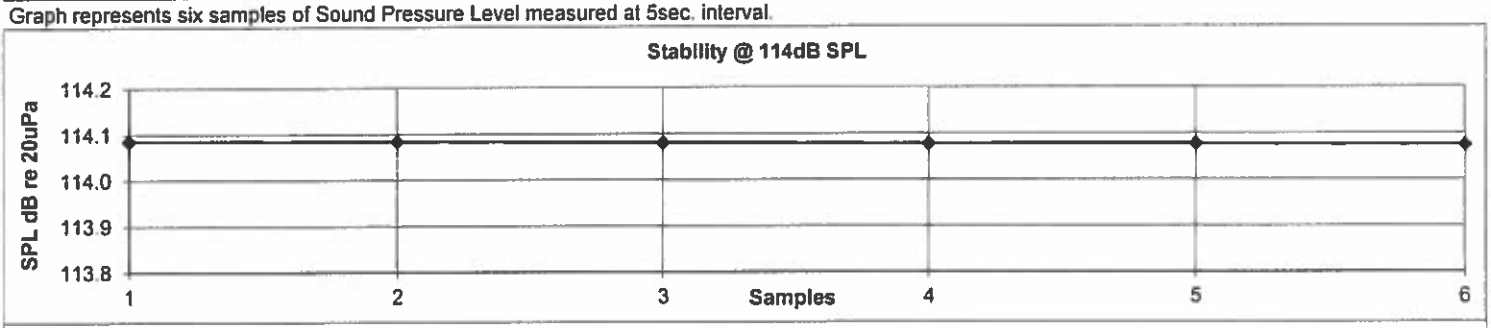
Before data: ..... After data: .....
Before & after data same: ...X.....
Sound Pressure Level at 1000.0 Hz and pressure of 1013 hPa (mbar)
was 114.08 dB re 20µPa
(Calibrator tested with ½" adaptor UC 0210)
IEC 1094-4 Type WS 2 P Microphone was used for measurement.

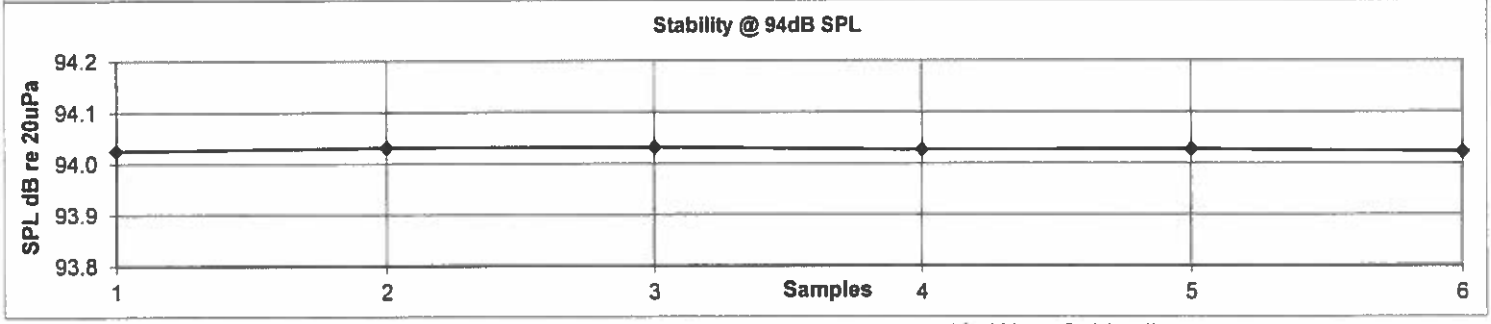
	114dB	94dB
Sound Pressure Level:	Pass	Pass
Frequency:	Pass	Pass
Distortion:	Pass	Pass
Stability:	Pass	Pass
All tested parameters:		Pass

The above listed instrument meets or exceeds the tested manufacturer's specifications
The IEC 60942:2003 Class 1 specifications, passed.
The ANSI S1.4-1984 specifications, passed.
This Calibration is traceable through NIST test numbers: 683/284413-14
The expanded uncertainty of calibration: 0.11 dB at 95% confidence level with a coverage factor of k=2.

Laboratory Environment:		
Ambient Temperature:	21.1	°C
Ambient Humidity:	56.1	% RH
Ambient Pressure:	99.652	kPa
Calibration Date:	11-Sep-2018	
Calibration Due:	11-Sep-2019	
Report Number:	29177 -1	
Control Number:	29177	

Graph represents six samples of Sound Pressure Level measured at 5sec. 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) and ISO 9001:2008, ISO 17025

Cal. Date: 11-Sep-2018

Measurements performed by: MS
Matthew Smith

Calibrated on WCCL system type 9700

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

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

Calibration Data Record

for

Brüel & Kjær Sound Calibrator **Model No.: 4231** **Serial No.: 2513183**

Company: Aercoustics Engineering LTD.

All tested parameters: Pass

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

Sample	1	114.09 dB re 20µPa	94.03 dB re 20µPa	
	2	114.08	94.03	
	3	114.08	94.03	
	4	114.08	94.03	
	5	114.08	94.03	
	6	114.07	94.02	
	Average	**114.08** Spec. 114dB ± 0.2dB	**94.03**	Spec. 94dB ± 0.2dB

Frequency measured (Three samples at 30 sec. Interval)

Sample	1	999.96 Hz	999.96 Hz	
	2	999.96	999.98	
	3	999.96	999.95	
	Average	**999.96**	**999.96**	Spec. 1000Hz ±0.1%

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

Distortion measured	-47.9 dB	-45.3 dB	Spec. ≤-40dB

Instruments used for calibration:			Date of Cal.	Traceability No.	Re-cal. Due Date
Brüel & Kjær	4231	S/N 2205492	16-Jul-2018	683/284413-14	16-Jul-2019
Brüel & Kjær	4134	S/N 173494	16-Jul-2018	683/284413-14	16-Jul-2019
Brüel & Kjær	2669	S/N 1835080	16-Jul-2018	683/284413-14	16-Jul-2019
HP	34401A	S/N US361025	19-Jul-2018	,287708	19-Jul-2019
Brüel & Kjær	2636	S/N 1487493	17-Jul-2018	683/284413-14	17-Jul-2019
HP	33120A	S/N SG400116	19-Jul-2018	,287708	19-Jul-2019

Cal. Date: 11-Sep-2018 **Tested by: Matthew Smith**

Calibrated on WCCL system type 9700

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SOH Wind Engineering LLC
141 Leroy Road · Williston, VT 05495 · USA
Tel 802.316.4368 · Fax 802.735.9106 · www.sohwind.com

CERTIFICATE FOR CALIBRATION OF SONIC ANEMOMETER

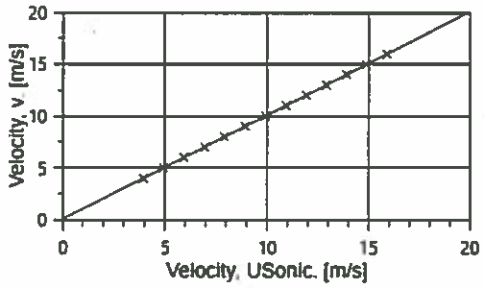
Certificate number: 17.US1.10370 **Date of issue:** November 16, 2017
Type: Vaisala Weather Transmitter, WXT520 **Serial number:** G4420002
Manufacturer: Vaisala, Oyj, Pl 26, FIN-00421 Helsinki, Finland
Client: Aercoustics Engineering Ltd., 1004 Middlegate RD, Suite 1100, S.Tower, Mississauga, ON L4Y 1M4, Canada

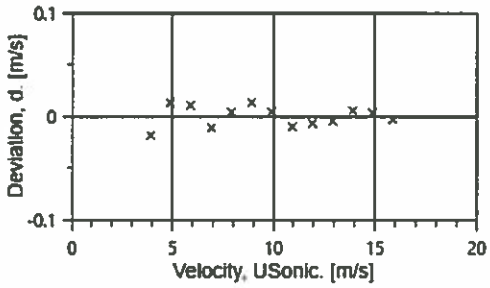
Anemometer received: November 15, 2017 **Anemometer calibrated:** November 15, 2017
Calibrated by: MEJ **Procedure:** MEASNET, IEC 61400-12-1:2017 Annex F
Certificate prepared by: EJF **Approved by:** Calibration engineer, EJF

Calibration equation obtained: $v\,[m/s] = 1.00118 \cdot f\,[m/s] + 0.06286$

Standard uncertainty, slope: 0.00077 **Standard uncertainty, offset:** 0.13048
Covariance: -0.0000059 $(m/s)^2/m/s$ **Coefficient of correlation:** $\rho = 0.999997$
Absolute maximum deviation: -0.019 m/s at 3.969 m/s
Barometric pressure: 1011.5 hPa **Relative humidity:** 21.9%

Succession	Velocity pressure, q. [Pa]	Temperature in wind tunnel [°C]	Temperature in 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	9.39	22.0	26.0	3.969	3.9200	-0.019	0.024
4	14.85	22.0	26.0	4.992	4.9103	0.013	0.025
6	21.38	22.0	26.0	5.990	5.9100	0.011	0.027
8	29.13	22.1	26.0	6.993	6.9333	-0.011	0.029
10	38.09	22.1	26.0	7.996	7.9200	0.004	0.032
12	48.35	22.1	26.0	9.010	8.9233	0.013	0.035
13-last	59.50	22.1	26.0	9.996	9.9172	0.004	0.038
11	72.14	22.0	26.0	11.006	10.9400	-0.010	0.041
9	85.76	22.0	26.0	12.000	11.9300	-0.007	0.044
7	100.55	22.0	26.0	12.993	12.9200	-0.005	0.047
5	116.73	22.0	26.0	14.000	13.9150	0.006	0.050
3	133.56	22.0	26.0	14.974	14.8900	0.004	0.053
1-first	152.12	21.9	26.0	15.979	15.9000	-0.003	0.057





AC-1746

EQUIPMENT USED

Serial Number	Description
Njord1	Wind tunnel, blockage factor = 1.0035
2254	Control cup anemometer
-	Mounting tube, D = 19 mm
TT003	Summit Electronics, 1XPT100, 0-10V Output, wind tunnel temp.
TP001	PR Electronics 5102, 0-10V Output, differential pressure box temp.
DP004	Setra Model 239, 0-1inWC, differential pressure transducer
HY002	Dwyer RHP-2D20, 0-10V Output, humidity transmitter
BP001	Setra Model 278, barometer
PL8	Pitot tube
XB002	Computer Board. 16 bit A/D data acquisition board
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.

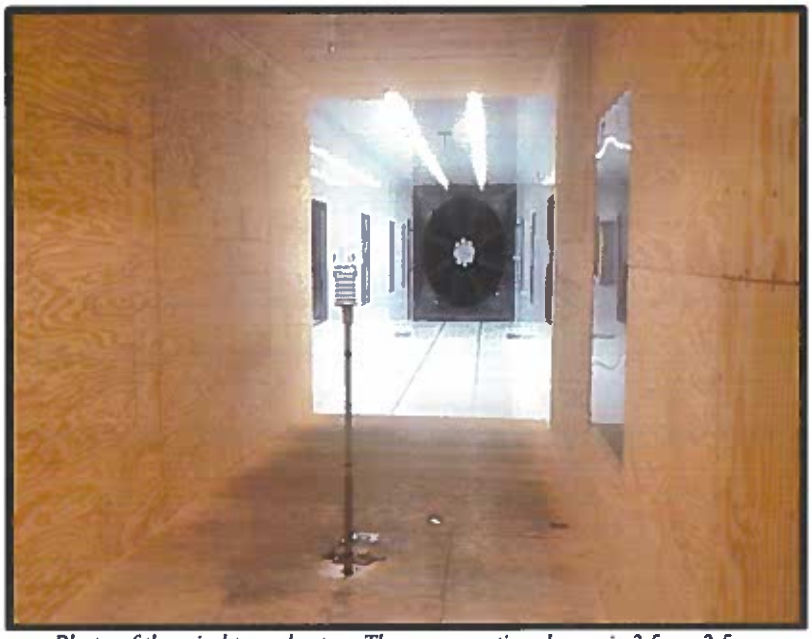


Photo of the wind tunnel setup. The cross-sectional area is 2.5m x 2.5m.

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° for this certificate.

Certificate number: 17.US1.10370

All calibrations are done in the "As Left" condition unless otherwise noted.
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SOH Wind Engineering LLC
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Tel 802.316.4368 · Fax 802.735.9106 · www.sohwind.com

CERTIFICATE FOR CALIBRATION OF SONIC ANEMOMETER

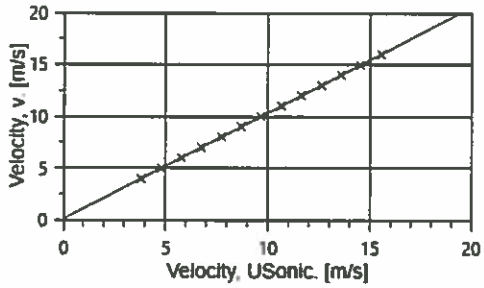
Certificate number: 17.US1.10369 **Date of issue:** November 16, 2017
Type: Vaisala Weather Transmitter, WXT520 **Serial number:** G4420002
Manufacturer: Vaisala, Oyj, Pl 26, FIN-00421 Helsinki, Finland
Client: Aercoustics Engineering Ltd., 1004 Middlegate RD, Suite 1100, S.Tower, Mississauga, ON L4Y 1M4, Canada

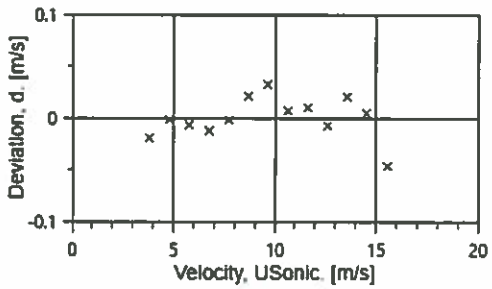
Anemometer received: November 15, 2017 **Anemometer calibrated:** November 15, 2017
Calibrated by: MEJ **Procedure:** MEASNET, IEC 61400-12-1:2017 Annex F
Certificate prepared by: EJF **Approved by:** Calibration engineer, EJF

Calibration equation obtained: v [m/s] = 1.02399 · f [m/s] + 0.09265

Standard uncertainty, slope: 0.00156 **Standard uncertainty, offset:** 0.17838
Covariance: -0.0000247 (m/s)²/m/s **Coefficient of correlation:** ρ = 0.999987
Absolute maximum deviation: -0.046 m/s at 15.979 m/s
Barometric pressure: 1011.1 hPa **Relative humidity:** 22.0%

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	9.41	22.0	26.0	3.975	3.8100	-0.019	0.024
4	14.86	22.0	26.0	4.996	4.7897	-0.002	0.025
6	21.40	22.1	26.0	5.994	5.7700	-0.007	0.027
8	29.14	22.1	26.0	6.996	6.7533	-0.012	0.029
10	38.16	22.1	26.0	8.006	7.7300	-0.002	0.032
12	48.35	22.1	26.0	9.012	8.6900	0.021	0.035
13-last	59.54	22.1	26.0	10.001	9.6448	0.032	0.038
11	72.13	22.1	26.0	11.009	10.6533	0.007	0.041
9	85.87	22.1	26.0	12.012	11.6300	0.010	0.044
7	100.56	22.1	26.0	12.998	12.6100	-0.008	0.047
5	116.94	22.0	26.0	14.015	13.5767	0.020	0.050
3	133.53	22.0	26.0	14.976	14.5300	0.005	0.053
1-first	152.03	22.0	26.0	15.979	15.5600	-0.046	0.057





AC-1746

EQUIPMENT USED

Serial Number	Description
Njord1	Wind tunnel, blockage factor = 1.0035
2254	Control cup anemometer
-	Mounting tube, D = 19 mm
TT003	Summit Electronics, 1XPT100, 0-10V Output, wind tunnel temp.
TP001	PR Electronics 5102, 0-10V Output, differential pressure box temp.
DP004	Setra Model 239, 0-1inWC, differential pressure transducer
HY002	Dwyer RHP-2D20, 0-10V Output, humidity transmitter
BP001	Setra Model 278, barometer
PL8	Pitot tube
XB002	Computer Board. 16 bit A/D data acquisition board
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.

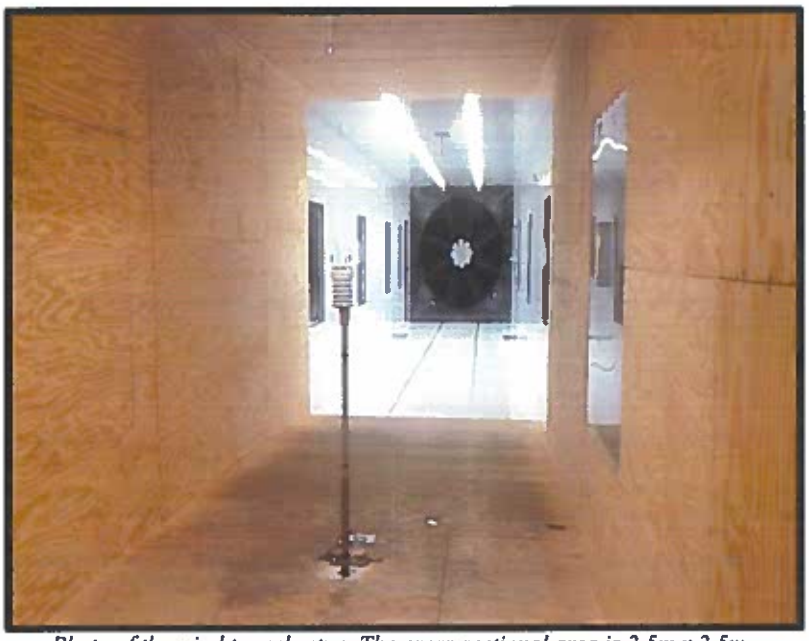


Photo of the wind tunnel setup. The cross-sectional area is 2.5m x 2.5m.

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° for this certificate.

Certificate number: 17.US1.10369

All calibrations are done in the "As Left" condition unless otherwise noted.
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TRANSCAT CANADA
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CERTIFICATE OF CALIBRATION

Customer: AEROCOUSTICS ENGINEERING LTD
1004 MIDDLEGATE ROAD
SUITE 1100
MISSISSAUGA, ON L4Y 1M4
PO Number: TR2018.02.14

SCC Accredited LAB — LAB Accrédité CCN
SCC Lab No 827

CLAS NRC·CNRC CLAS CLAS 2016-02

ilac-MRA

Certificate/SO Number: 33-Q0W0C-20-1 Revision 0

Manufacturer: Nokeval
Model Number: 7470
Description: Serial to Analog Converter
Serial Number: A159784
ID: NONE

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

Calibration Date: Feb 20, 2018
Due Date: Feb 20, 2020

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

Transcat Calibration Laboratories have been audited and found in compliance with ISO/IEC 17025:2005. Accredited calibrations performed within the Lab's Scope of Accreditation are indicated by the presence of the Accrediting Body's Logo and Certificate Number. Any measurements on an accredited calibration not covered by that Lab's Scope of Accreditation are listed in the notes section of the certificate. SCC, NRC, CLAS or ANAB do not guarantee the accuracy of an individual calibration by accredited laboratories.

Transcat calibrations, as applicable, are performed in compliance with the requirements of the Transcat Quality Manual QAC-P01-000 Revision 1.0, the customer's Purchase Order and/or Quality Agreement requirements, ISO 9001:2008, ANSI/NCSL Z540.1-1994 (R2002). 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 below.

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.

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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CERTIFICATE OF CALIBRATION

Customer: AEROCOUSTICS ENGINEERING LTD
1004 MIDDLEGATE ROAD
SUITE 1100
MISSISSAUGA, ON L4Y 1M4
PO Number: TR2018.02.14

SCC Accredited LAB
LAB Accrédité CCN
SCC Lab No 827

CLAS
NRC·CNRC
CLAS CLAS 2016-02

ilac-MRA

Certificate/SO Number: 33-Q0W0C-20-1 Revision 0

As Found/As Left Data

Description	Setpoints	Accuracy	Low Limit	High Limit	As Found / As Left	OOT	Cal Process Uncertainty (k=2; ±)	Measurement Uncertainty (k=2; ±)	Units	TUR
DC Current % Source - 4-20mA Ch #1										
4 - 20mA	0%	±(0.1% Span)	3.984	4.016	3.996 mA		1.6e-004	1.9e-003	mA	100.0 : 1
	25%	±(0.1% Span)	7.984	8.016	7.995 mA		2.7e-004	1.9e-003	mA	59.3 : 1
	50%	±(0.1% Span)	11.984	12.016	12.000 mA		1.1e-003	2.2e-003	mA	14.5 : 1
	75%	±(0.1% Span)	15.984	16.016	15.999 mA		1.3e-003	2.3e-003	mA	12.3 : 1
	100%	±(0.1% Span)	19.984	20.016	19.998 mA		1.4e-003	2.3e-003	mA	11.4 : 1
DC Current % Source - 4-20mA Ch #2										
4 - 20mA	0%	±(0.1% Span)	3.984	4.016	3.996 mA		1.6e-004	1.9e-003	mA	100.0 : 1
	25%	±(0.1% Span)	7.984	8.016	7.999 mA		2.7e-004	1.9e-003	mA	59.3 : 1
	50%	±(0.1% Span)	11.984	12.016	11.997 mA		1.1e-003	2.2e-003	mA	14.5 : 1
	75%	±(0.1% Span)	15.984	16.016	16.002 mA		1.3e-003	2.3e-003	mA	12.3 : 1
	100%	±(0.1% Span)	19.984	20.016	19.999 mA		1.4e-003	2.3e-003	mA	11.4 : 1
DC Current % Source - 4-20mA Ch #3										
4 - 20mA	0%	±(0.1% Span)	3.984	4.016	3.996 mA		1.6e-004	1.9e-003	mA	100.0 : 1
	25%	±(0.1% Span)	7.984	8.016	7.996 mA		2.7e-004	1.9e-003	mA	59.3 : 1
	50%	±(0.1% Span)	11.984	12.016	11.996 mA		1.1e-003	2.2e-003	mA	14.5 : 1
	75%	±(0.1% Span)	15.984	16.016	16.002 mA		1.3e-003	2.3e-003	mA	12.3 : 1
	100%	±(0.1% Span)	19.984	20.016	20.002 mA		1.4e-003	2.3e-003	mA	11.4 : 1
DC Current % Source - 4-20mA Ch #4										
4 - 20mA	0%	±(0.1% Span)	3.984	4.016	3.997 mA		1.6e-004	1.9e-003	mA	100.0 : 1
	25%	±(0.1% Span)	7.984	8.016	7.995 mA		2.7e-004	1.9e-003	mA	59.3 : 1
	50%	±(0.1% Span)	11.984	12.016	11.999 mA		1.1e-003	2.2e-003	mA	14.5 : 1
	75%	±(0.1% Span)	15.984	16.016	15.997 mA		1.3e-003	2.3e-003	mA	12.3 : 1
	100%	±(0.1% Span)	19.984	20.016	20.001 mA		1.4e-003	2.3e-003	mA	11.4 : 1

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CERTIFICATE OF CALIBRATION

Customer: AEROCOUSTICS ENGINEERING LTD
1004 MIDDLEGATE ROAD
SUITE 1100
MISSISSAUGA, ON L4Y 1M4
PO Number: TR2018.02.14

SCC Accredited LAB — LAB Accrédité CCN
SCC Lab No 827

CLAS ARC·CNRC CLAS CLAS 2016-02

ilac-MRA

Certificate/SO Number: 33-Q0W0C-20-1 Revision 0

As Found/As Left Data

Description	Setpoints	Accuracy	Low Limit	High Limit	As Found / As Left	OOT	Cal Process Uncertainty (k=2; ±)	Measurement Uncertainty (k=2; ±)	Units	TUR
DC Current % Source - 0-20mA Ch #1										
0 - 20mA	0%	±(0.1% Span)	-0.020	0.020	0.000 mA		9.2e-007	2.3e-003	mA	100.0 : 1
	25%	±(0.1% Span)	4.980	5.020	4.997 mA		1.9e-004	2.3e-003	mA	100.0 : 1
	50%	±(0.1% Span)	9.980	10.020	9.997 mA		3.2e-004	2.3e-003	mA	62.5 : 1
	75%	±(0.1% Span)	14.980	15.020	14.998 mA		1.2e-003	2.6e-003	mA	16.7 : 1
	100%	±(0.1% Span)	19.980	20.020	19.998 mA		1.4e-003	2.7e-003	mA	14.3 : 1
DC Current % Source - 0-20mA Ch #2										
0 - 20mA	0%	±(0.1% Span)	-0.020	0.020	0.002 mA		9.2e-007	2.3e-003	mA	100.0 : 1
	25%	±(0.1% Span)	4.980	5.020	4.996 mA		1.9e-004	2.3e-003	mA	100.0 : 1
	50%	±(0.1% Span)	9.980	10.020	10.000 mA		3.2e-004	2.3e-003	mA	62.5 : 1
	75%	±(0.1% Span)	14.980	15.020	15.000 mA		1.2e-003	2.6e-003	mA	16.7 : 1
	100%	±(0.1% Span)	19.980	20.020	19.999 mA		1.4e-003	2.7e-003	mA	14.3 : 1
DC Current % Source - 0-20mA Ch #3										
0 - 20mA	0%	±(0.1% Span)	-0.020	0.020	0.001 mA		9.2e-007	2.3e-003	mA	100.0 : 1
	25%	±(0.1% Span)	4.980	5.020	4.996 mA		1.9e-004	2.3e-003	mA	100.0 : 1
	50%	±(0.1% Span)	9.980	10.020	9.996 mA		3.2e-004	2.3e-003	mA	62.5 : 1
	75%	±(0.1% Span)	14.980	15.020	14.996 mA		1.2e-003	2.6e-003	mA	16.7 : 1
	100%	±(0.1% Span)	19.980	20.020	20.001 mA		1.4e-003	2.7e-003	mA	14.3 : 1
DC Current % Source - 0-20mA Ch #4										
0 - 20mA	0%	±(0.1% Span)	-0.020	0.020	0.001 mA		9.2e-007	2.3e-003	mA	100.0 : 1
	25%	±(0.1% Span)	4.980	5.020	4.992 mA		1.9e-004	2.3e-003	mA	100.0 : 1
	50%	±(0.1% Span)	9.980	10.020	9.997 mA		3.2e-004	2.3e-003	mA	62.5 : 1
	75%	±(0.1% Span)	14.980	15.020	14.996 mA		1.2e-003	2.6e-003	mA	16.7 : 1
	100%	±(0.1% Span)	19.980	20.020	20.001 mA		1.4e-003	2.7e-003	mA	14.3 : 1

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SUITE 1100
MISSISSAUGA, ON L4Y 1M4
PO Number: TR2018.02.14

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SCC Lab No 827

CLAS NRC·CNRC CLAS CLAS 2016-02

ilac-MRA

Certificate/SO Number: 33-Q0W0C-20-1 Revision 0

As Found/As Left Data

Description	Setpoints	Accuracy	Low Limit	High Limit	As Found / As Left	OOT	Cal Process Uncertainty (k=2; ±)	Measurement Uncertainty (k=2; ±)	Units	TUR
DC Voltage % Source - 0-5V Ch#1										
0 -5V	0%	±(0.1% Span)	-0.0050	0.0050	0.0009 V		5.0e-007	5.8e-004	V	100.0 : 1
	20%	±(0.1% Span)	0.9950	1.0050	1.0010 V		5.5e-006	5.8e-004	V	100.0 : 1
	40%	±(0.1% Span)	1.9950	2.0050	2.0001 V		1.1e-005	5.8e-004	V	100.0 : 1
	60%	±(0.1% Span)	2.9950	3.0050	2.9984 V		1.6e-005	5.8e-004	V	100.0 : 1
	80%	±(0.1% Span)	3.9950	4.0050	4.0001 V		2.1e-005	5.8e-004	V	100.0 : 1
	100%	±(0.1% Span)	4.9950	5.0050	4.9988 V		2.6e-005	5.8e-004	V	100.0 : 1
DC Voltage % Source - 0-5V Ch#2										
0 -5V	0%	±(0.1% Span)	-0.0050	0.0050	0.0002 V		5.0e-007	5.8e-004	V	100.0 : 1
	20%	±(0.1% Span)	0.9950	1.0050	1.0000 V		5.5e-006	5.8e-004	V	100.0 : 1
	40%	±(0.1% Span)	1.9950	2.0050	2.0010 V		1.1e-005	5.8e-004	V	100.0 : 1
	60%	±(0.1% Span)	2.9950	3.0050	2.9990 V		1.6e-005	5.8e-004	V	100.0 : 1
	80%	±(0.1% Span)	3.9950	4.0050	3.9980 V		2.1e-005	5.8e-004	V	100.0 : 1
	100%	±(0.1% Span)	4.9950	5.0050	5.0000 V		2.6e-005	5.8e-004	V	100.0 : 1
DC Voltage % Source - 0-5V Ch#3										
0 -5V	0%	±(0.1% Span)	-0.0050	0.0050	0.0001 V		5.0e-007	5.8e-004	V	100.0 : 1
	20%	±(0.1% Span)	0.9950	1.0050	0.9995 V		5.5e-006	5.8e-004	V	100.0 : 1
	40%	±(0.1% Span)	1.9950	2.0050	1.9991 V		1.1e-005	5.8e-004	V	100.0 : 1
	60%	±(0.1% Span)	2.9950	3.0050	2.9982 V		1.6e-005	5.8e-004	V	100.0 : 1
	80%	±(0.1% Span)	3.9950	4.0050	4.0008 V		2.1e-005	5.8e-004	V	100.0 : 1
	100%	±(0.1% Span)	4.9950	5.0050	5.0015 V		2.6e-005	5.8e-004	V	100.0 : 1

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CLAS NRC·CNRC CLAS CLAS 2016-02

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Certificate/SO Number: 33-Q0W0C-20-1 Revision 0

As Found/As Left Data

Description	Setpoints	Accuracy	Low Limit	High Limit	As Found / As Left	OOT	Cal Process Uncertainty (k=2; ±)	Measurement Uncertainty (k=2; ±)	Units	TUR
DC Voltage % Source - 0-5V Ch#4										
0 -5V	0%	±(0.1% Span)	-0.0050	0.0050	0.0001 V		5.0e-007	5.8e-004	V	100.0 : 1
	20%	±(0.1% Span)	0.9950	1.0050	1.0006 V		5.5e-006	5.8e-004	V	100.0 : 1
	40%	±(0.1% Span)	1.9950	2.0050	1.9991 V		1.1e-005	5.8e-004	V	100.0 : 1
	60%	±(0.1% Span)	2.9950	3.0050	2.9999 V		1.6e-005	5.8e-004	V	100.0 : 1
	80%	±(0.1% Span)	3.9950	4.0050	3.9984 V		2.1e-005	5.8e-004	V	100.0 : 1
	100%	±(0.1% Span)	4.9950	5.0050	4.9996 V		2.6e-005	5.8e-004	V	100.0 : 1
DC Voltage % Source - 0-10V Ch#1										
0 - 10V	0%	±(0.1% Span)	-0.010	0.010	0.001 V		5.0e-007	1.2e-003	V	100.0 : 1
	20%	±(0.1% Span)	1.990	2.010	2.000 V		1.1e-005	1.2e-003	V	100.0 : 1
	40%	±(0.1% Span)	3.990	4.010	4.000 V		2.1e-005	1.2e-003	V	100.0 : 1
	60%	±(0.1% Span)	5.990	6.010	6.000 V		3.1e-005	1.2e-003	V	100.0 : 1
	80%	±(0.1% Span)	7.990	8.010	7.997 V		4.1e-005	1.2e-003	V	100.0 : 1
	100%	±(0.1% Span)	9.990	10.010	9.997 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	0.002 V		5.0e-007	1.2e-003	V	100.0 : 1
	20%	±(0.1% Span)	1.990	2.010	2.001 V		1.1e-005	1.2e-003	V	100.0 : 1
	40%	±(0.1% Span)	3.990	4.010	3.998 V		2.1e-005	1.2e-003	V	100.0 : 1
	60%	±(0.1% Span)	5.990	6.010	5.998 V		3.1e-005	1.2e-003	V	100.0 : 1
	80%	±(0.1% Span)	7.990	8.010	7.998 V		4.1e-005	1.2e-003	V	100.0 : 1
	100%	±(0.1% Span)	9.990	10.010	9.997 V		5.2e-005	1.2e-003	V	100.0 : 1

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Certificate/SO Number: 33-Q0W0C-20-1 Revision 0

As Found/As Left Data

Description	Setpoints	Accuracy	Low Limit	High Limit	As Found / As Left	OOT	Cal Process Uncertainty (k=2; ±)	Measurement Uncertainty (k=2; ±)	Units	TUR
DC Voltage % Source - 0-10V Ch#3										
0 - 10V	0%	±(0.1% Span)	-0.010	0.010	0.000 V		5.0e-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	7.999 V		4.1e-005	1.2e-003	V	100.0 : 1
	100%	±(0.1% Span)	9.990	10.010	9.998 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		5.0e-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	3.998 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	8.000 V		4.1e-005	1.2e-003	V	100.0 : 1
	100%	±(0.1% Span)	9.990	10.010	9.998 V		5.2e-005	1.2e-003	V	100.0 : 1

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1004 MIDDLEGATE ROAD
SUITE 1100
MISSISSAUGA, ON L4Y 1M4
PO Number: TR2018.02.14

Certificate/SO Number: 33-Q0W0C-20-1 Revision 0

Traceable Standards

Asset	Manufacturer	Model Number	Description	Cal Date	Due Date	Traceability Number	Use
N0150	Fluke Corporation	5700A	Calibrator	23-Jun-17	31-May-18	5-&N0150-14-1	AF
N0436	Agilent Technologies	3458A Opt 002	Digital Multimeter, 8.5 Digit	19-Apr-17	30-Apr-18	5-&N0436-14-1	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
71.35°F /21.86°C	33.50%	N0457

Calibrated At:
4043 Carling Avenue
Ottawa, ON K2K 2A4

Facility Responsible:
4043 Carling Avenue
Ottawa, ON K2K 2A4
800-828-1470

Calibrated By:
Electronically Signed By:
Mark King

Mark King	Feb 20, 2018
Calibration Technician	15:08:17 -05:00

Reviewed By:
Electronically Signed By:
Francis Kane

Francis Kane	Feb 20, 2018
Lab Manager	15:24:41 -05:00

Unit Barcode: 901B0150195

Date Received: February 15, 2018
Service Level : R9

Customer Number: 9-322110-000

West Caldwell Calibration Laboratories Inc.

Certificate of Calibration

for

ICP SIGNAL CONDITIONER

Manufactured by:	PCB PIEZOTRONICS
Model No:	480E09
Serial No:	34219
Calibration Recall No:	28351

Submitted By:

Customer:

Company: Aercoustics Engineering Ltd.
Address:

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. 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 requirements, ISO 10012-1 MIL-STD-45662A, ANSI/NCSL Z540-1, IEC Guide 25, ISO 9001:2008 and ISO 17025.

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

Approved by: FC

Felix Christopher (QA Mgr.)

Calibration Date: 10-Jan-18

Certificate No: 28351 - 9

ISO/IEC 17025:2005

ACCREDITED

Calibration Lab. Cert. # 1533.01

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

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.: 34219**
Company: Aercoustics Engineering Ltd. **ID No.: XXXX**

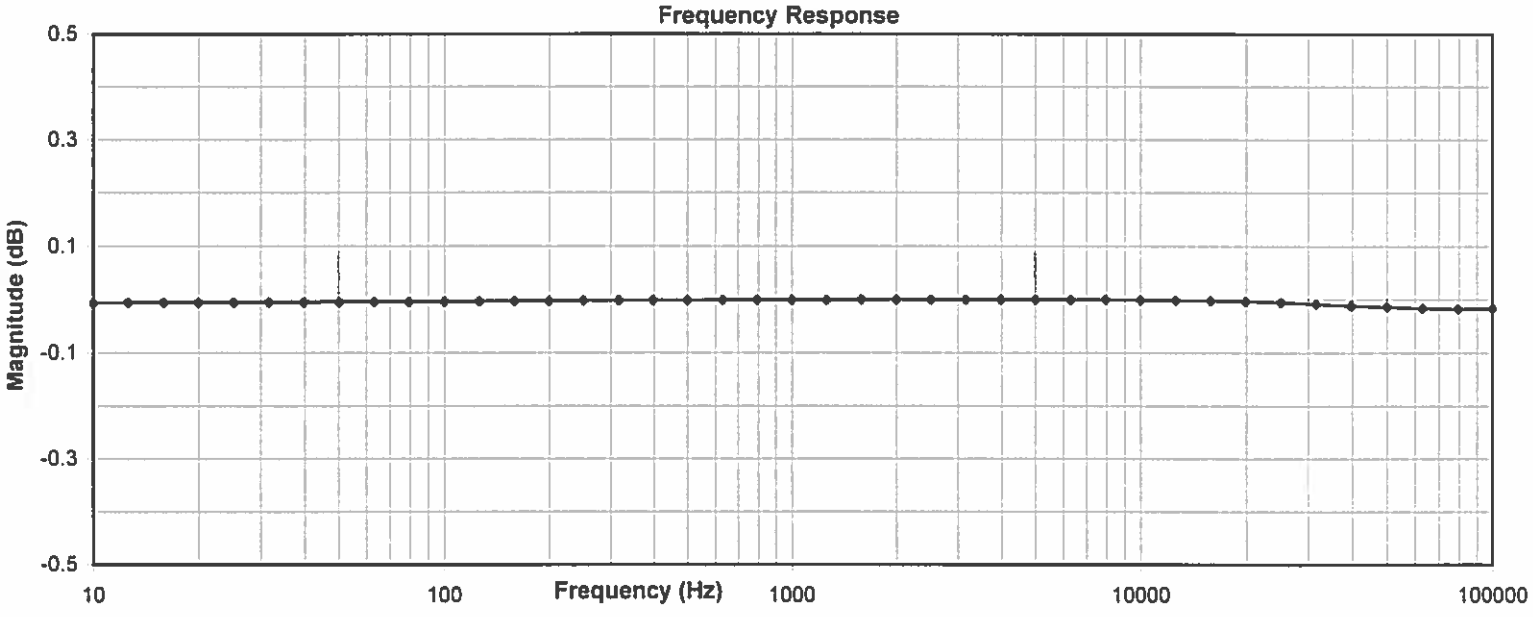
Calibration results:

Before & after data same:	...X...
DC Current and voltage:	**Pass**
Gain:	**Pass**
Noise:	**Pass**
Distortion:	**Pass**
Freq. Response:	**Pass**
All tests:	**Pass**

Laboratory Environment:		
Ambient Temperature:	22.3	°C
Ambient Humidity:	30.9	% RH
Ambient Pressure:	100.297	kPa
Calibration Date:	10-Jan-2018	
Calibration Due:	10-Jan-2019	
Report Number:	28351	-9
Control Number:	28351	

The above listed instrument meets or exceeds the tested manufacturer's specifications.
This Calibration is traceable through NIST test numbers: ,205342
The expanded uncertainty of calibration: 0.024 dB at 95% confidence level with a coverage factor of k=2.

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) and ISO 9001:2008, ISO 17025

Measurements performed by: .....
James Zhu

Calibrated on WCCL system type 9700

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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.: 34219**
Company: Aercoustics Engineering 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	-0.01	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	-0.01	794.33	0.00	25118.84	0.00
31.62	0.00	1000.00	0.00	31622.72	-0.01
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	-0.02
79.43	0.00	2511.89	0.00	79432.43	-0.02
100.00	0.00	3162.28	0.00	99999.42	-0.02
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	24.95	
2.0	Gain accuracy (dB)	X 1	-0.2	0.2	-0.04	
		X 10	-0.2	0.2	-0.04	
		X 100	-0.2	0.2	-0.05	
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 US360458	1-Aug-2017	,205342	1-Aug-2018
Brüel & Kjær	2636	S/N 1323964	1-Aug-2017	822/275722-14	1-Aug-2018
HP	34401A	S/N US360980	1-Aug-2017	,205342	1-Aug-2018

Cal. Date: 10-Jan-2018 **Tested by:** James Zhu

Calibrated on WCCL system type 9700

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Appendix F.02
Summary of Measurement Results

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Summary of Measurement Results

1.1 Introduction

The IEC test for turbine T33 performed on Nov 26 and 27, 2018 had an incomplete dataset, as it was missing 5 background data points in the 13 m/s wind bin. The Ministry of the Environment, Conservation and Parks (MECP) strictly requires 10 (ten) data points in every wind bin. Based on consultation with the MECP, for the purposes of the MECP review only, 5 additional background points have been added at 13 m/s.

The five additional data points were conservatively assumed to have a sound pressure level of 0 dBA. With these data points included in the analysis, the average background sound pressure level at 13 m/s is lowered, which results an artificially high (and therefore conservative) determined sound power level at 13 m/s.

The results summarized below include these 5 additional "0 dBA" datapoints at 13 m/s.

1.2 Sound Pressure Levels

From Table 11 of IEC test report 17283.01.T33.RP2, apart from values at 13 m/s, which have been updated to include the 5 additional data points discussed in Section 1.1 of this Appendix Section.

Wind Speed (m/s)	Turbine ON		Background		Turbine ON, Background adjusted L_{eq}, (dBA)
	L_{eq}, (dBA)	# of data pts	L_{eq}, (dBA)	# of data pts	
8	52.9	15	42.5	56	52.4
8.5	53.9	24	42.6	77	53.6
9	54.2	42	42.6	133	53.8
9.5	54.3	96	42.6	129	54.0
10	54.1	105	43	156	53.8
10.5	53.9	100	43.2	122	53.5
11	53.8	115	43.2	104	53.3
11.5	53.7	98	43.4	53	53.2
12	53.5	69	44.0	29	53.0
12.5	53.5	47	44.0	12	53.0
13	53.6	27	42.5	10	53.2

1.3 Sound Power Levels

From Table 12 of IEC test report 17283.01.T33.RP2, apart from values at 13 m/s, which have been updated to include the 5 additional data points discussed in Section 1.1 of this Appendix Section. Octave Band data has been included to fulfil requirements stipulated in the project's Renewable Energy Approval.

Wind Speed (m/s)	Octave Band Centre Frequency (Hz)								Apparent L_{WA}, (dBA)	Maximum Sound Power Level (dBA)* REA # 5272-A9FHRL
	63	125	250	500	1000	2000	4000	8000		
8	87.4	91.8	94.9	96.4	97.8	95.7	88.0	75.2	103.0	105.5
8.5	87.5	92.1	95.6	97.4	99.1	97.0	90.6	84.8	104.1	105.5
9	87.1	92.5	95.9	97.7	99.3	97.3	91.5	82.5	104.4	105.5
9.5	87.5	93.0	96.4	97.8	99.3	97.4	91.1	74.6	104.5	105.5
10	86.9	92.6	95.9	97.6	99.2	97.4	91.2	75.6	104.3	105.5
10.5	86.6	91.5	95.5	97.2	99.0	97.4	91.0	73.9	104.0	105.5
11	86.6	91.1	95.1	97.0	98.9	97.3	91.0	74.0	103.9	105.5
11.5	87.0	91.2	94.7	96.7	98.8	97.5	90.9	74.7	103.8	105.5
12	86.7	90.7	94.3	96.4	98.7	97.4	90.5	74.4	103.6	105.5
12.5	87.0	90.6	93.9	96.3	98.7	97.7	90.6	74.6	103.6	105.5
13	86.1	91.1	94.3	96.3	98.8	97.9	90.8	76.5	103.8	105.5

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

1.4 Tonal Audibility Values

From Table 14 of IEC test report 17283.01.T33.RP2.

Wind Speed (m/s)	Frequency (Hz)	Tonal audibility, ΔL_a (dB)	Tonal Audibility from AAR* (dB)
9	99	-1.8	3
9.5	82	-2.3	3
10	86	-1.1	3
10.5	75	-2.7	3
11.5	76	-0.7	3
12	76	-2.1	3
12.5	75	-2.1	3
13	75	-1.7	3

*North Kent 1 Wind Project Noise Impact Assessment Report (May 9, 2016)

1.5 Statement of Compliance

Based on the results in Table 12 of the IEC 61400-11 test report to which this statement is attached, as well as the conservatively augmented results presented in this section, the maximum apparent sound power level of the test turbine complies with the sound level in REA # 5272-A9FHRL and Section E3.1 of the MECP Compliance Protocol for Wind Turbine Noise.

Based on the results in Table 14 of the IEC 61400-11 to which this statement is attached, the tonal audibility of the test turbine complies with the maximum tonal audibility of 3 dB as indicated in the statement from the manufacturer dated July 15, 2015, found in Appendix E of the Noise Impact Assessment Report dated May 9, 2016.

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Appendix F.03
E-Audit Checklist

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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, 3.2, 4.2, Appendix A
3	Measurement instrumentation Items 34 to 39; IEC61400-11:2013, Section 10.4, Instrumentation	✓	Report Section 3, 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, 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, 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, Appendix F, data in Excel provided separately
8	Items 68 to 72; IEC61400-11:2013, Section 10.5, Acoustic Data	⦸	Optional information, not provided in this report
9	Non-acoustic data Items 73 to 74 are from IEC61400-11:2013, Section 10.6, Non-Acoustic Data	⦸	Optional information, not provided in this report

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End of Report

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