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REPORT ID: **14462.00.J_WTG89.RP3**

Jericho Wind Energy Centre – Turbine J_WTG89
IEC 61400-11 Edition 3.0 Measurement Report

Prepared for:

Jericho Wind LP
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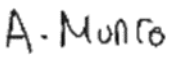
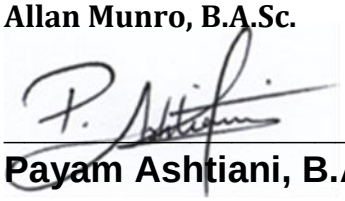


Allan Munro, B.A.Sc.



Payam Ashtiani, B.A.Sc., P.Eng.

25 July 2019 – Revision 3

Revision History

Revision Number	Description	Date
1	Original Issued Report in Edition 2.1 (as Report number 15392.00.T89.RP1)	9 December 2015
2	New Issued Report in Edition 3.0 with new test data	19 April 2018
3	Updates to Turbine ID, Table 1	25 July 2019

This report in its entirety, including appendices contains 97 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.

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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 Jericho Wind LP ("JWLP") to conduct an acoustic measurement of turbine J_WTG89 at the Jericho Wind Energy Centre. The purpose of the measurement was to provide verification of the maximum noise emission of the turbine. The measurement was carried out in accordance with International Standard IEC 61400-11 (Edition 3.0, released 2012-11), "Wind turbine generator systems – Part 11: Acoustic noise measurement techniques". This report is specific only to Turbine J_WTG89.

2 Wind Turbine Information

2.1 Wind turbine equipment specific information

Wind turbine specific equipment information for turbine J_WTG89 was provided by JWLP and is summarized in Tables 1 – 5.

Table 1 - Wind Turbine Details

Wind Turbine Details	
Manufacturer	General Electric
Model Number	1.6-100
Turbine ID	J_WTG89

Table 2 - Operating Details

Operating Details	
Vertical or Horizontal axis wind turbine	Horizontal
Upwind or downwind rotor	Upwind rotor
Hub height	80m
Horizontal distance from rotor centre to tower axis	4100 mm
Diameter of rotor	100 m
Tower type (lattice or tube)	Tube
Passive stall, active stall, or pitch controlled turbine	Pitch Controlled
Constant or variable speed	Variable Speed
Power curve	See Figure B.01
Rotational speed at each integer standardised wind speed	See Figure B.02
Rated power output	1.6 MW
Control software version	ToolBox 44.73.08

Table 3 - Rotor Details

Rotor Details	
Rotor control devices	Electric Motors
Presence of vortex generators, stall strips, serrated trailing edges	Serrations
Blade type	TPI
Serial number	20453, 60399, 10447
Number of blades	3

Table 4 - Gearbox Details

Gearbox Details	
Manufacturer	Winergy Drive Systems Tianjin Co. Ltd.
Model number	PEAB 4431
Serial number	4851444-110-7

Table 5 - Generator Details

Generator Details	
Manufacturer	Hitachi America Limited
Model number	HIG-3669J00
Serial number	530439-3

2.2 Wind Turbine Location

Turbine J_WTG89 is located in Lambton County, Ontario Canada, near the town Forest, approximately 600m North of Hickory Creek Line, and 700m East of Warwick Village Road. The area surrounding J_WTG89 is flat and consists primarily of farmland.

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

3 Measurement Details

3.1 Measurement Equipment

3.1.1 Acoustic Measurement Equipment

A summary of acoustic equipment utilized by Aercoustics for the measurement of turbine J_WTG89 is summarized in Table 6.

Table 6 - Acoustic Measurement Equipment

Equipment	Manufacturer Name & Model	Serial Number
Acoustic Data acquisition system	LMS SCADA Mobile	22163146
Microphone	B&K 4189	3060528
Pre-amplifier	B&K 2671	2369795
Acoustic calibrator	B&K 4231	2513182

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

3.1.2 Meteorological Equipment

Wind speed for Turbine ON was derived from the power curve (as per procedures outlined in IEC 61400-11). Wind direction for turbine ON measurements was utilized from the nacelle yaw position located at hub height (80 m high) from turbine J_WTG89. Data for background measurements was obtained from a 10m high anemometer, which was placed as per guidelines outlined in IEC-61400-11.

The meteorological equipment is summarized in Table 7

Table 7 – Meteorological Measurement Equipment

Equipment	Manufacturer Name & Model	Serial Number
Anemometer	VAISALA WXT520	K4250007
Serial to Analog Converter	NOKEVAL 7470	A165164

3.2 Measurement Setup

3.2.1 Microphone Placement

The measurement microphone was setup 130m from the base of the turbine in 'Position 1', (i.e. downwind of the turbine, as per IEC 61400-11) at an elevation of 0 m relative to the base of J_WTG89. The slant distance (R_1) from microphone location to rotor centre includes the distance from rotor center (hub) to tower axis (R_1 = 156.1m). The microphone was placed in the centre of a circular, acoustically reflective board.

During the measurement period only data points for which the microphone was within 15 degrees of downwind from the turbine were used. The microphone position relative to

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

When measurements of J_WTG89 were taken, the surrounding land was flat untilled open soil farmland. There were no nearby reflecting surfaces (houses, barns etc.); as such the influence from reflecting surfaces was considered to be negligible.

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

3.2.2 Double Windscreen Setup

A double windscreen setup was 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 Schedule

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

Table 8 - Measurement Schedule Summary

Date	Test Type	Start Time	Finish time
April 11, 2018	Turbine ON	9:32 am	10:32 am
	Background	10:35 am	11:00 am
	Background	11:14 am	11:23 am
	Background	11:26 am	12:22 pm
	Turbine ON	12:51 pm	1:37 pm
	Background	1:39 pm	2:09 pm

3.4 Meteorological Conditions

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

As previously mentioned, wind speed for Turbine ON was derived from J_WTG89's power curve (as per the standard), while wind direction was provided by J_WTG89's nacelle yaw position (located at hub height). Background data was obtained from an anemometer located 10m above ground level near J_WTG89.

Temperature and pressure readings during the measurement period were provided by the 10m anemometer, located near turbine J_WTG89 for the duration of Aercoustics measurements.

3.5 Turbine operational information

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

4 Measurement Results

4.1 Deviations from IEC-61400-11 Edition 3.0

No deviations.

4.2 Special Notes & Considerations

Jericho Turbine J_WTG88 was parked for the duration of the test.

4.3 Analysis Details

The following section outlines analysis of the measurement data acquired for J_WTG89. The data presented is exclusive of transient events such as vehicle traffic, wildlife, air traffic etc. The site has been assessed to have a roughness length of 0.05 m, representative of farmland with some vegetation.

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.

FTT 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

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

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

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

k_nac	k_Z
1.04	1.18

4.4 Type B uncertainties

Type B uncertainties were obtained through interpretation of information provided in Annex C of IEC-61400-11, and instrument uncertainties obtained from the calibration certificate. A summary of Type B uncertainties is provided in Table 10, while detailed information (including data in 1/3 octave) 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

Sound pressure level measurements are summarized in Table 11. Detailed 1/3 Octave band spectrum data, respective uncertainties, and analysis plots are provided in Appendix C. A copy of the measurement data used for analysis is provided in Appendix E and includes meteorological and turbine operational data.

Table 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	
7	49.7	25	40.7	94	49.1
7.5	51.0	67	41.0	79	50.5
8	52.3	110	40.9	71	52.0
8.5	52.9	47	40.8	53	52.6
9	53.0	30	40.3	60	52.7
9.5	53.1	87	40.2	44	52.9
10	53.1	62	41.0	27	52.8
10.5	53.2	22	40.1	13	53.0
11	53.4	10	39.5	13	53.2

4.6 Sound Power Level of Turbine

The calculated sound power level of the turbine J_WTG89 (as per IEC 61400-11) is summarized in Table 12 (hub height) and Table 13 (10 m height). Detailed 1/3 Octave band spectrum data and respective uncertainties 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)
7	98.0	0.7
7.5	99.4	0.8
8	100.9	0.8
8.5	101.5	0.8
9	101.6	0.8
9.5	101.8	0.8
10	101.6	0.8
10.5	101.9	0.8
11	102.1	0.8

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

Wind Speed (m/s)	Apparent L_{WA}, (dBA)	Uncertainty (dB)
5	98.1	1.3
6	101.1	0.7
7	101.7	0.8
8	102.1	0.7

4.7 Tonality Analysis

The tonality analysis for Turbine J_WTG89 is summarized in Table 14, while plots of narrow band spectra at each wind speed are provided in Appendix D. The ΔL_{tn} and ΔL_a values reported represent the energy average of all data points with an identified tone that falls within the same frequency origin (as specified in Section 9.5.8 in IEC-61400-11).

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

Table 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 (%)
8.5	544	-4.9	-2.5	12	47	26%
9.5	554	-3.5	-1.1	62	87	71%
10.0	131	-4.9	-2.9	53	62	85%
	554	-3.9	-1.6	34	62	55%
10.5	131	-4.6	-2.6	18	22	82%
	558	-3.3	-1.0	16	22	73%
11.0	132	-4.5	-2.5	10	10	100%
11.0	562	-4.9	-2.6	9	10	90%

5 Closure

Measurements and analysis were carried on Turbine J_WTG89 of the Jericho Wind Energy Centre, located in the Lambton County, Ontario as per International IEC 61400-11 (Edition 3.0, released 2012-11), “Wind turbine generator systems – Part 11: Acoustic noise measurement techniques”.

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

6 References

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

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Appendix A
Site Details

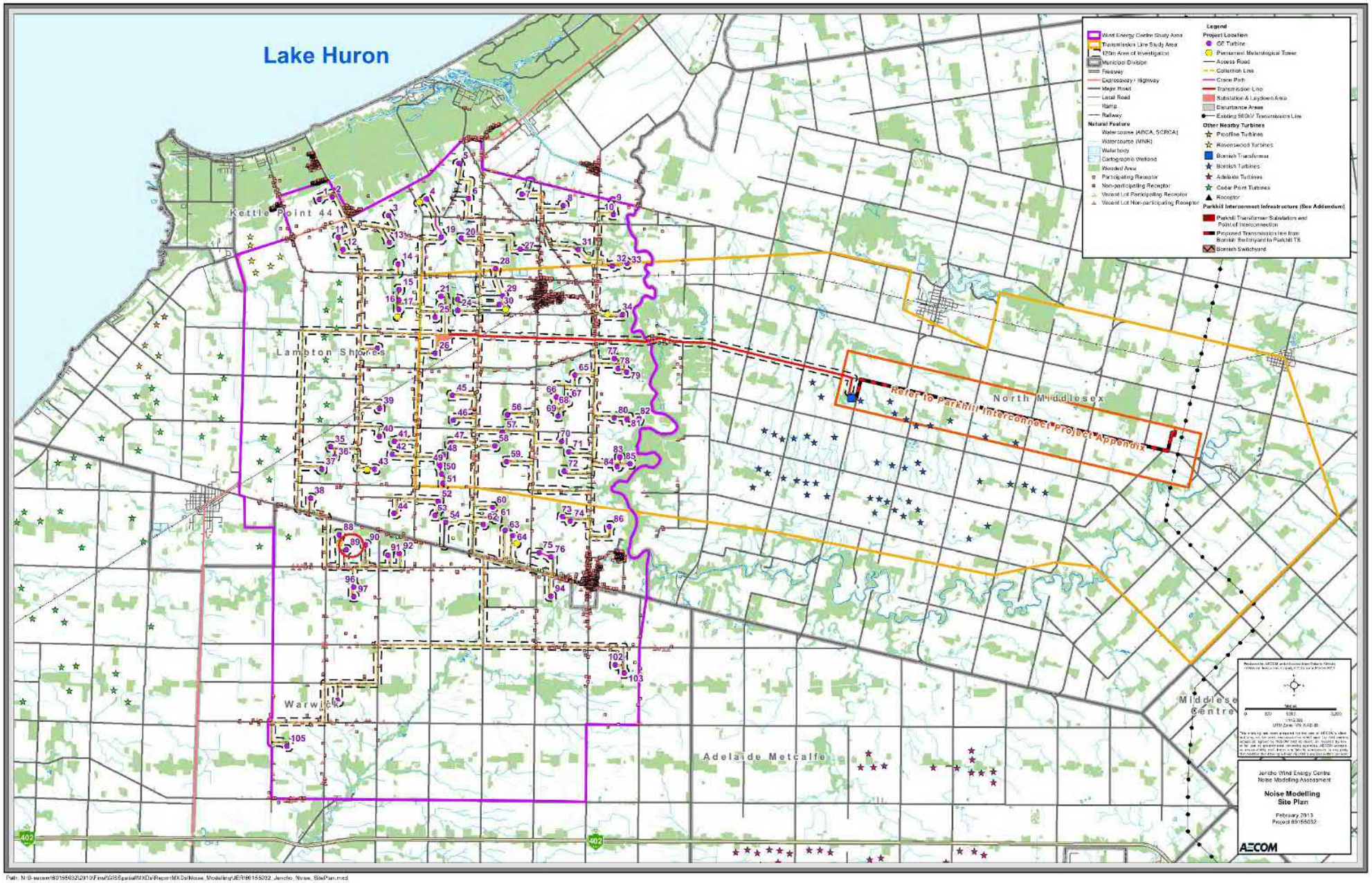

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Figure A.01

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Figure Title

Site Photos

Figure A.02

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Appendix B
Turbine Information

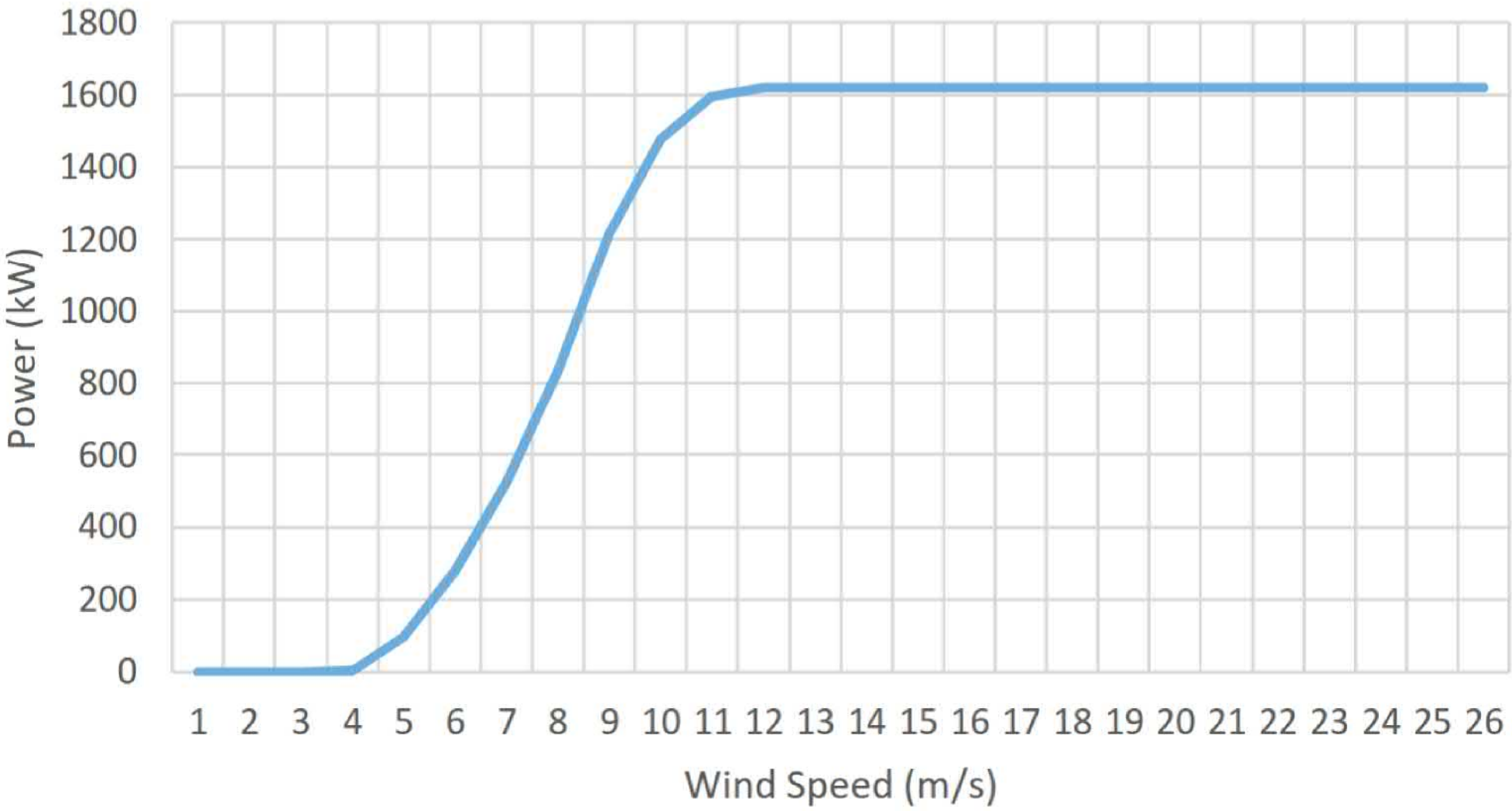

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Figure B.01

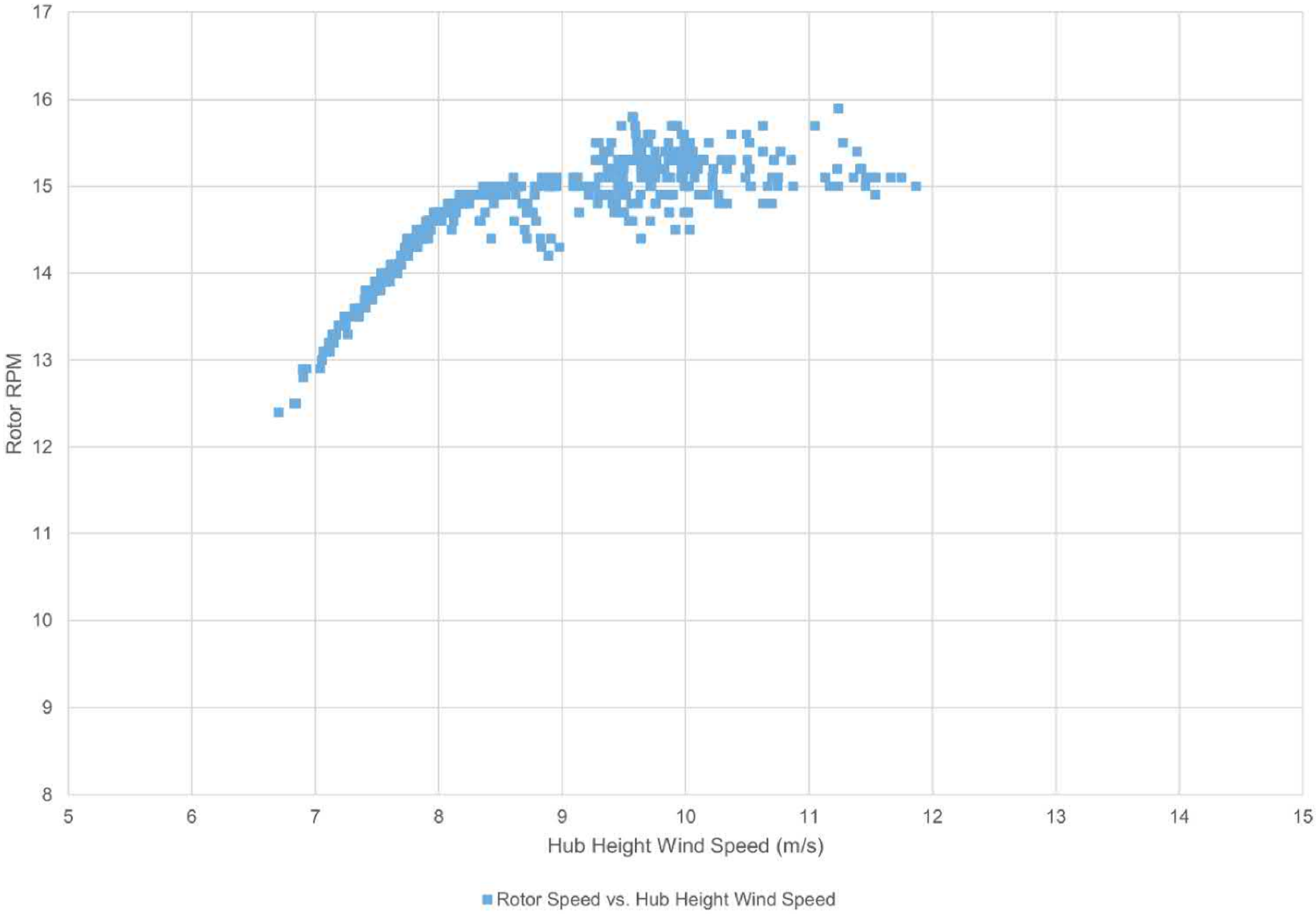

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Figure Title

Rotor RPM vs. Wind Speed

Figure B.02

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

Project: Jericho Wind Energy Centre - Turbine J_WTG89 - IEC 61400-11 Measurement

Report ID: 14462.00.J_WTG89.RP3

Created on: 4/19/2018

Power Curve & Required Wind Speeds		
Power Curve Tolerance	1%	
Acceptable range min	3	m/s
Acceptable range max	9	m/s
Min allowable range	3	m/s
Max allowable range	9	m/s
Power Output	1620	kW
85% Power	1377	kW
Corresponding wind speed	8.61	m/s
Minimum bin	7.0	m/s
Maximum bin	11.0	m/s

Power Curve Hub Wind Speed (m/s)	Power [kW]	+ value = acceptable slope of power curve
0	**0**	-32.4
1	0	-32.4
2	0	-28.4
3	4	60.6
4	97	150.6
5	280	214.6
6	527	277.6
7	837	347.6
8	1217	228.6
9	1478	86.6
10	1597	-9.4
11	1620	-32.4
12	1620	-32.4
13	1620	-32.4
14	1620	-32.4
15	1620	-32.4
16	1620	-32.4
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19	1620	-32.4
20	1620	-32.4
21	1620	-32.4
22	1620	-32.4
23	1620	-32.4
24	1620	-32.4
25	1620	

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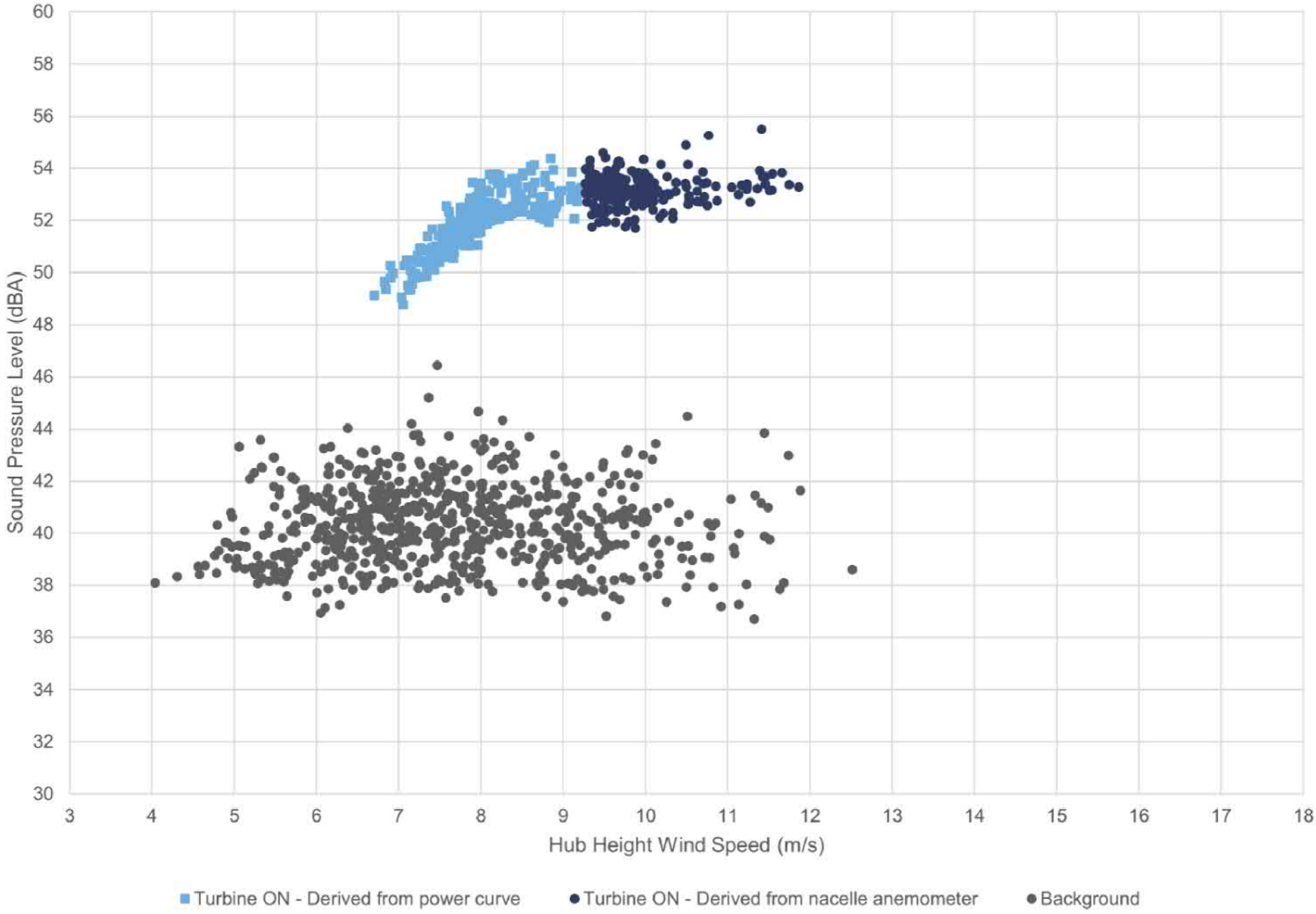
Appendix C
Apparent Sound Power Level



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Scale: NTS Drawn by: NT Reviewed by: PA Date: Apr 19, 2018 Revision: 1	Jericho Wind Energy Centre - IEC 61400-11 Edition 3.0 - Turbine J_WTG89
	Figure Title Plot of overal measurement data pairs at Position 1 (Turbine ON & Background)

Figure C.01

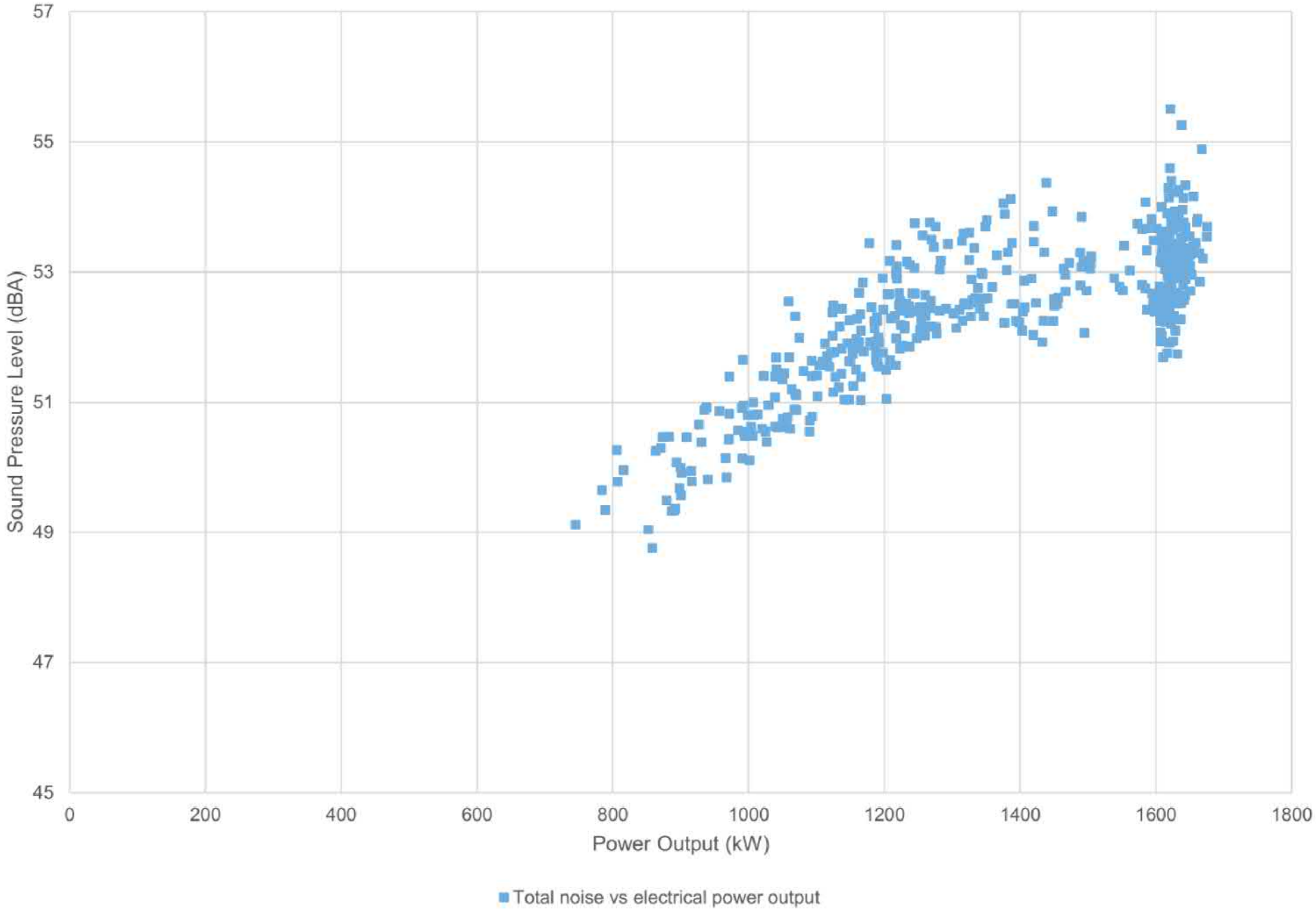

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		Figure Title Plot of measured total noise vs. electrical power output
		Figure C.02

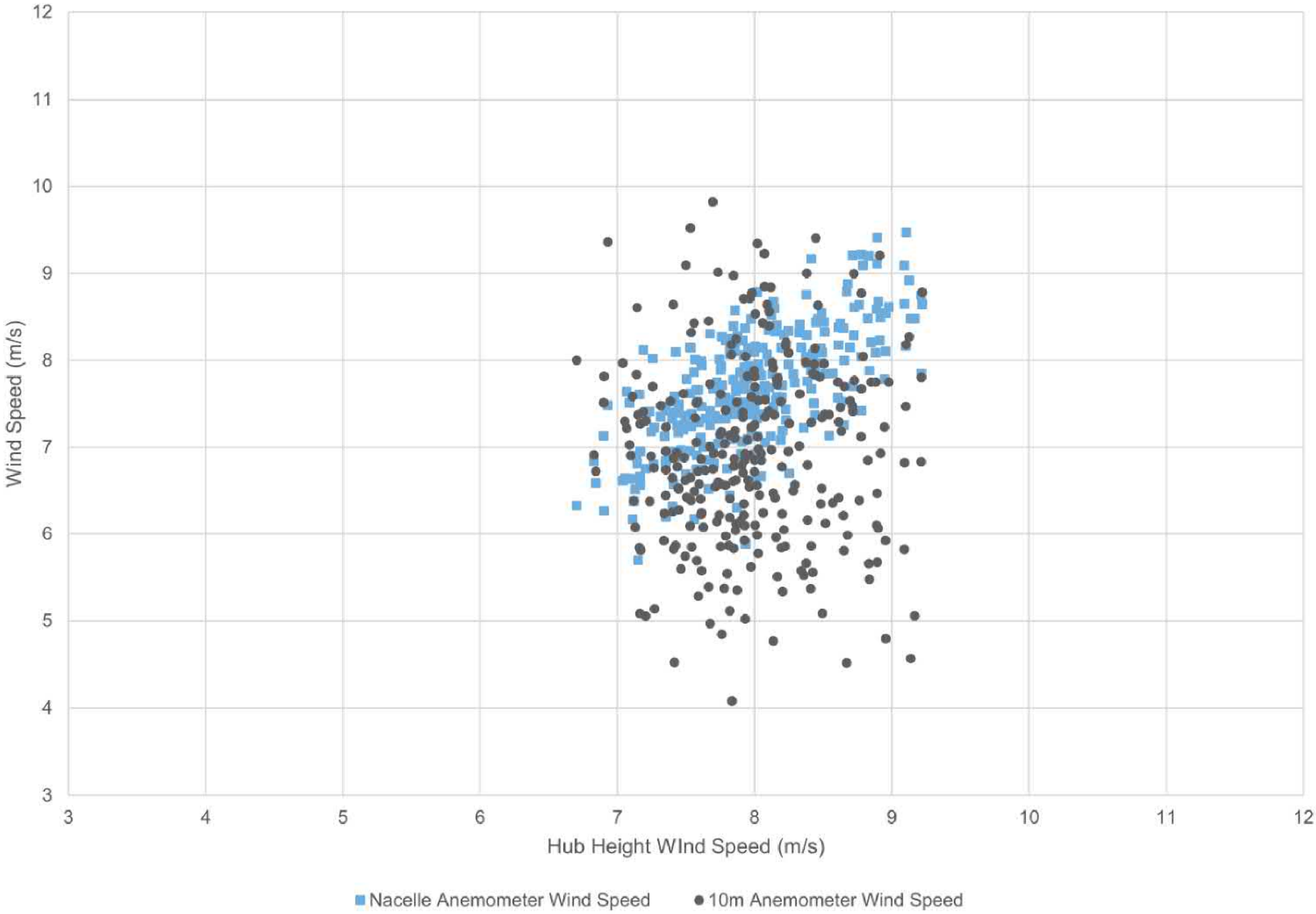

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	Figure Title Plot of power curve relative to nacelle anemometer and 10m anemometer

Figure C.03

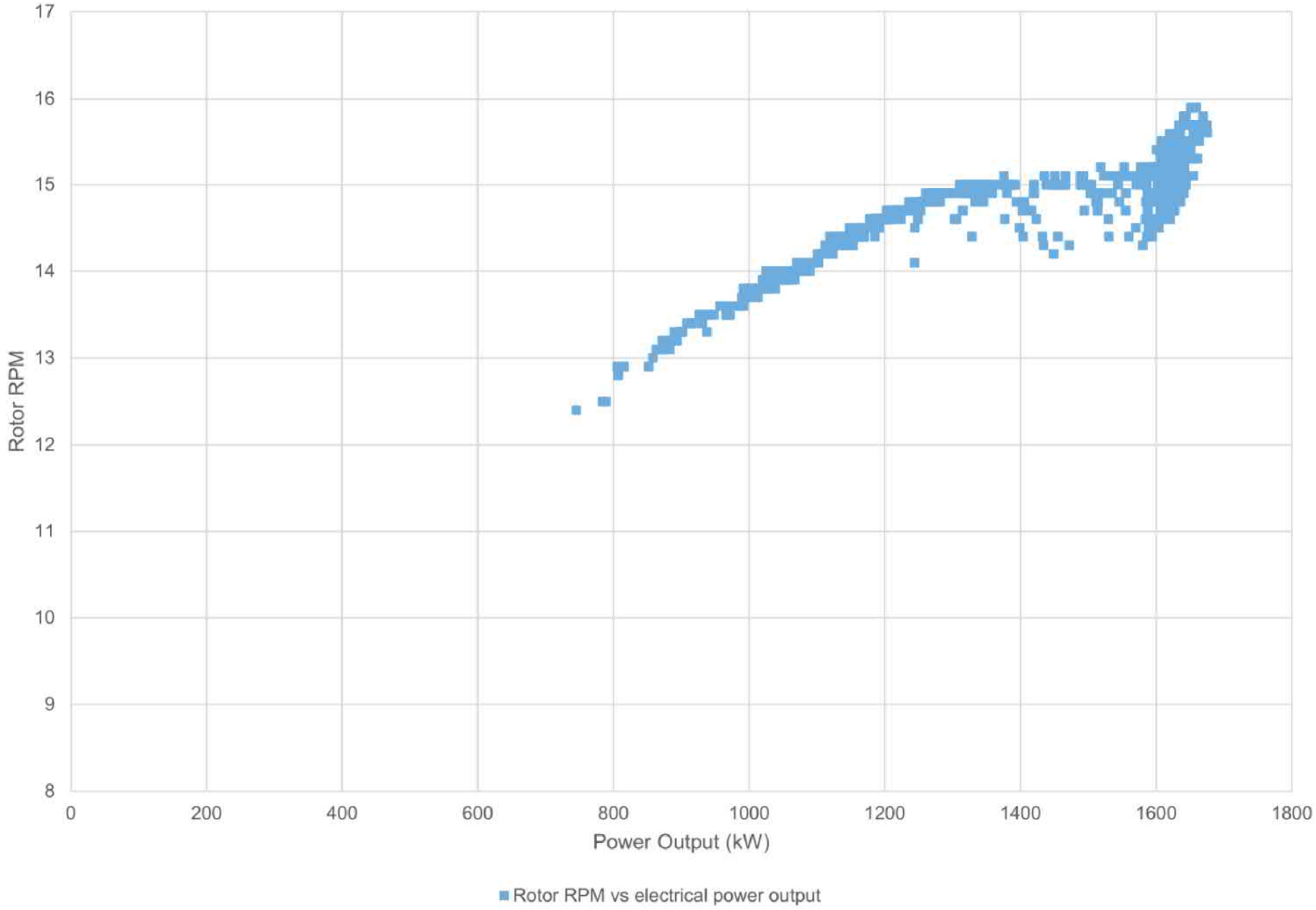

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	Figure Title Plot of rotor RPM vs. electrical power output

Figure C.04

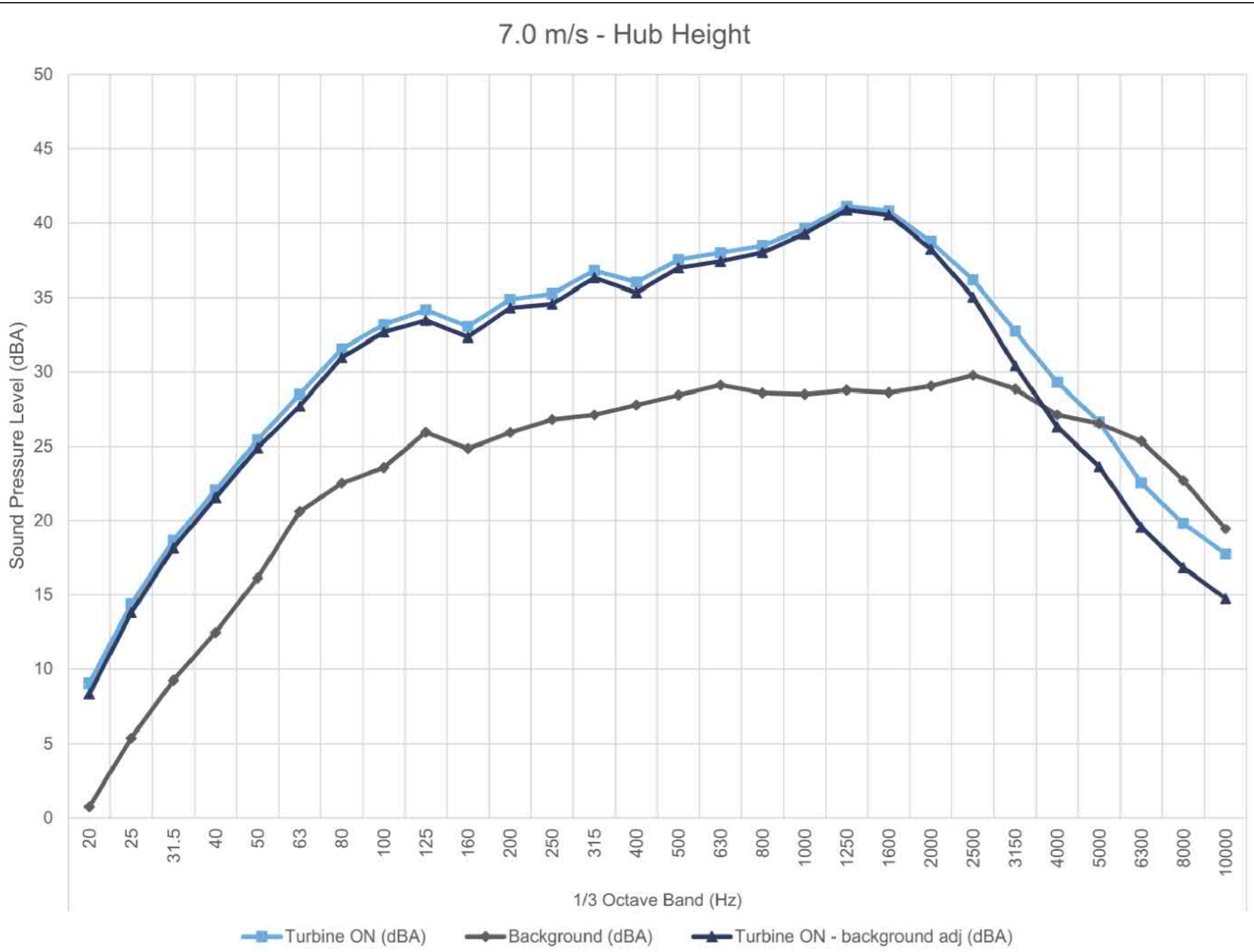

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	Figure Title Plot of sound pressure spectrum in 1/3 Octave at 7 m/s

Figure C.05

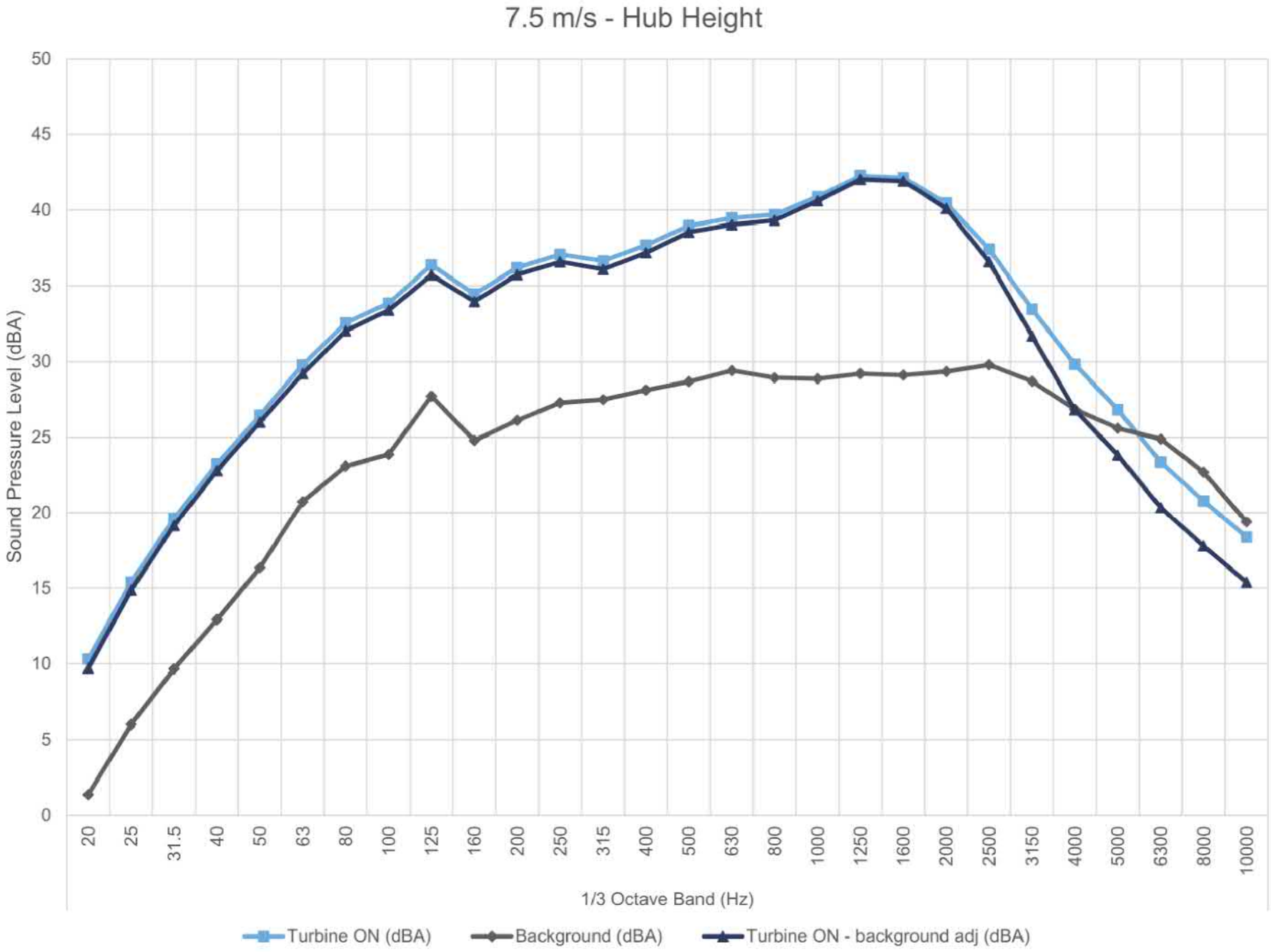

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Figure C.06

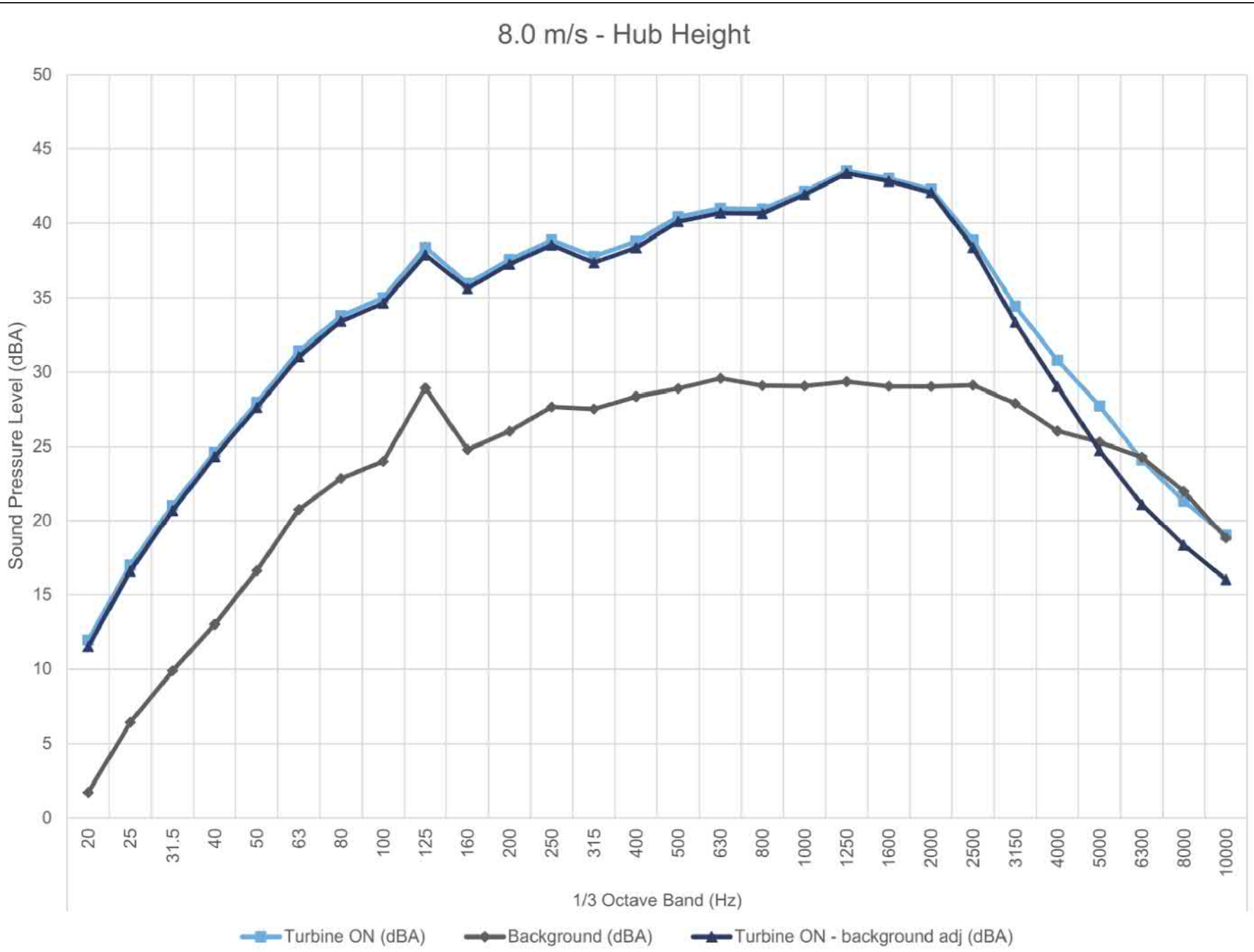

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	Figure Title Plot of sound pressure spectrum in 1/3 Octave at 8 m/s

Figure C.07

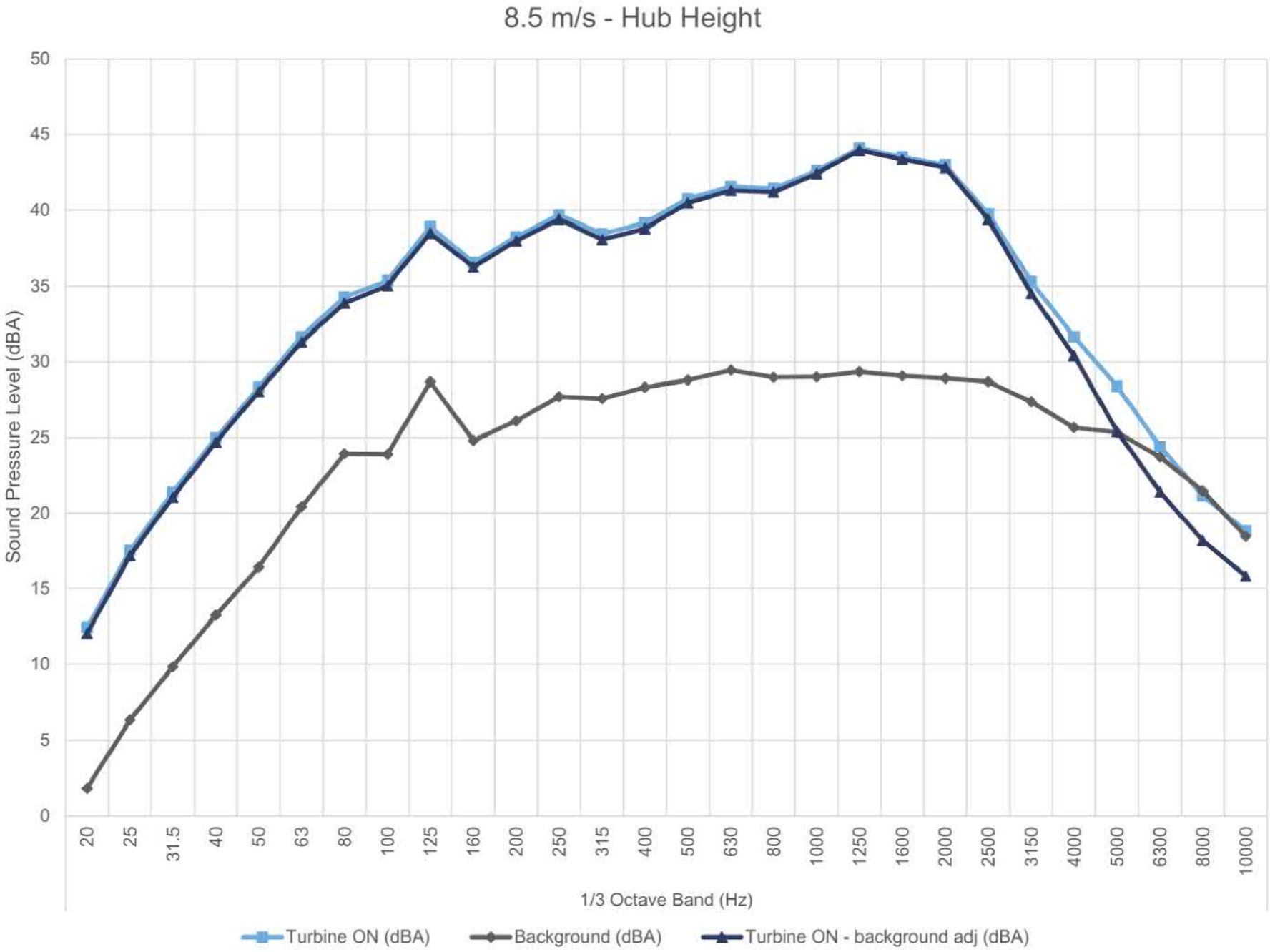

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	Figure Title Plot of sound pressure spectrum in 1/3 Octave at 8.5 m/s

Figure C.08

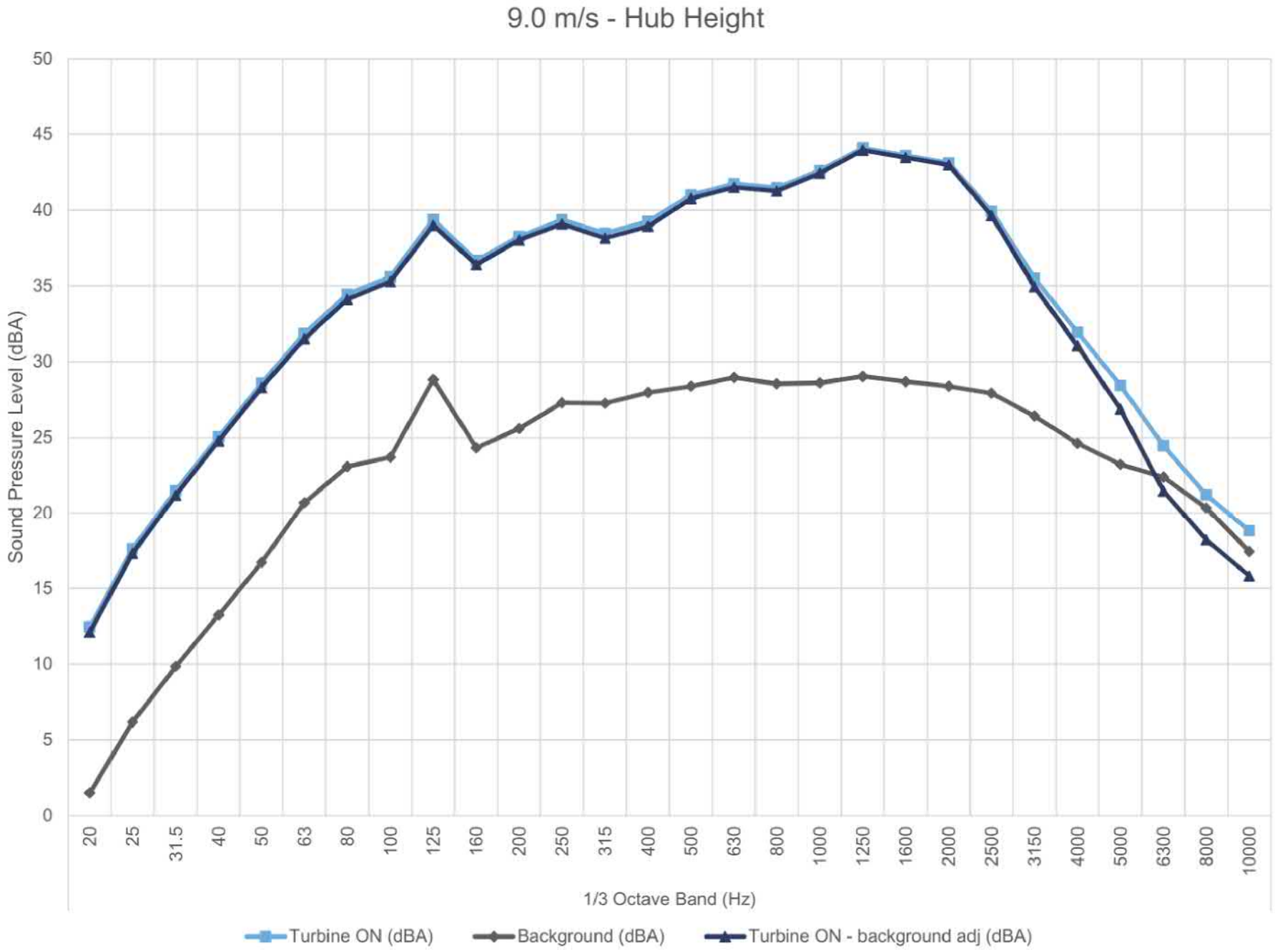

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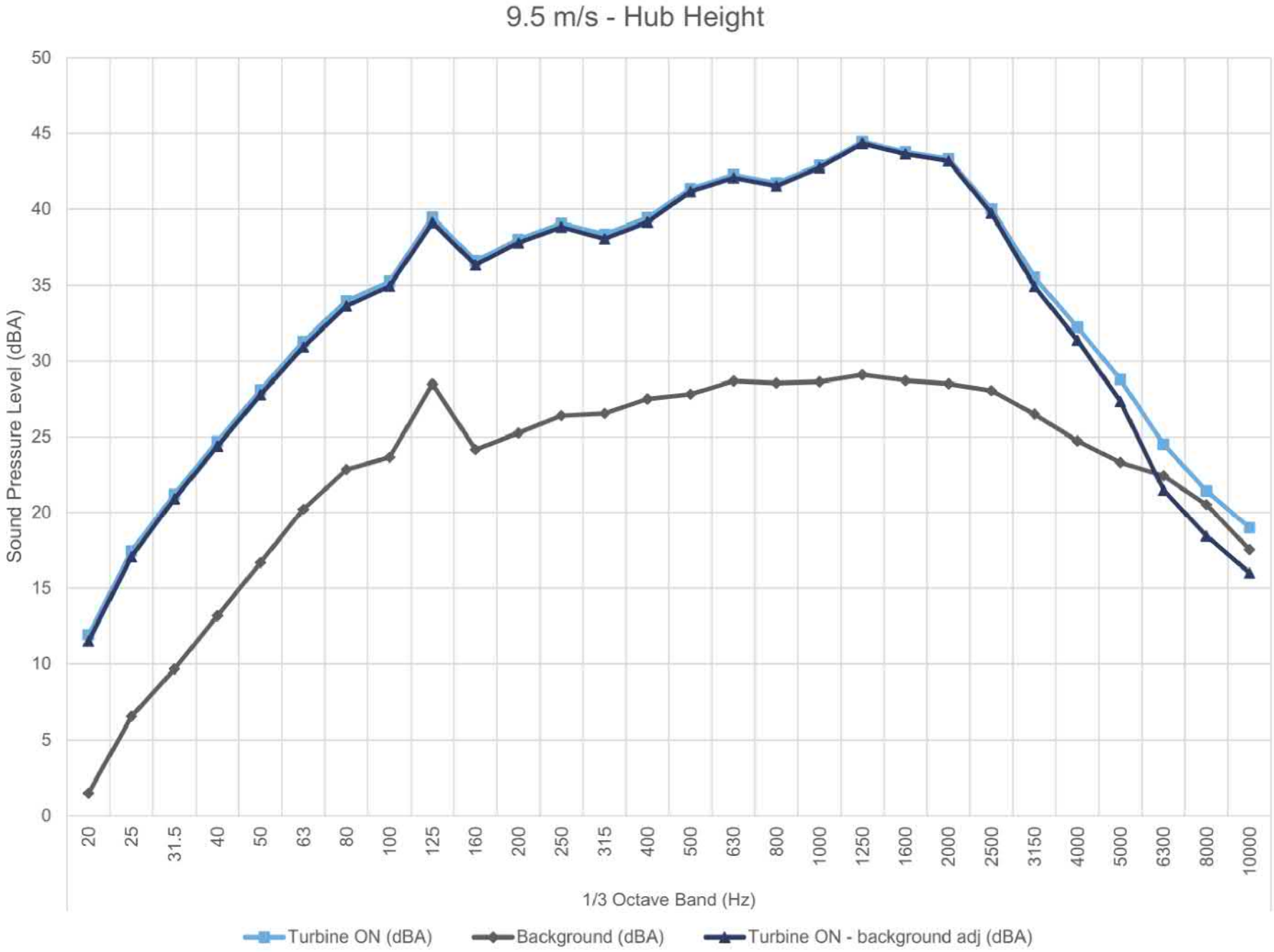
	Figure Title Plot of sound pressure spectrum in 1/3 Octave at 9 m/s

Figure C.09



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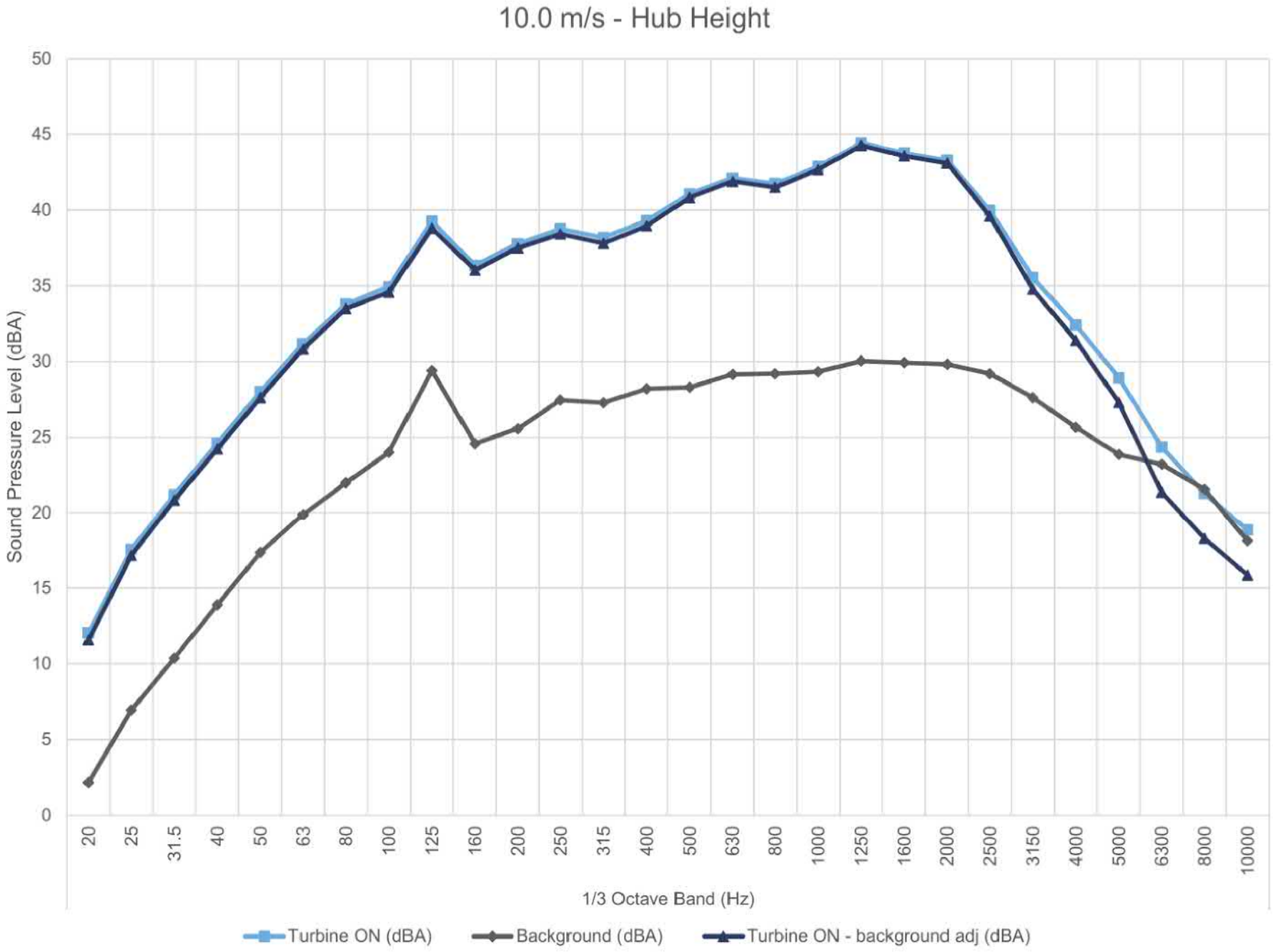
Scale: NTS Drawn by: NT Reviewed by: PA Date: Apr 19, 2018 Revision: 1	Jericho Wind Energy Centre - IEC 61400-11 Edition 3.0 - Turbine J_WTG89
	Figure Title Plot of sound pressure spectrum in 1/3 Octave at 9.5 m/s

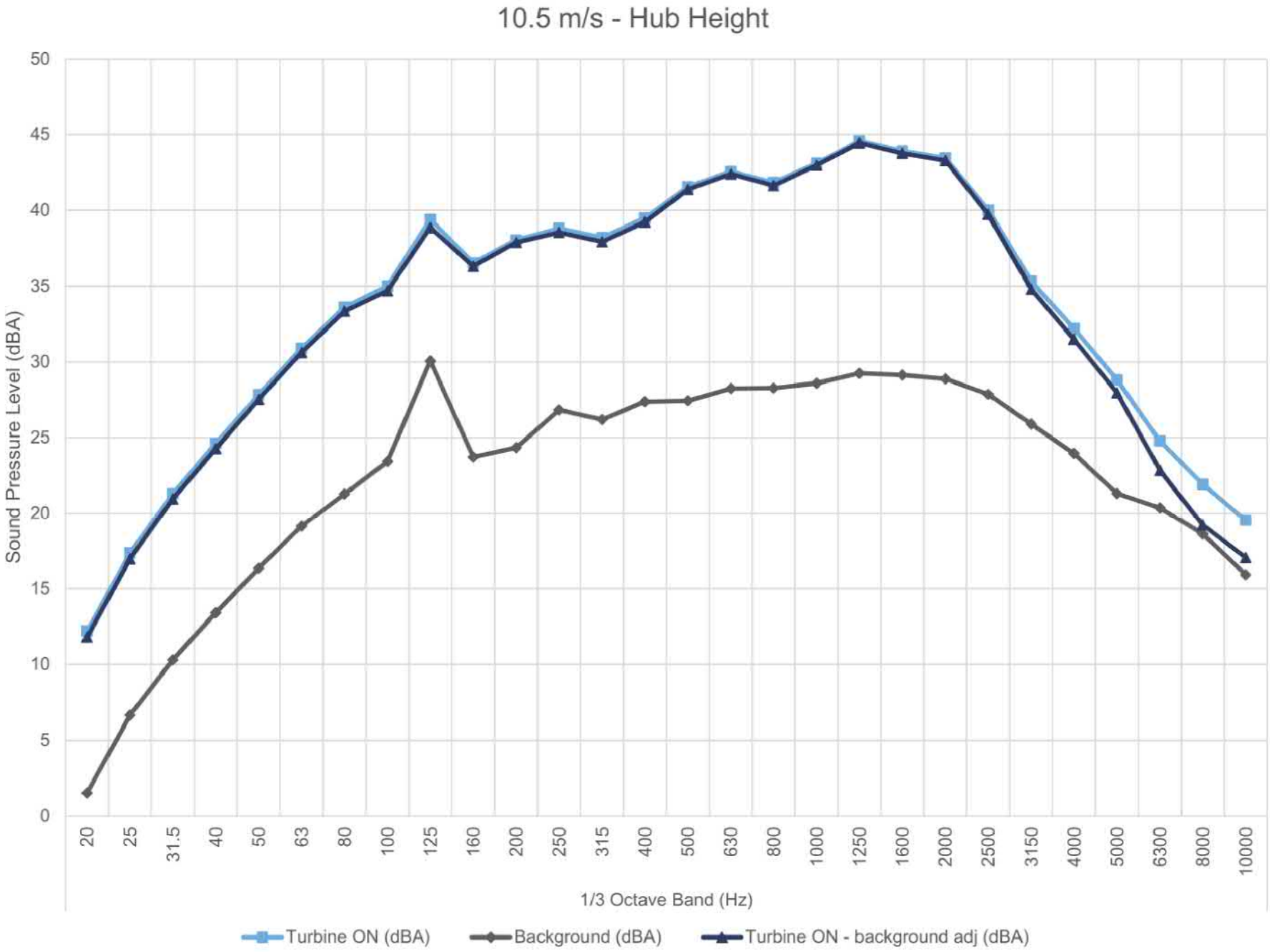
Figure C.10



aercoustics

14462.00.J_WTG89.RP3	**Project Name**
Scale: NTS Drawn by: NT Reviewed by: PA Date: Apr 19, 2018 Revision: 1	Jericho Wind Energy Centre - IEC 61400-11 Edition 3.0 - Turbine J_WTG89
	Figure Title Plot of sound pressure spectrum in 1/3 Octave at 10 m/s

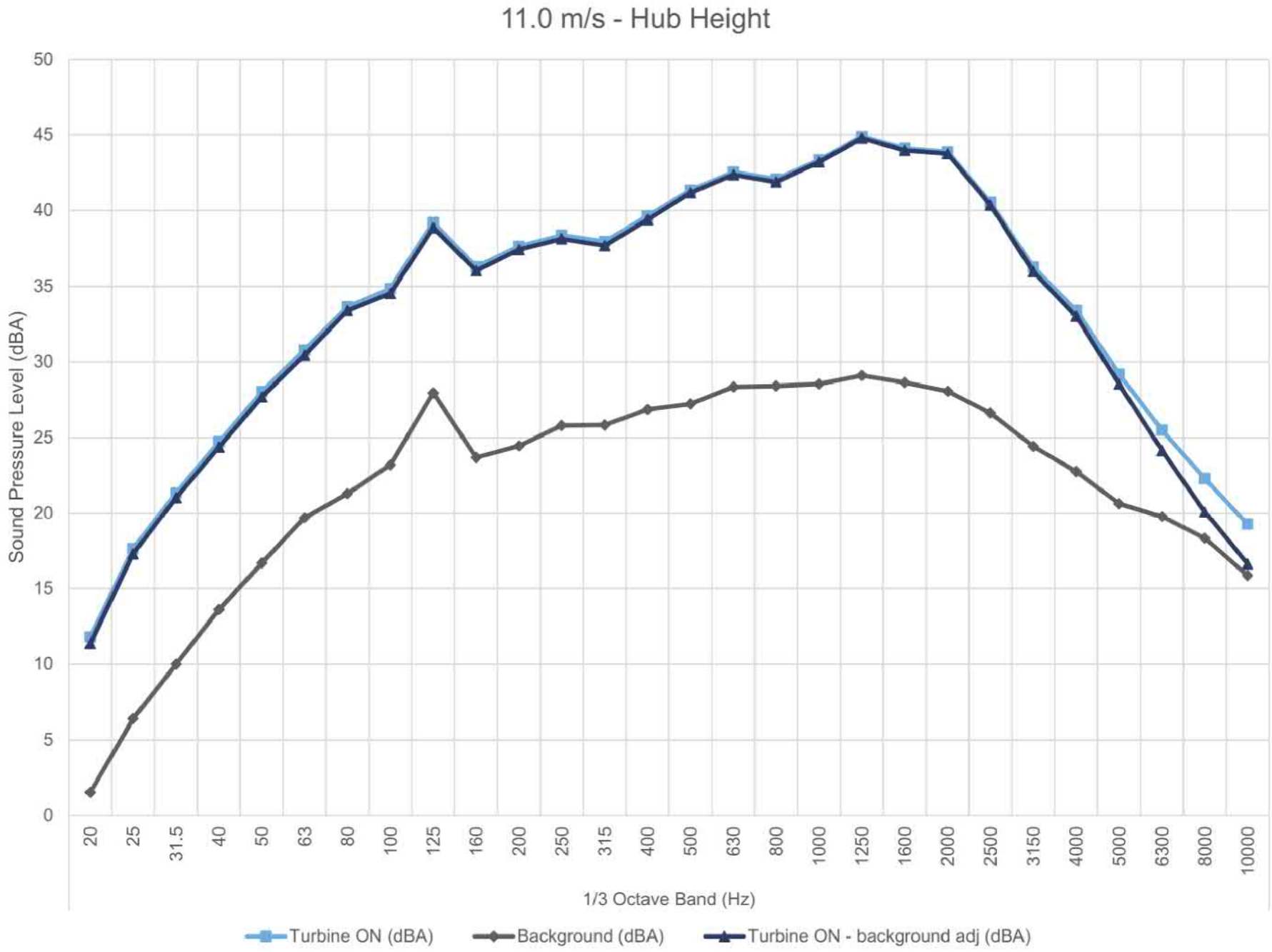
Figure C.11



aercoustics

14462.00.J_WTG89.RP3	**Project Name**
Scale: NTS Drawn by: NT Reviewed by: PA Date: Apr 19, 2018 Revision: 1	Jericho Wind Energy Centre - IEC 61400-11 Edition 3.0 - Turbine J_WTG89
	Figure Title Plot of sound pressure spectrum in 1/3 Octave at 10.5 m/s

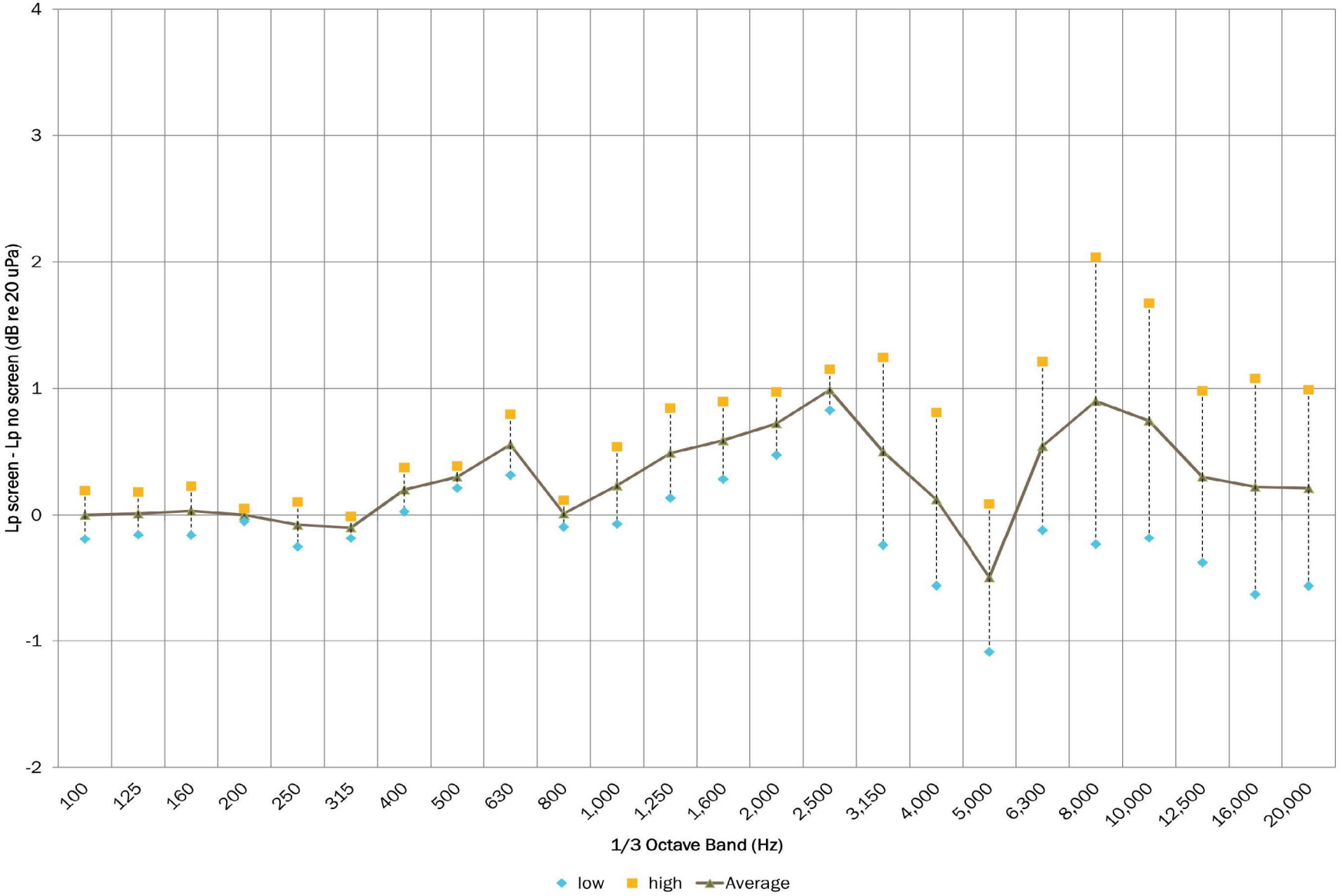
Figure C.12



aercoustics

14462.00.J_WTG89.RP3	**Project Name**
Scale:NTS Drawn by:NT Reviewed by:PA Date:Apr 19, 2018 Revision:1	Jericho Wind Energy Centre - IEC 61400-11 Edition 3.0 - Turbine J_WTG89
	Figure Title Plot of sound pressure spectrum in 1/3 Octave at 11 m/s

Figure C.13



aercoustics	14462.00.J_WTG89.RP3	**Project Name**
	Scale: NTS Drawn by: AM Reviewed by: PA Date: Apr 19, 2018 Revision: 1	Jericho Wind Energy Centre - Turbine J_WTG89 - IEC61400-11 Edition 3.0
		Figure Title Plot of secondary windscreen influence
		Figure C.14

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

Project: Jericho Wind Energy Centre - Turbine J_WTG89 - IEC 61400-11 Measurement

Report ID: 14462.00.J_WTG89.RP3

Created on: 4/19/2018

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

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

Wind Bin (m/s)	Parameter	1/3 Octave Band (Hz)																													Overall
		20	25	31.5	40	50	63	80	100	125	160	200	250	315	400	500	630	800	1000	1250	1600	2000	2500	3150	4000	5000	6300	8000	10000	
7.0	Turbine ON (dBA)	9.1	14.4	18.7	22.1	25.4	28.5	31.6	33.2	34.2	33.0	34.9	35.2	36.8	36.0	37.5	38.0	38.5	39.6	41.1	40.8	38.7	36.2	32.7	29.3	26.6	22.5	19.8	17.7		49.7
	Background (dBA)	0.8	5.4	9.3	12.5	16.1	20.6	22.5	23.6	25.9	24.9	25.9	26.8	27.1	27.8	28.5	29.1	28.6	28.5	28.8	28.6	29.0	29.8	28.9	27.1	26.5	25.4	22.7	19.4		40.7
	Turbine ON - background adj (dBA)	8.4	13.8	18.1	21.6	24.9	27.7	31.0	32.7	33.5	32.3	34.3	34.6	36.3	35.3	37.0	37.4	38.0	39.3	40.9	40.5	38.3	35.0	30.4	[26.3]	[23.6]	[19.5]	[16.8]	[14.7]		49.1
	Signal to noise (dB)	8.3	9.0	9.4	9.6	9.3	7.9	9.0	9.6	8.2	8.2	8.9	8.4	9.7	8.2	9.1	8.9	9.9	11.1	12.4	12.2	9.7	6.4	3.9	2.2	0.1	-2.8	-2.9	-1.7		9.0
	Uncertainty (dB)	1.9	1.5	1.0	1.4	1.0	0.9	0.8	0.7	0.8	0.8	0.7	0.7	0.6	0.7	0.7	0.7	0.6	0.7	0.7	0.6	0.7	0.9	1.7	2.0	1.9	2.0	2.7	3.3		0.7
	PWL (dBA)	57.2	62.7	67.0	70.4	73.8	76.6	79.8	81.5	82.3	81.2	83.2	83.4	85.2	84.2	85.8	86.3	86.9	88.1	89.7	89.4	87.1	83.9	79.3	[75.2]	[72.5]	[68.4]	[65.7]	[63.6]		98.0
7.5	Turbine ON (dBA)	10.3	15.4	19.6	23.2	26.4	29.8	32.5	33.8	36.4	34.5	36.2	37.1	36.6	37.7	39.0	39.5	39.7	40.9	42.3	42.1	40.5	37.4	33.5	29.8	26.8	23.4	20.8	18.4		51.0
	Background (dBA)	1.4	6.0	9.7	12.9	16.4	20.7	23.1	23.9	27.7	24.8	26.1	27.3	27.5	28.1	28.7	29.4	28.9	28.9	29.2	29.1	29.3	29.8	28.7	26.9	25.6	24.9	22.7	19.4		41.0
	Turbine ON - background adj (dBA)	9.7	14.9	19.1	22.8	26.0	29.2	32.0	33.4	35.7	34.0	35.7	36.6	36.1	37.2	38.5	39.0	39.3	40.6	42.0	41.9	40.1	36.6	31.7	[26.8]	[23.8]	[20.4]	[17.8]	[15.4]		50.5
	Signal to noise (dB)	8.9	9.4	9.9	10.3	10.1	9.0	9.4	10.0	8.7	9.7	10.1	9.8	9.2	9.6	10.3	10.1	10.8	12.0	13.1	13.0	11.1	7.6	4.8	3.0	1.2	-1.5	-1.9	-1.0		10.0
	Uncertainty (dB)	2.1	1.8	1.1	1.6	1.1	1.0	0.9	0.9	0.9	0.9	0.7	0.8	0.8	0.8	0.7	0.8	0.7	0.8	0.8	0.8	0.8	1.0	1.7	2.3	2.2	2.3	3.0	3.7		0.8
	PWL (dBA)	58.6	63.7	68.0	71.7	74.9	78.1	80.9	82.2	84.6	82.8	84.6	85.4	84.9	86.0	87.4	87.9	88.2	89.5	90.9	90.8	89.0	85.5	80.6	[75.7]	[72.7]	[69.2]	[66.7]	[64.2]		99.4
8.0	Turbine ON (dBA)	12.0	17.0	21.0	24.6	28.0	31.4	33.8	35.0	38.4	36.0	37.6	38.9	37.8	38.8	40.4	41.0	40.9	42.1	43.5	43.0	42.3	38.9	34.4	30.8	27.7	24.1	21.3	19.0		52.3
	Background (dBA)	1.7	6.4	9.9	13.0	16.6	20.8	22.9	24.0	28.9	24.8	26.0	27.7	27.5	28.4	28.9	29.6	29.1	29.0	29.4	29.0	29.0	29.1	27.9	26.0	25.3	24.3	22.0	18.8		40.9
	Turbine ON - background adj (dBA)	11.5	16.6	20.7	24.3	27.6	31.0	33.4	34.6	37.9	35.6	37.2	38.5	37.3	38.4	40.1	40.7	40.7	41.9	43.3	42.8	42.1	38.4	33.3	29.0	[24.7]	[21.1]	[18.3]	[16]		52.0
	Signal to noise (dB)	10.2	10.6	11.2	11.6	11.3	10.7	10.9	11.0	9.5	11.2	11.5	11.2	10.2	10.4	11.5	11.4	11.9	13.1	14.2	14.0	13.3	9.8	6.5	4.7	2.4	-0.2	-0.6	0.2		11.4
	Uncertainty (dB)	2.1	1.7	1.1	1.6	1.1	1.0	0.9	0.9	0.9	0.9	0.7	0.8	0.8	0.8	0.7	0.8	0.7	0.8	0.8	0.8	0.8	0.9	1.4	1.6	2.2	2.3	3.1	3.8		0.8
	PWL (dBA)	60.4	65.4	69.6	73.2	76.5	79.9	82.3	83.5	86.7	84.5	86.1	87.4	86.2	87.2	89.0	89.5	89.5	90.8	92.2	91.7	90.9	87.2	82.2	77.9	[73.6]	[70]	[67.2]	[64.9]		100.9
8.5	Turbine ON (dBA)	12.4	17.5	21.4	25.0	28.3	31.7	34.3	35.4	38.9	36.6	38.2	39.7	38.4	39.2	40.8	41.6	41.5	42.6	44.1	43.5	43.0	39.8	35.3	31.7	28.4	24.4	21.2	18.8		52.9
	Background (dBA)	1.8	6.3	9.8	13.2	16.4	20.4	23.9	23.9	28.7	24.8	26.1	27.7	27.6	28.3	28.8	29.4	29.0	29.0	29.3	29.1	28.9	28.7	27.4	25.7	25.3	23.7	21.5	18.4		40.8
	Turbine ON - background adj (dBA)	12.0	17.2	21.1	24.7	28.0	31.3	33.9	35.0	38.5	36.3	38.0	39.4	38.1	38.8	40.5	41.3	41.2	42.4	43.9	43.4	42.8	39.4	34.5	30.4	25.4	[21.4]	[18.2]	[15.8]		52.6
	Signal to noise (dB)	10.6	11.2	11.6	11.8	11.9	11.2	10.4	11.4	10.2	11.7	12.1	12.0	10.9	10.8	12.0	12.1	12.5	13.6	14.7	14.4	14.1	11.1	7.9	6.0	3.1	0.7	-0.3	0.4		12.1
	Uncertainty (dB)	2.1	1.8	1.2	1.7	1.1	1.0	0.9	0.9	0.9	0.9	0.8	0.8	0.8	0.8	0.8	0.8	0.7	0.8	0.8	0.8	0.8	0.9	1.3	1.5	2.3	2.4	3.2	3.9		0.8
	PWL (dBA)	60.9	66.0	69.9	73.5	76.9	80.2	82.7	83.9	87.3	85.1	86.8	88.3	86.9	87.6	89.3	90.2	90.1	91.3	92.8	92.2	91.7	88.3	83.4	79.3	74.3	[70.3]	[67]	[64.7]		101.5
9.0	Turbine ON (dBA)	12.5	17.6	21.5	25.1	28.6	31.9	34.4	35.6	39.4	36.7	38.3	39.4	38.5	39.3	41.0	41.7	41.5	42.6	44.1	43.6	43.1	39.9	35.5	31.9	28.4	24.5	21.2	18.8		53.0
	Background (dBA)	1.5	6.2	9.9	13.2	16.7	20.7	23.1	23.7	28.8	24.3	25.6	27.3	27.3	28.0	28.4	29.0	28.6	28.6	29.0	28.7	28.4	27.9	26.4	24.6	23.2	22.4	20.4	17.4		40.3
	Turbine ON - background adj (dBA)	12.1	17.3	21.2	24.8	28.3	31.5	34.1	35.3	39.0	36.4	38.0	39.1	38.1	38.9	40.8	41.5	41.3	42.4	44.0	43.5	43.0	39.6	34.9	31.1	26.9	[21.5]	[18.2]	[15.8]		52.7
	Signal to noise (dB)	11.0	11.5	11.6	11.8	11.9	11.2	11.4	11.9	10.6	12.3	12.7	12.1	11.2	11.3	12.6	12.8	12.9	14.0	15.1	14.9	14.7	12.0	9.1	7.3	5.2	2.1	0.9	1.4		12.6
	Uncertainty (dB)	2.0	1.7	1.1	1.6	1.1	1.0	0.8	0.8	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	1.2	1.3	1.4	2.3	3.1	3.7		0.8
	PWL (dBA)	61.0	66.2	70.1	73.6	77.2	80.4	83.0	84.2	87.9	85.3	86.9	87.9	87.0	87.8	89.6	90.4	90.1	91.3	92.8	92.3	91.8	88.5	83.8	79.9	75.7	[70.3]	[67.1]	[64.7]		101.6
9.5	Turbine ON (dBA)	11.9	17.4	21.2	24.7	28.1	31.3	34.0	35.2	39.5	36.6	38.0	39.1	38.4	39.4	41.4	42.3	41.7	42.9	44.5	43.8	43.3	40.0	35.5	32.2	28.8	24.5	21.4	19.0		53.1
	Background (dBA)	1.5	6.5	9.7	13.2	16.7	20.2	22.9	23.7	28.5	24.2	25.3	26.4	26.6	27.5	27.8	28.7	28.5	28.6	29.1	28.7	28.5	28.1	26.5	24.7	23.3	22.4	20.5	17.5		40.2
	Turbine ON - background adj (dBA)	11.5	17.1	20.9	24.4	27.8	30.9	33.6	34.9	39.1	36.3	37.8	38.8	38.1	39.2	41.2	42.1	41.5	42.7	44.3	43.6	43.2	39.7	34.9	31.4	27.3	[21.5]	[18.4]	[16]		52.9
	Signal to noise (dB)	10.4	10.9	11.6	11.5	11.4	11.1	11.1	11.6	11.0	12.4	12.8	12.7	11.8	11.9	13.5	13.6	13.2	14.2	15.4	15.0	14.8	12.0	9.0	7.5	5.5	2.1	0.9	1.5		13.0
	Uncertainty (dB)	2.1	1.7	1.1	1.6	1.1	1.0	0.9	0.9	0.9	0.9	0.7	0.7	0.7	0.7	0.7	0.8	0.7	0.8	0.8	0.8	0.7	0.9	1.2	1.3	1.4	2.3	3.1	3.8		0.8
	PWL (dBA)	60.4	65.9	69.8	73.3	76.6	79.8	82.5	83.8	88.0	85.2	86.6	87.7	86.9	88.0	90.0	90.9	90.4	91.6	93.2	92.5	92.0	88.6	83.8	80.2	76.2	[70.4]	[67.3]	[64.9]		101.8

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

Project: Jericho Wind Energy Centre - Turbine J_WTG89 - IEC 61400-11 Measurement

Report ID: 14462.00.J_WTG89.RP3

Created on: 4/19/2018

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

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

Wind Bin (m/s)	Parameter	1/3 Octave Band (Hz)																													Overall
		20	25	31.5	40	50	63	80	100	125	160	200	250	315	400	500	630	800	1000	1250	1600	2000	2500	3150	4000	5000	6300	8000	10000	
10.0	Turbine ON (dBA)	12.0	17.5	21.2	24.6	28.0	31.2	33.8	34.9	39.3	36.3	37.8	38.8	38.2	39.3	41.1	42.1	41.7	42.9	44.4	43.8	43.3	40.0	35.6	32.4	28.9	24.4	21.3	18.9	53.1
	Background (dBA)	2.2	6.9	10.4	13.9	17.4	19.9	22.0	24.0	29.4	24.6	25.6	27.4	27.3	28.2	28.3	29.2	29.2	29.3	30.0	29.9	29.8	29.2	27.6	25.7	23.9	23.2	21.6	18.1	41.0
	Turbine ON - background adj (dBA)	11.6	17.2	20.8	24.2	27.6	30.8	33.5	34.6	38.8	36.0	37.5	38.4	37.8	39.0	40.8	41.9	41.5	42.7	44.3	43.6	43.1	39.6	34.8	31.4	27.3	[21.4]	[18.3]	[15.9]	52.8
	Signal to noise (dB)	9.9	10.6	10.8	10.7	10.6	11.3	11.8	10.9	9.9	11.7	12.2	11.3	10.9	11.1	12.8	13.0	12.6	13.5	14.4	13.8	13.5	10.8	7.9	6.8	5.1	1.2	-0.3	0.7	12.1
	Uncertainty (dB)	2.1	1.7	1.1	1.6	1.1	1.0	0.8	0.9	0.9	0.9	0.7	0.8	0.7	0.7	0.7	0.7	0.7	0.8	0.8	0.8	0.7	0.9	1.3	1.3	1.5	2.3	3.1	3.8	0.8
	PWL (dBA)	60.4	66.0	69.7	73.1	76.5	79.7	82.4	83.4	87.7	84.9	86.4	87.3	86.7	87.8	89.7	90.8	90.4	91.5	93.1	92.4	92.0	88.5	83.7	80.3	76.2	[70.2]	[67.1]	[64.7]	101.6
10.5	Turbine ON (dBA)	12.2	17.4	21.3	24.6	27.9	30.9	33.6	35.0	39.4	36.5	38.1	38.8	38.2	39.5	41.6	42.6	41.8	43.1	44.6	43.9	43.4	40.0	35.3	32.2	28.8	24.8	21.9	19.5	53.2
	Background (dBA)	1.5	6.7	10.3	13.4	16.3	19.1	21.3	23.4	30.1	23.7	24.3	26.8	26.2	27.4	27.4	28.3	28.3	28.6	29.2	29.1	28.9	27.9	25.9	24.0	21.3	20.4	18.6	15.9	40.1
	Turbine ON - background adj (dBA)	11.8	17.0	21.0	24.3	27.5	30.6	33.3	34.7	38.9	36.3	37.9	38.5	37.9	39.2	41.4	42.4	41.6	43.0	44.4	43.8	43.3	39.7	34.8	31.5	28.0	22.8	19.2	17.1	53.0
	Signal to noise (dB)	10.7	10.7	11.0	11.2	11.5	11.8	12.3	11.6	9.3	12.8	13.7	12.0	12.0	12.1	14.1	14.3	13.6	14.5	15.3	14.8	14.6	12.1	9.4	8.2	7.5	4.4	3.3	3.6	13.2
	Uncertainty (dB)	2.1	1.8	1.2	1.7	1.2	1.0	0.9	0.9	0.9	0.9	0.8	0.8	0.8	0.8	0.8	0.8	0.7	0.8	0.8	0.8	0.8	0.9	1.2	1.3	1.3	1.8	2.9	3.3	0.8
	PWL (dBA)	60.7	65.8	69.8	73.1	76.4	79.5	82.2	83.6	87.7	85.2	86.7	87.4	86.8	88.1	90.2	91.3	90.5	91.8	93.3	92.6	92.2	88.6	83.7	80.4	76.8	71.7	68.1	65.9	101.9
11.0	Turbine ON (dBA)	11.8	17.6	21.4	24.7	28.0	30.8	33.7	34.9	39.2	36.3	37.6	38.4	38.0	39.6	41.3	42.5	42.1	43.3	44.9	44.1	43.9	40.5	36.3	33.4	29.2	25.5	22.3	19.3	53.4
	Background (dBA)	1.5	6.4	10.0	13.6	16.7	19.7	21.3	23.2	28.0	23.7	24.5	25.8	25.8	26.9	27.2	28.4	28.4	28.6	29.1	28.6	28.1	26.6	24.4	22.8	20.6	19.8	18.3	15.9	39.5
	Turbine ON - background adj (dBA)	11.4	17.3	21.0	24.4	27.7	30.4	33.4	34.5	38.9	36.0	37.4	38.1	37.7	39.4	41.2	42.4	41.9	43.2	44.8	44.0	43.8	40.4	36.0	33.0	28.5	24.2	20.1	16.6	53.2
	Signal to noise (dB)	10.3	11.2	11.4	11.1	11.4	11.1	12.3	11.6	11.2	12.6	13.2	12.6	12.1	12.8	14.1	14.2	13.7	14.8	15.8	15.5	15.8	13.9	11.8	10.6	8.6	5.7	4.0	3.4	13.9
	Uncertainty (dB)	2.1	1.8	1.2	1.7	1.2	1.1	0.9	0.9	0.9	0.9	0.8	0.8	0.7	0.8	0.8	0.8	0.7	0.8	0.8	0.8	0.8	0.9	1.3	1.5	1.5	1.8	2.8	3.5	0.8
	PWL (dBA)	60.2	66.2	69.9	73.2	76.6	79.3	82.3	83.4	87.7	84.9	86.3	87.0	86.6	88.3	90.0	91.2	90.8	92.1	93.6	92.8	92.6	89.2	84.8	81.9	77.4	73.0	69.0	65.5	102.1

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

Project: Jericho Wind Energy Centre - Turbine J_WTG89 - IEC 61400-11 Measurement

Report ID: 14462.00.J_WTG89.RP3

Created on: 4/19/2018

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)	8.9	14.0	18.3	22.0	25.2	28.4	31.4	32.9	34.4	33.2	35.0	35.4	36.0	36.5	37.6	38.1	38.6	39.8	41.2	41.2	38.9	36.2	32.6	29.1	26.4	22.7	20.2	17.7	49.8
	Background (dBA)	0.7	5.4	9.3	12.5	16.2	21.1	22.6	23.6	26.3	24.9	25.9	26.9	27.2	27.8	28.4	29.1	28.6	28.5	28.8	28.7	29.2	30.0	29.0	27.2	26.3	25.3	22.9	19.6	40.8
	Turbine ON - background adj (dBA)	8.2	13.4	17.7	21.5	24.6	27.5	30.8	32.4	33.6	32.5	34.4	34.7	35.4	35.9	37.0	37.6	38.2	39.5	40.9	40.9	38.4	35.0	30.1	[26.1]	[23.4]	[19.7]	[17.2]	[14.7]	49.2
	Signal to noise (dB)	8.2	8.6	9.1	9.6	9.0	7.3	8.9	9.3	8.0	8.3	9.1	8.5	8.9	8.7	9.2	9.0	10.0	11.3	12.3	12.4	9.7	6.2	3.6	1.9	0.1	-2.6	-2.8	-1.9	9.0
	Uncertainty (dB)	3.5	2.9	1.9	2.7	1.9	1.8	1.5	1.4	1.5	1.5	1.2	1.3	1.2	1.3	1.2	1.3	1.2	1.3	1.3	1.2	1.3	1.7	3.1	3.4	3.2	3.4	4.6	5.6	1.3
	PWL (dBA)	57.1	62.2	66.6	70.4	73.5	76.3	79.7	81.2	82.5	81.3	83.3	83.6	84.3	84.7	85.9	86.4	87.0	88.3	89.8	89.8	87.2	83.8	79.0	[74.9]	[72.3]	[68.6]	[66]	[63.6]	98.1
6.0	Turbine ON (dBA)	12.0	17.2	21.1	24.7	28.0	31.4	33.9	35.1	38.7	36.1	37.8	39.1	38.0	38.9	40.6	41.2	41.1	42.3	43.7	43.2	42.6	39.2	34.8	31.2	28.0	24.2	21.3	18.9	52.5
	Background (dBA)	1.6	6.3	9.8	13.1	16.5	20.6	23.3	23.9	28.6	24.7	26.0	27.6	27.5	28.3	28.8	29.4	28.9	28.9	29.3	29.0	28.9	28.8	27.6	25.8	25.1	23.9	21.6	18.5	40.8
	Turbine ON - background adj (dBA)	11.6	16.8	20.8	24.4	27.7	31.1	33.5	34.8	38.2	35.8	37.5	38.7	37.6	38.5	40.3	41.0	40.9	42.1	43.6	43.0	42.4	38.8	33.9	29.8	[25]	[21.2]	[18.3]	[15.9]	52.2
	Signal to noise (dB)	10.4	10.9	11.3	11.6	11.5	10.8	10.7	11.2	10.0	11.4	11.8	11.5	10.4	10.7	11.8	11.8	12.2	13.4	14.5	14.3	13.7	10.4	7.2	5.4	3.0	0.3	-0.3	0.4	11.7
	Uncertainty (dB)	1.9	1.6	1.0	1.5	1.0	0.9	0.8	0.8	0.8	0.8	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.8	1.2	1.4	2.0	2.1	2.8	3.5	0.7
	PWL (dBA)	60.5	65.7	69.7	73.2	76.6	79.9	82.4	83.6	87.1	84.7	86.3	87.6	86.4	87.4	89.2	89.8	89.7	91.0	92.4	91.9	91.2	87.7	82.8	78.6	[73.9]	[70.1]	[67.1]	[64.8]	101.1
7.0	Turbine ON (dBA)	12.1	17.5	21.3	24.7	28.1	31.3	33.9	35.2	39.4	36.5	37.9	38.9	38.3	39.4	41.2	42.2	41.7	42.9	44.4	43.8	43.3	40.0	35.5	32.3	28.8	24.5	21.4	19.0	53.1
	Background (dBA)	1.7	6.6	10.0	13.4	16.9	20.3	22.6	23.8	29.1	24.3	25.3	26.9	26.8	27.8	27.9	28.8	28.7	28.8	29.3	29.0	28.8	28.1	26.5	24.7	23.2	22.3	20.6	17.5	40.3
	Turbine ON - background adj (dBA)	11.6	17.1	21.0	24.4	27.8	30.9	33.6	34.8	39.0	36.2	37.7	38.7	38.0	39.1	41.0	42.0	41.5	42.7	44.3	43.6	43.2	39.7	34.9	31.5	27.5	[21.5]	[18.4]	[16]	52.9
	Signal to noise (dB)	10.3	10.9	11.3	11.3	11.2	11.0	11.4	11.4	10.3	12.2	12.6	12.0	11.5	11.6	13.3	13.4	13.1	14.1	15.1	14.7	14.6	11.9	9.0	7.6	5.7	2.1	0.8	1.5	12.8
	Uncertainty (dB)	2.1	1.7	1.1	1.6	1.1	1.0	0.9	0.9	0.9	0.8	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.8	0.8	0.8	0.7	0.8	1.2	1.2	1.3	2.2	3.0	3.7	0.8
	PWL (dBA)	60.5	66.0	69.8	73.3	76.6	79.8	82.5	83.7	87.8	85.1	86.6	87.5	86.8	87.9	89.9	90.9	90.4	91.6	93.2	92.5	92.0	88.6	83.8	80.3	76.3	[70.3]	[67.3]	[64.8]	101.7
8.0	Turbine ON (dBA)	12.5	17.6	21.2	24.6	27.8	30.7	33.5	34.9	39.5	36.5	38.0	38.8	38.2	39.7	41.8	42.7	42.1	43.4	44.7	44.1	43.8	40.4	36.0	32.9	28.9	25.9	23.0	20.3	53.4
	Background (dBA)	2.1	6.7	10.3	13.6	16.5	19.4	21.2	23.4	29.5	23.7	24.5	26.5	26.1	27.2	27.5	28.4	28.6	28.8	29.6	29.5	29.2	27.9	25.8	23.8	21.4	20.2	18.6	16.0	40.1
	Turbine ON - background adj (dBA)	12.1	17.3	20.8	24.2	27.5	30.4	33.2	34.6	39.0	36.3	37.8	38.6	37.9	39.4	41.6	42.5	41.9	43.3	44.6	44.0	43.6	40.1	35.6	32.3	28.1	24.5	21.1	18.4	53.2
	Signal to noise (dB)	10.4	11.0	10.9	11.0	11.3	11.3	12.3	11.5	10.0	12.8	13.5	12.3	12.1	12.4	14.3	14.2	13.6	14.6	15.1	14.6	14.6	12.5	10.2	9.1	7.6	5.7	4.5	4.4	13.3
	Uncertainty (dB)	1.8	1.5	1.0	1.4	1.0	0.9	0.8	0.8	0.8	0.8	0.6	0.7	0.6	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	2.0	2.5	0.7
	PWL (dBA)	60.9	66.1	69.7	73.1	76.3	79.3	82.1	83.4	87.9	85.1	86.6	87.4	86.8	88.3	90.5	91.4	90.8	92.1	93.5	92.8	92.5	89.0	84.4	81.2	77.0	73.4	70.0	67.2	102.1

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	1.9 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 dB
8000	0.5 dB	1.4 dB
10000	1.3 dB	1.7 dB

Table C.04 Detailed measurement uncertainty at hub height

Project: Jericho Wind Energy Centre - Turbine J_WTG89 - IEC 61400-11 Measurement

Report ID: 14462.00.J_WTG89.RP3

Created on: 4/19/2018

Wind Bin (m/s)	Parameter	Average Wind Speed (m/s)	# of data points	Parameter	1/3 Octave Band (Hz) 20	25	31.5	40	50	63	80	100	125	160	200	250	315	400	500	630	800	1000	1250	1600	2000	2500	3150	4000	5000	6300	8000	10000	Overall
7.0	Turbine ON	7.02	25	Average (dBA)	9.1	14.3	18.4	22.1	25.4	28.5	31.7	33.2	34.7	33.3	35.3	35.6	36.5	36.2	37.7	38.2	38.7	39.9	41.3	41.0	39.0	36.3	32.7	29.3	27.0	22.9	20.1	17.8	49.9
				Uncertainty A (dB)	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.2	0.4	0.2	0.2	0.2	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.4	0.3	0.5	0.5		
				Uncertainty B (dB)	1.9	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	1.0	1.4	1.7		
				Combined Uncertainty (dB)	2.0	1.6	1.1	1.6	1.1	1.0	0.8	0.8	0.9	0.9	0.7	0.8	0.7	0.7	0.7	0.7	0.7	0.8	0.8	0.8	0.7	0.8	1.1	1.1	1.1	1.1	1.5	1.8		
	Background	6.99	94	Average (dBA)	0.8	5.4	9.2	12.5	16.1	20.6	22.5	23.6	25.9	24.9	25.9	26.8	27.1	27.8	28.4	29.1	28.6	28.5	28.8	28.6	29.0	29.8	28.9	27.1	26.6	25.4	22.7	19.4	40.7
				Uncertainty A (dB)	0.2	0.2	0.1	0.1	0.1	0.2	0.2	0.1	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.3	0.3	0.3	0.4	0.4	0.3	0.3		
				Uncertainty B (dB)	1.9	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	1.0	1.4	1.7		
				Combined Uncertainty (dB)	2.0	1.6	1.1	1.5	1.1	1.0	0.8	0.8	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	0.9	1.1	1.1	1.1	1.1	1.4	1.7		
7.5	Turbine ON	7.53	67	Average (dBA)	10.4	15.5	19.7	23.3	26.5	29.9	32.6	33.9	36.5	34.5	36.3	37.2	36.7	37.8	39.1	39.6	39.8	41.0	42.3	42.2	40.6	37.5	33.5	29.8	26.8	23.4	20.8	18.4	51.0
				Uncertainty A (dB)	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.1	0.2	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.3	0.3		
				Uncertainty B (dB)	1.9	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	1.0	1.4	1.7		
				Combined Uncertainty (dB)	1.9	1.6	1.1	1.5	1.1	1.0	0.8	0.8	0.8	0.8	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.8	0.8	0.8	0.7	0.8	1.1	1.1	1.0	1.1	1.4	1.7		
	Background	7.51	79	Average (dBA)	1.4	6.0	9.7	12.9	16.4	20.7	23.1	23.9	27.8	24.8	26.1	27.3	27.5	28.1	28.7	29.4	28.9	28.9	29.2	29.1	29.4	29.8	28.7	26.8	25.6	24.9	22.7	19.4	41.0
				Uncertainty A (dB)	0.2	0.2	0.1	0.1	0.1	0.2	0.2	0.1	0.4	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.4	0.4	0.4	0.4	0.4	0.4	0.3		
				Uncertainty B (dB)	1.9	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	1.0	1.4	1.7		
				Combined Uncertainty (dB)	2.0	1.6	1.1	1.5	1.1	1.0	0.9	0.8	0.9	0.8	0.7	0.7	0.7	0.7	0.7	0.8	0.7	0.8	0.8	0.8	0.8	0.9	1.2	1.1	1.1	1.1	1.4	1.7		
8.0	Turbine ON	7.99	110	Average (dBA)	11.9	17.0	21.0	24.6	28.0	31.4	33.8	35.0	38.4	35.9	37.5	38.8	37.7	38.8	40.4	41.0	40.9	42.1	43.5	43.0	42.2	38.8	34.4	30.8	27.7	24.1	21.4	19.0	52.3
				Uncertainty A (dB)	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2		
				Uncertainty B (dB)	1.9	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	1.0	1.4	1.7		
				Combined Uncertainty (dB)	1.9	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	1.0	1.4	1.7		
	Background	7.99	71	Average (dBA)	1.7	6.4	9.9	13.0	16.6	20.8	22.8	24.0	28.9	24.8	26.0	27.7	27.5	28.4	28.9	29.6	29.1	29.0	29.4	29.0	29.0	29.1	27.9	26.1	25.3	24.3	22.0	18.8	40.9
				Uncertainty A (dB)	0.2	0.2	0.1	0.1	0.1	0.2	0.2	0.1	0.4	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.4	0.4	0.4	0.4	0.4	0.4	0.3		
				Uncertainty B (dB)	1.9	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	1.0	1.4	1.7		
				Combined Uncertainty (dB)	2.0	1.6	1.1	1.5	1.1	1.0	0.8	0.8	0.9	0.8	0.7	0.7	0.7	0.7	0.7	0.8	0.7	0.8	0.8	0.8	0.8	0.9	1.2	1.1	1.1	1.1	1.4	1.7		
8.5	Turbine ON	8.51	47	Average (dBA)	12.4	17.5	21.4	25.0	28.3	31.7	34.3	35.4	38.9	36.6	38.2	39.7	38.4	39.2	40.8	41.6	41.5	42.6	44.1	43.5	43.0	39.8	35.3	31.7	28.4	24.4	21.2	18.8	52.9
				Uncertainty A (dB)	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.3	0.3		
				Uncertainty B (dB)	1.9	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	1.0	1.4	1.7		
				Combined Uncertainty (dB)	2.0	1.6	1.1	1.5	1.1	1.0	0.8	0.8	0.8	0.8	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.8	0.8	0.8	0.7	0.8	1.1	1.1	1.0	1.1	1.4	1.7		
	Background	8.49	53	Average (dBA)	1.8	6.3	9.8	13.2	16.4	20.4	23.9	23.9	28.7	24.8	26.1	27.7	27.6	28.3	28.8	29.5	29.0	29.0	29.4	29.1	28.9	28.7	27.4	25.7	25.4	23.7	21.5	18.5	40.8
				Uncertainty A (dB)	0.2	0.2	0.2	0.1	0.1	0.2	0.4	0.1	0.5	0.2	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.4	0.4	0.5	0.4	0.4	0.3		
				Uncertainty B (dB)	1.9	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	1.0	1.4	1.7		
				Combined Uncertainty (dB)	2.0	1.6	1.1	1.5	1.1	1.0	0.9	0.8	0.9	0.8	0.7	0.8	0.7	0.8	0.7	0.8	0.7	0.8	0.8	0.8	0.8	0.9	1.2	1.1	1.1	1.1	1.4	1.7		
9.0	Turbine ON	8.99	30	Average (dBA)	12.5	17.7	21.5	25.1	28.6	31.9	34.5	35.6	39.4	36.7	38.3	39.4	38.5	39.3	41.0	41.7	41.5	42.6	44.1	43.6	43.1	39.9	35.5	31.9	28.4	24.5	21.2	18.8	53.0
				Uncertainty A (dB)	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.2	0.2	0.2	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.3	0.2	0.2	0.5	0.5		
				Uncertainty B (dB)	1.9	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	1.0	1.4	1.7		
				Combined Uncertainty (dB)	2.0	1.6	1.1	1.6	1.1	1.0	0.8	0.8	0.8	0.8	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.8	0.8	0.8	0.7	0.8	1.1	1.1	1.0	1.1	1.5	1.8		
	Background	8.99	60	Average (dBA)	1.5	6.2	9.9	13.2	16.7	20.7	23.1	23.7	28.8	24.3	25.6	27.3	27.3	28.0	28.4	29.0	28.6	28.6	29.0	28.7	28.4	27.9	26.4	24.6	23.2	22.4	20.4	17.4	40.3
				Uncertainty A (dB)	0.2	0.1	0.1	0.1	0.2	0.3	0.3	0.1	0.5	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	0.4	0.3	0.4	0.4	0.3	0.3		
				Uncertainty B (dB)	1.9	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	1.0	1.4	1.7		
				Combined Uncertainty (dB)	2.0	1.6	1.1	1.5	1.1	1.0	0.9	0.8	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	1.2	1.1	1.1	1.1	1.4	1.7		
9.5	Turbine ON	9.48	87	Average (dBA)	11.9	17.4	21.2	24.7	28.1	31.3	34.0	35.2	39.5	36.6	38.0	39.1	38.4	39.4	41.4	42.3	41.7	42.9	44.5	43.8	43.3	40.0	35.5	32.2	28.8	24.5	21.4	19.0	53.2
				Uncertainty A (dB)	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.3	0.3		
				Uncertainty B (dB)	1.9	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	1.0	1.4	1.7		
				Combined Uncertainty (dB)	1.9	1.6	1.1	1.5	1.1	1.0	0.8	0.8	0.8	0.8	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.8	0.8	0.8	0.7	0.8	1.1	1.1	1.0	1.1	1.4	1.7		
	Background	9.52	44	Average (dBA)	1.5	6.6	9.7	13.2	16.7	20.2	22.8	23.7	28.5	24.2	25.2	26.4	26.5	27.5	27.8	28.7	28.5	28.6	29.1	28.7	28.5	28.1	26.5	24.8	23.3	22.4	20.5	17.5	40.2
				Uncertainty A (dB)	0.2	0.2	0.1	0.1	0.2	0.2	0.4	0.1	0.5	0.2	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.4	0.5	0.5	0.5	0.5	0.5	0.4	0.3		
				Uncertainty B (dB)	1.9	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	1.0	1.4	1.7		
				Combined Uncertainty (dB)	2.0	1.6	1.1	1.5	1.1	1.0	0.9	0.8	1.0	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	1.2	1.1	1.1	1.1	1.5	1.7		
10.0	Turbine ON	9.97	62	Average (dBA)	12.0	17.6	21.2	24.6	28.0	31.2	33.8	34.9	39.3	36.3	37.7	38.7	38.2	39.3	41.0	42.1	41.7	42.9	44.4	43.7	43.3	40.0	35.6	32.4	28.9	24.3	21.2	18.8	53.0
				Uncertainty A (dB)	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.4	0.4		
				Uncertainty B (dB)	1.9	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	1.0	1.4	1.7		
				Combined Uncertainty (dB)	1.9	1.6	1.1	1.5	1.1	1.0	0.8	0.8	0.8	0.8	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.8	0.8	0.8	0.7	0.8	1.1	1.1	1.0	1.1	1.4	1.8		
	Background	9.97	27	Average (dBA)	2.2	7.0	10.4	13.9	17.4	19.9	22.0	24.0	29.4	24.6	25.6	27.5	27.3	28.2	28.3	29.2	29.2	29.4	30.1	30.0	29.9	29.3	27.7	25.7	24.0	23.4	21.7	18.2	41.0
				Uncertainty A (dB)	0.2	0.2	0.2	0.2	0.3	0.2	0.2	0.2	0.7	0.3	0.3	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.4	0.5	0.6	0.7	0.7	0.7	0.7	0.7	0.5		
				Uncertainty B (dB)	1.9	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	1.0	1.4	1.7		
				Combined Uncertainty (dB)	2.0	1.6	1.1	1.6	1.1	1.0	0.9	0.9	1.1	0.9	0.8	0.8	0.8	0.8	0.7	0.8	0.8	0.8	0.8	0.9	0.9	1.0	1.3	1.2	1.2	1.3	1.6	1.8		

Table C.04 Detailed measurement uncertainty at hub height

Project: Jericho Wind Energy Centre - Turbine J_WTG89 - IEC 61400-11 Measurement

Report ID: 14462.00.J_WTG89.RP3

Created on: 4/19/2018

Wind Bin (m/s)	Parameter	Average Wind Speed (m/s)	# of data points	Parameter	1/3 Octave Band (Hz)																												Overall
					20	25	31.5	40	50	63	80	100	125	160	200	250	315	400	500	630	800	1000	1250	1600	2000	2500	3150	4000	5000	6300	8000	10000	
10.5	Turbine ON	10.46	22	Average (dBA)	12.2	17.4	21.3	24.6	27.8	30.9	33.6	35.0	39.4	36.5	38.1	38.8	38.2	39.5	41.6	42.6	41.8	43.1	44.6	43.9	43.5	40.0	35.3	32.2	28.8	24.8	21.9	19.5	53.2
				Uncertainty A (dB)	0.3	0.2	0.3	0.3	0.3	0.3	0.2	0.2	0.1	0.2	0.2	0.2	0.2	0.2	0.3	0.2	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.3	0.3	0.3	0.4	0.4	
				Uncertainty B (dB)	1.9	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	1.0	1.4	1.7	
				Combined Uncertainty (dB)	2.0	1.7	1.1	1.6	1.1	1.0	0.8	0.8	0.8	0.9	0.7	0.8	0.7	0.7	0.8	0.8	0.7	0.8	0.8	0.8	0.8	0.8	1.1	1.1	1.0	1.1	1.4	1.8	
	Background	10.46	13	Average (dBA)	1.5	6.7	10.3	13.4	16.3	19.1	21.3	23.5	30.2	23.7	24.3	26.9	26.2	27.4	27.5	28.2	28.3	28.6	29.3	29.2	29.0	28.0	26.0	24.1	21.4	20.4	18.6	15.9	40.1
				Uncertainty A (dB)	0.4	0.4	0.3	0.3	0.2	0.2	0.2	0.2	1.2	0.3	0.4	0.5	0.4	0.3	0.4	0.4	0.5	0.6	0.7	0.9	1.1	1.1	1.1	1.1	0.9	0.8	0.7	0.6	
				Uncertainty B (dB)	1.9	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	1.0	1.4	1.7	
				Combined Uncertainty (dB)	2.0	1.7	1.1	1.6	1.1	1.0	0.8	0.9	1.5	0.9	0.8	0.9	0.8	0.8	0.8	0.8	0.8	0.9	1.0	1.2	1.3	1.4	1.6	1.5	1.4	1.3	1.5	1.8	
11.0	Turbine ON	10.99	10	Average (dBA)	11.8	17.6	21.4	24.7	28.1	30.8	33.7	34.8	39.2	36.3	37.6	38.3	37.9	39.6	41.3	42.5	42.1	43.4	44.9	44.1	43.9	40.6	36.3	33.5	29.2	25.6	22.3	19.2	53.4
				Uncertainty A (dB)	0.6	0.7	0.6	0.6	0.6	0.5	0.4	0.4	0.3	0.3	0.3	0.3	0.2	0.3	0.5	0.3	0.2	0.2	0.2	0.2	0.2	0.5	0.7	0.9	0.9	0.9	1.0	0.8	
				Uncertainty B (dB)	1.9	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	1.0	1.4	1.7	
				Combined Uncertainty (dB)	2.0	1.8	1.2	1.6	1.2	1.1	0.9	0.9	0.9	0.9	0.8	0.8	0.7	0.8	0.8	0.8	0.7	0.8	0.8	0.8	0.8	0.9	1.3	1.4	1.3	1.4	1.7	1.9	
	Background	10.96	13	Average (dBA)	1.4	6.3	9.9	13.6	16.7	19.7	21.3	23.2	27.8	23.7	24.4	25.7	25.8	26.8	27.2	28.3	28.4	28.5	29.0	28.5	27.9	26.4	24.3	22.6	20.5	19.7	18.3	15.8	39.4
				Uncertainty A (dB)	0.4	0.2	0.2	0.2	0.2	0.3	0.2	0.2	0.9	0.3	0.4	0.5	0.3	0.4	0.3	0.3	0.3	0.4	0.4	0.6	0.6	0.6	0.5	0.5	0.4	0.3	0.3	0.3	
				Uncertainty B (dB)	1.9	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	1.0	1.4	1.7	
				Combined Uncertainty (dB)	2.0	1.6	1.1	1.6	1.1	1.0	0.8	0.8	1.2	0.9	0.8	0.9	0.8	0.8	0.8	0.8	0.8	0.9	0.9	1.0	1.0	1.0	1.2	1.2	1.1	1.1	1.4	1.7	

Table C.05 Secondary Windscreen Influence

Project: Jericho Wind Energy Centre - Turbine J_WTG89 - IEC 61400-11 Measurement

Report ID: 14462.00.JWTG89.RP3

Created on: 4/17/2018

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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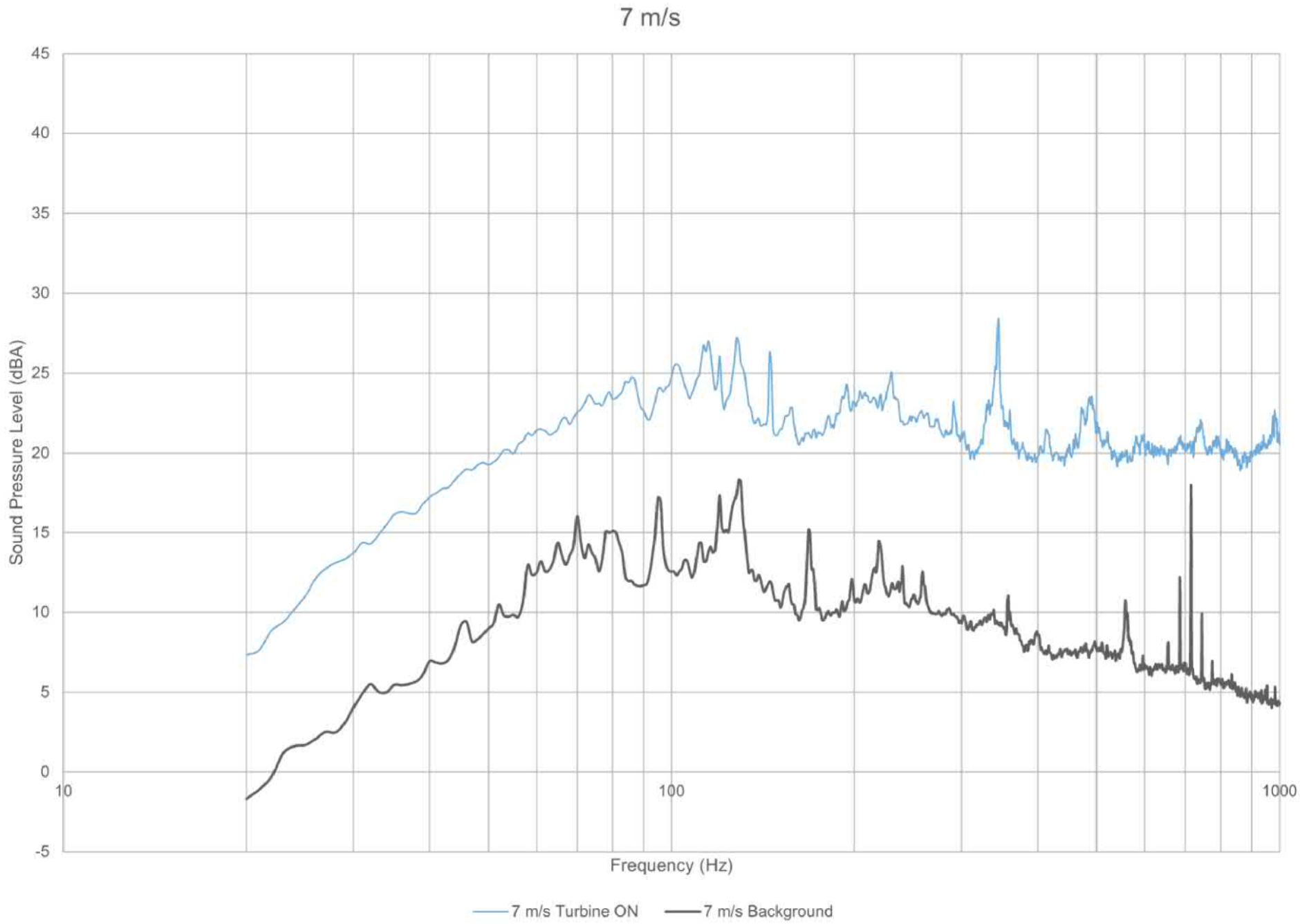
Appendix D
Tonality Assessment



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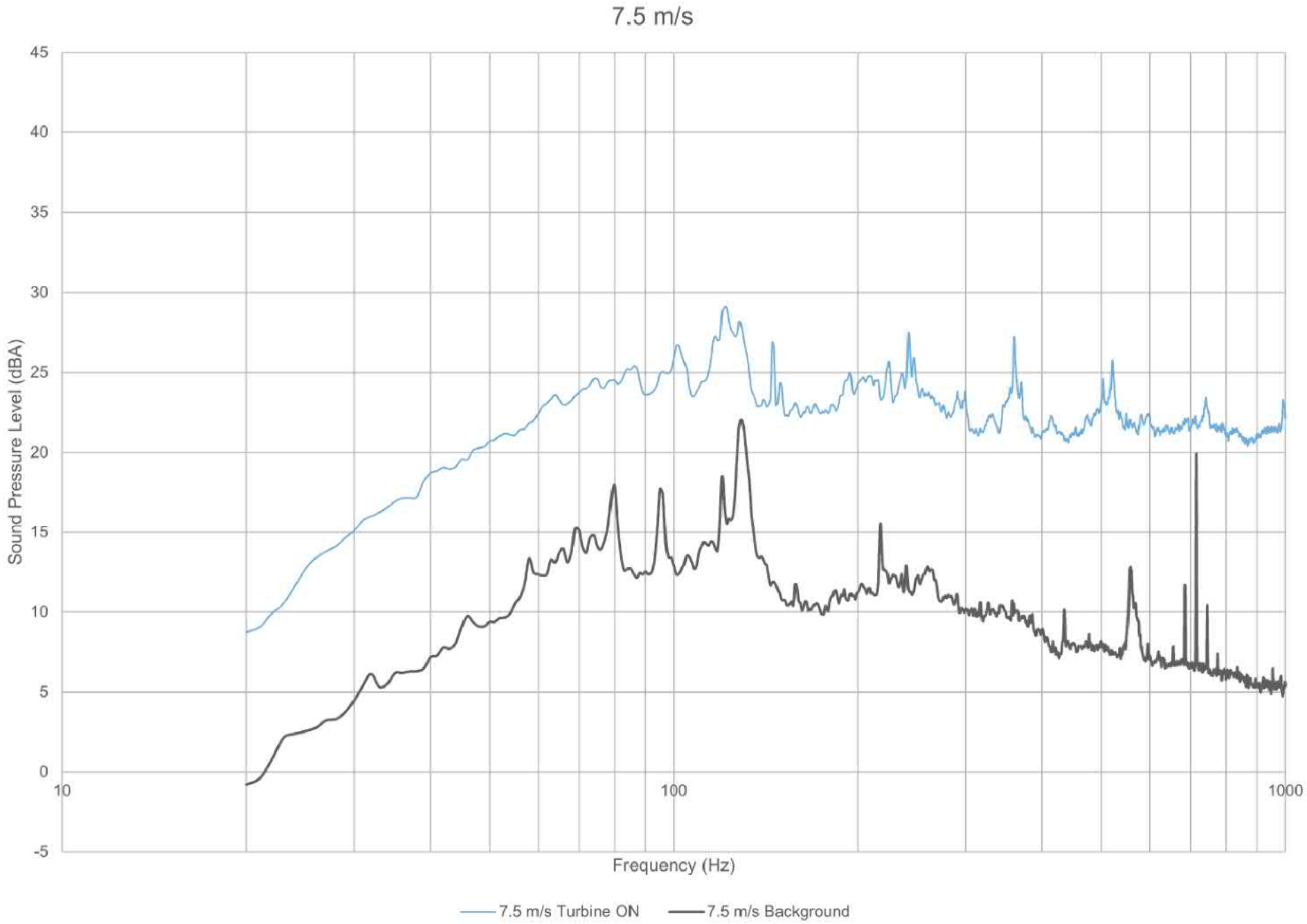
14462.00.J_WTG89.RP3	**Project Name**
Scale:NTS Drawn by:NT Reviewed by:PA Date:Apr 19, 2018 Revision:1	Jericho Wind Energy Centre - IEC 61400-11 Edition 3.0 - Turbine J_WTG89
	Figure Title Plot of narrow band spectra - Turbine ON vs. Background at 7 m/s

Figure D.01



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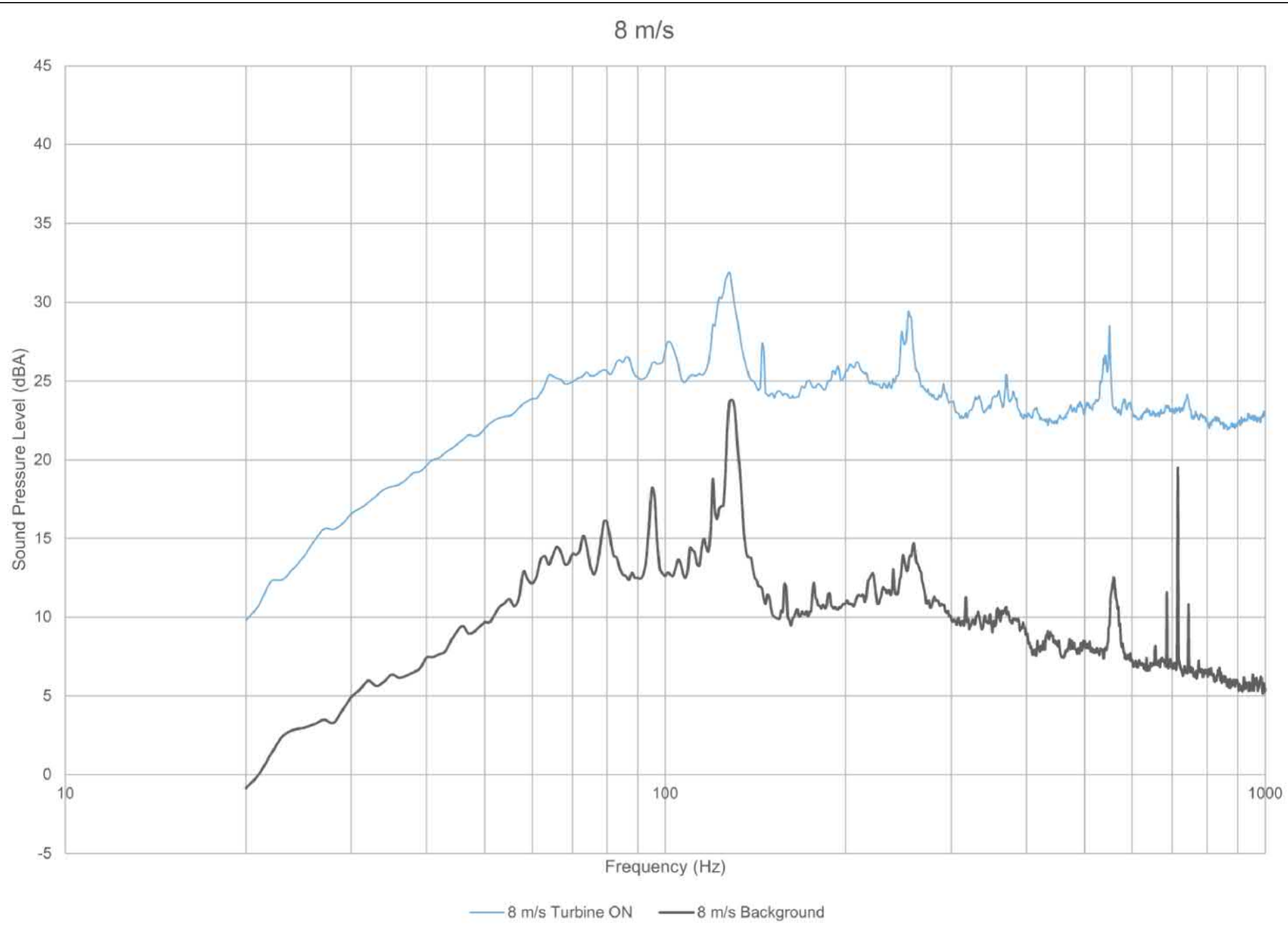
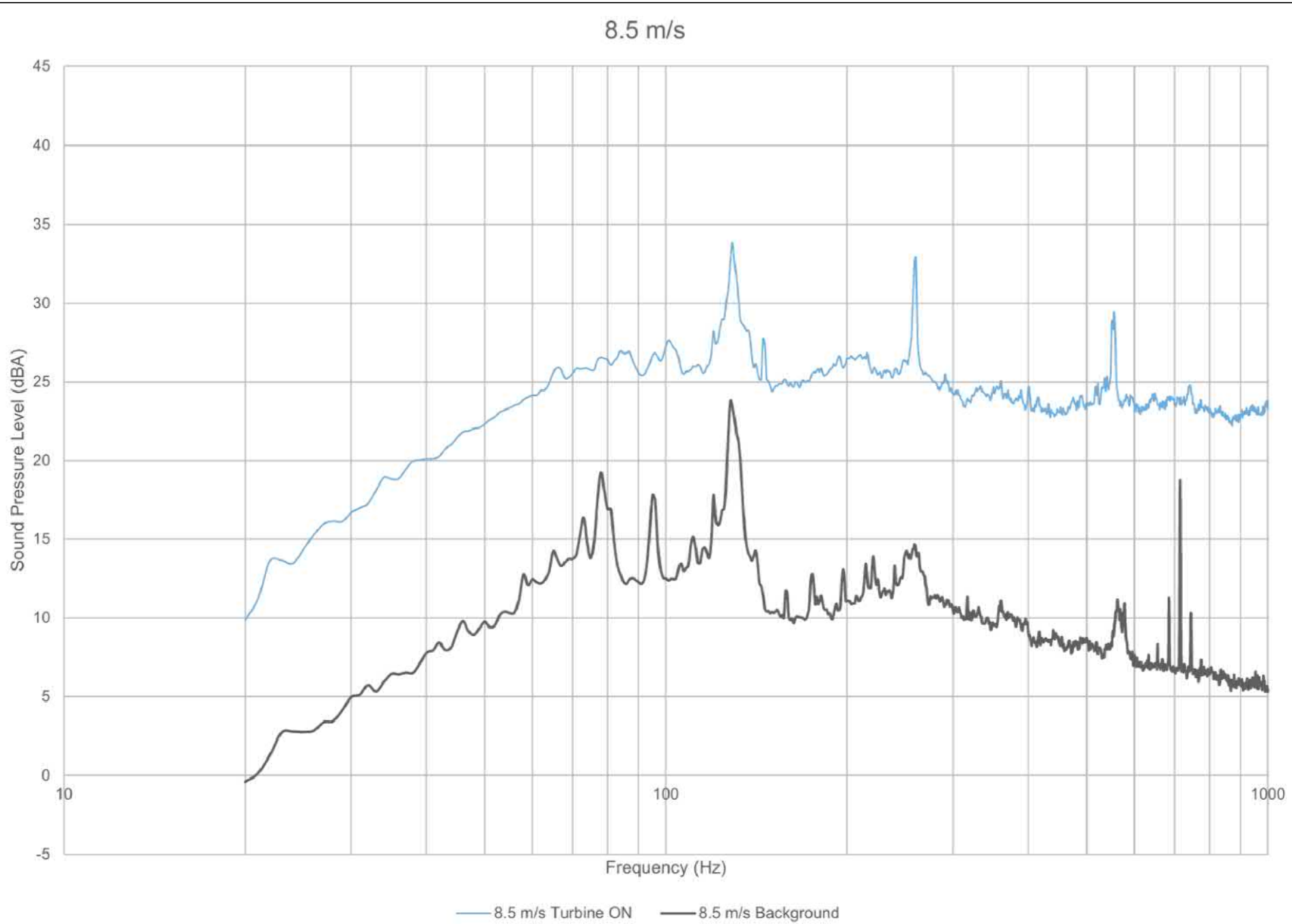
14462.00.J_WTG89.RP3	**Project Name**
Scale: NTS Drawn by: NT Reviewed by: PA Date: Apr 19, 2018 Revision: 1	Jericho Wind Energy Centre - IEC 61400-11 Edition 3.0 - Turbine J_WTG89
	Figure Title Plot of narrow band spectra - Turbine ON vs. Background at 7.5 m/s

Figure D.02



aercoustics	14462.00.J_WTG89.RP3 Scale:NTS Drawn by:NT Reviewed by:PA Date:Apr 19, 2018 Revision:1	**Project Name** Jericho Wind Energy Centre - IEC 61400-11 Edition 3.0 - Turbine J_WTG89 **Figure Title** Plot of narrow band spectra - Turbine ON vs. Background at 8 m/s

Figure D.03



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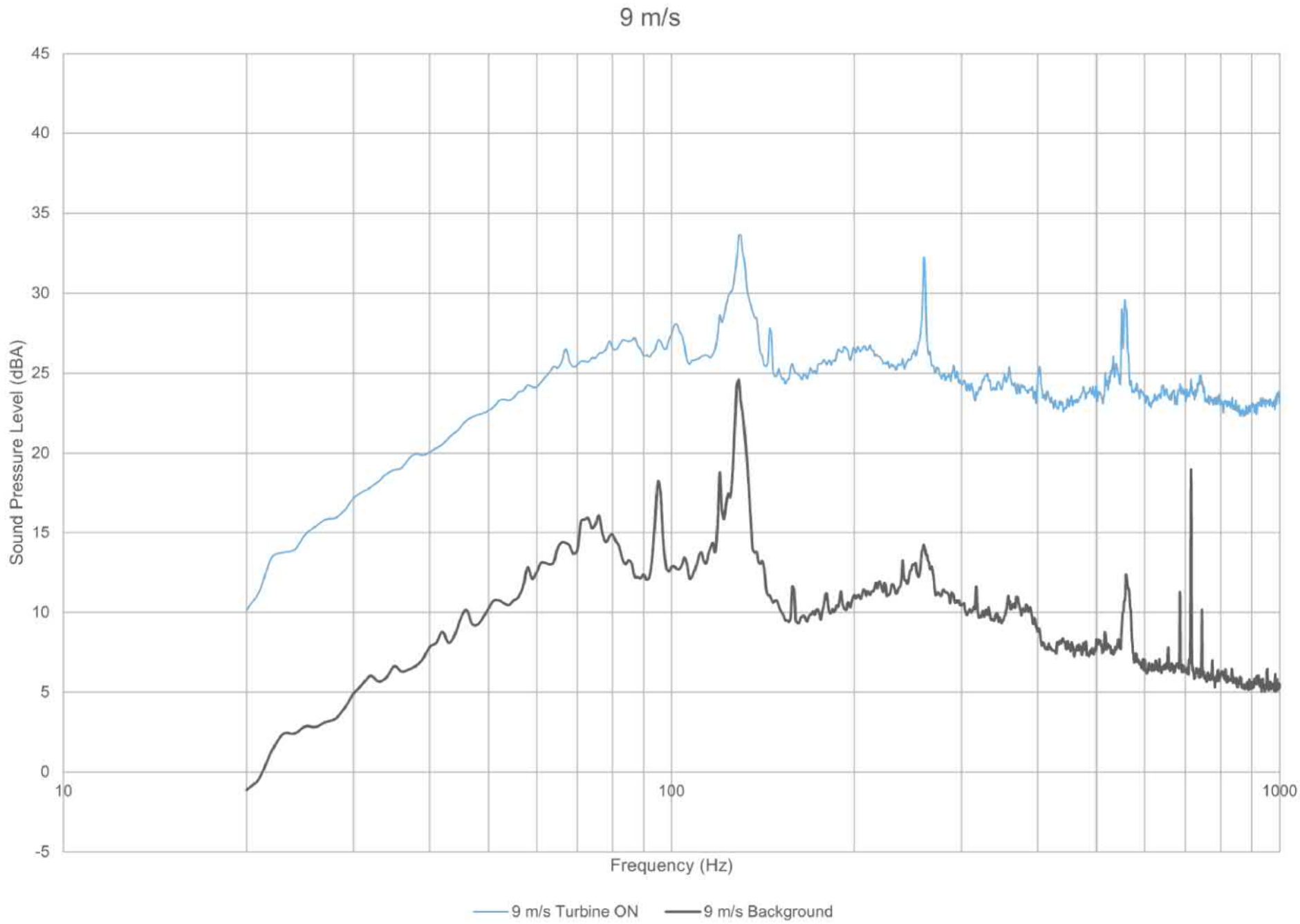
14462.00.J_WTG89.RP3	**Project Name**
Scale: NTS Drawn by: NT Reviewed by: PA Date: Apr 19, 2018 Revision: 1	Jericho Wind Energy Centre - IEC 61400-11 Edition 3.0 - Turbine J_WTG89
	Figure Title Plot of narrow band spectra - Turbine ON vs. Background at 8.5 m/s

Figure D.04



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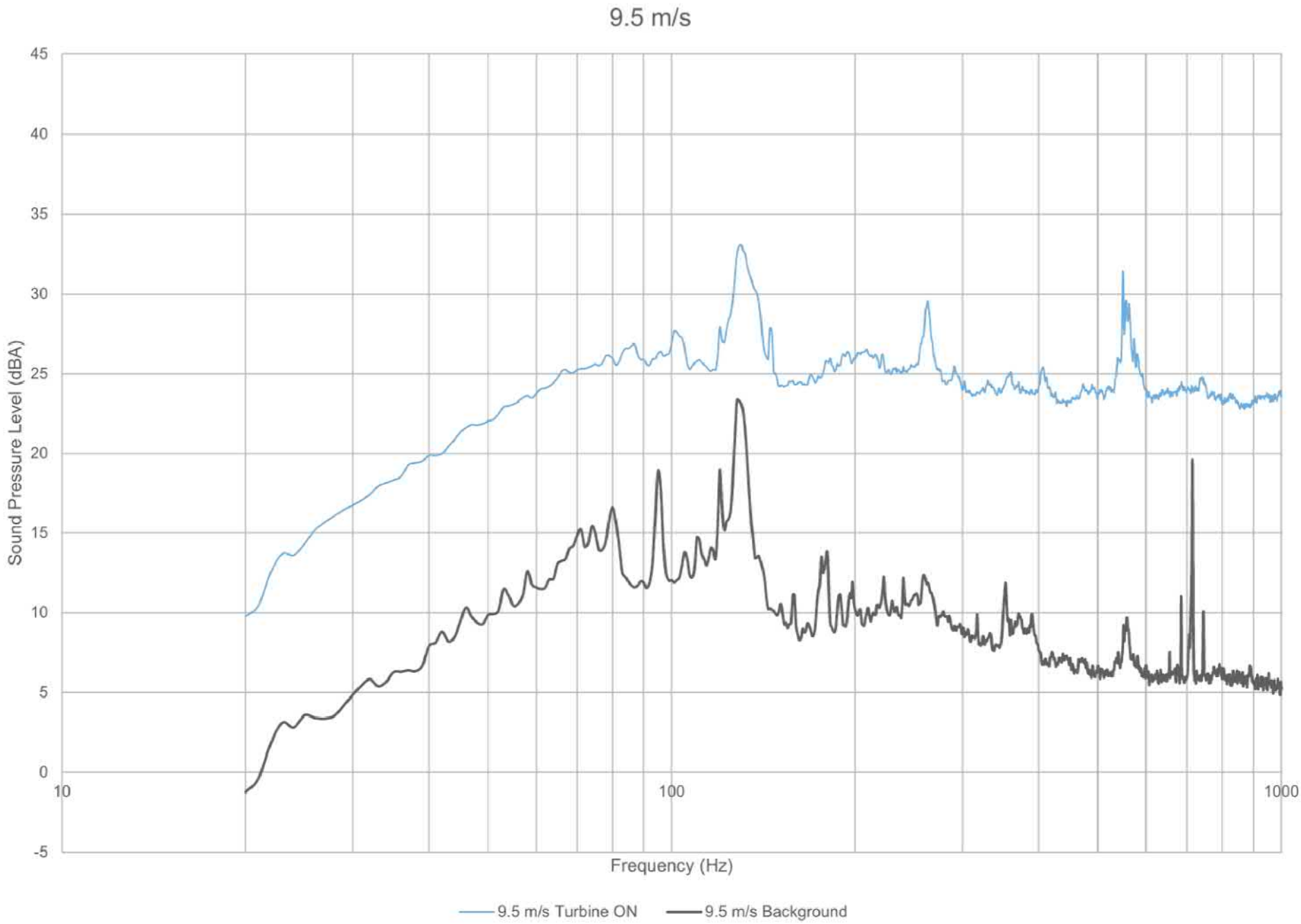
14462.00.J_WTG89.RP3	**Project Name**
Scale: NTS Drawn by: NT Reviewed by: PA Date: Apr 19, 2018 Revision: 1	Jericho Wind Energy Centre - IEC 61400-11 Edition 3.0 - Turbine J_WTG89
	Figure Title Plot of narrow band spectra - Turbine ON vs. Background at 9 m/s

Figure D.05



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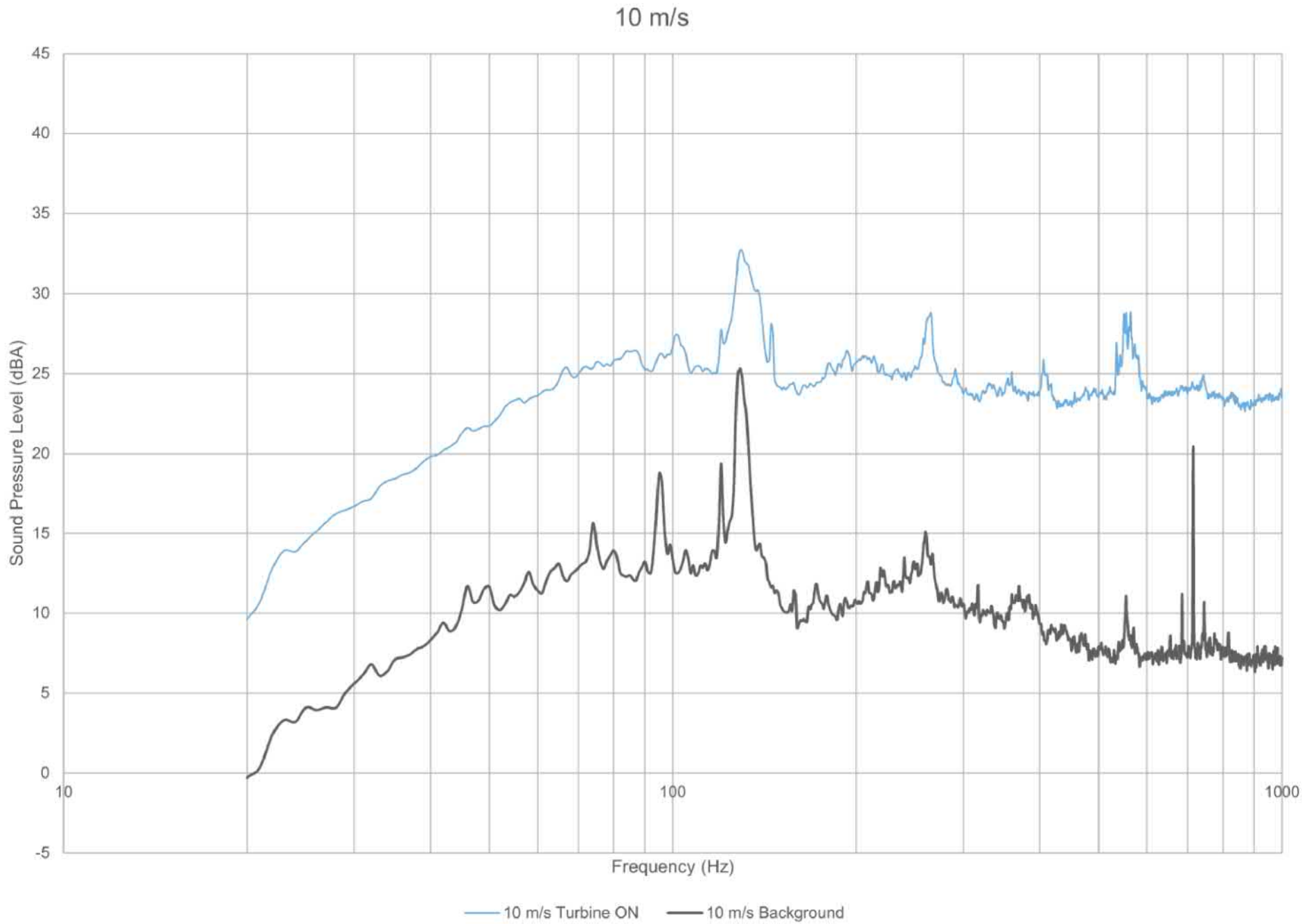
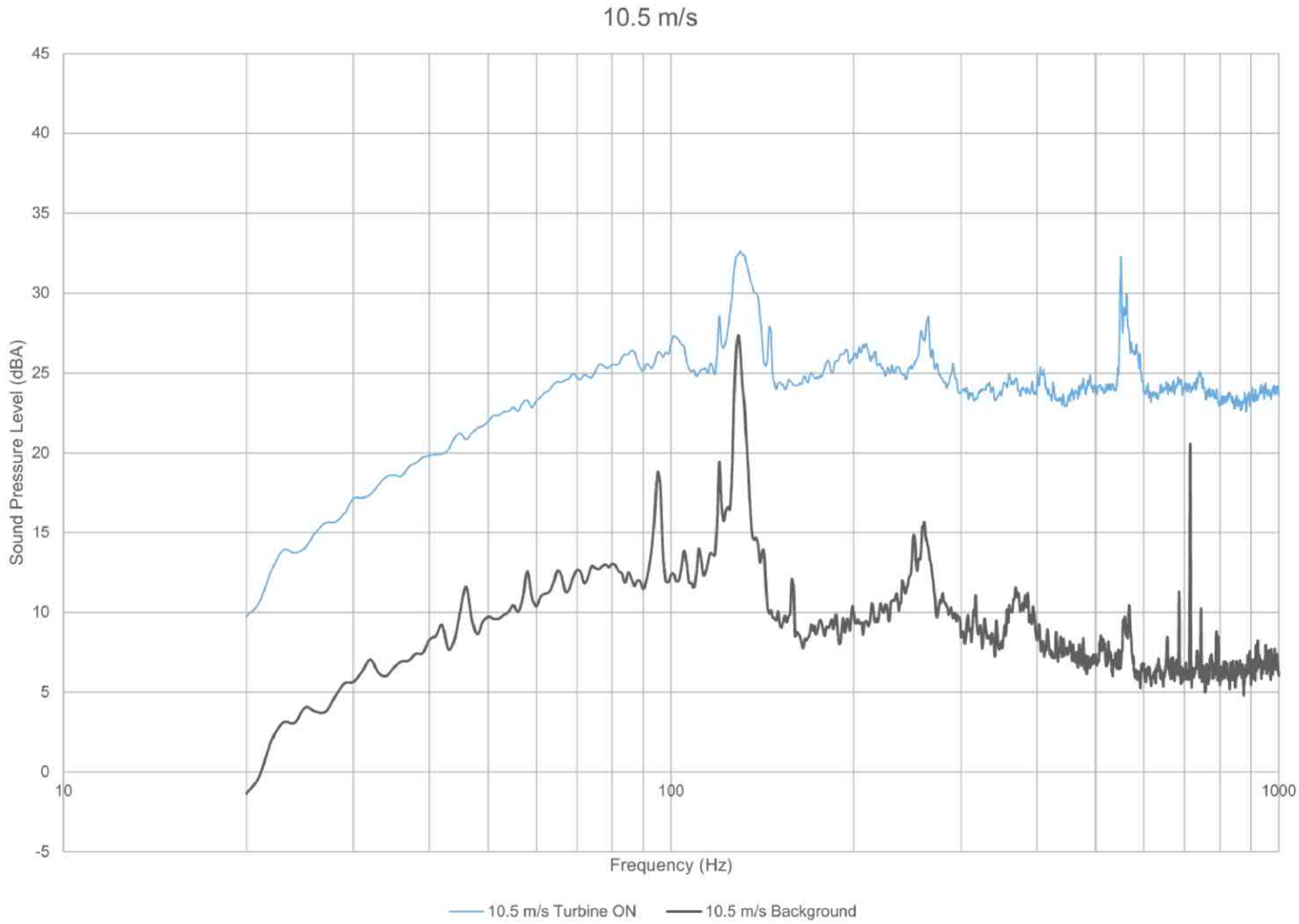
14462.00.J_WTG89.RP3	**Project Name**
Scale: NTS Drawn by: NT Reviewed by: PA Date: Apr 19, 2018 Revision: 1	Jericho Wind Energy Centre - IEC 61400-11 Edition 3.0 - Turbine J_WTG89
	Figure Title Plot of narrow band spectra - Turbine ON vs. Background at 9.5 m/s

Figure D.06



aercoustics	14462.00.J_WTG89.RP3 Scale:NTS Drawn by:NT Reviewed by:PA Date:Apr 19, 2018 Revision:1	**Project Name** Jericho Wind Energy Centre - IEC 61400-11 Edition 3.0 - Turbine J_WTG89 **Figure Title** Plot of narrow band spectra - Turbine ON vs. Background at 10 m/s

Figure D.07



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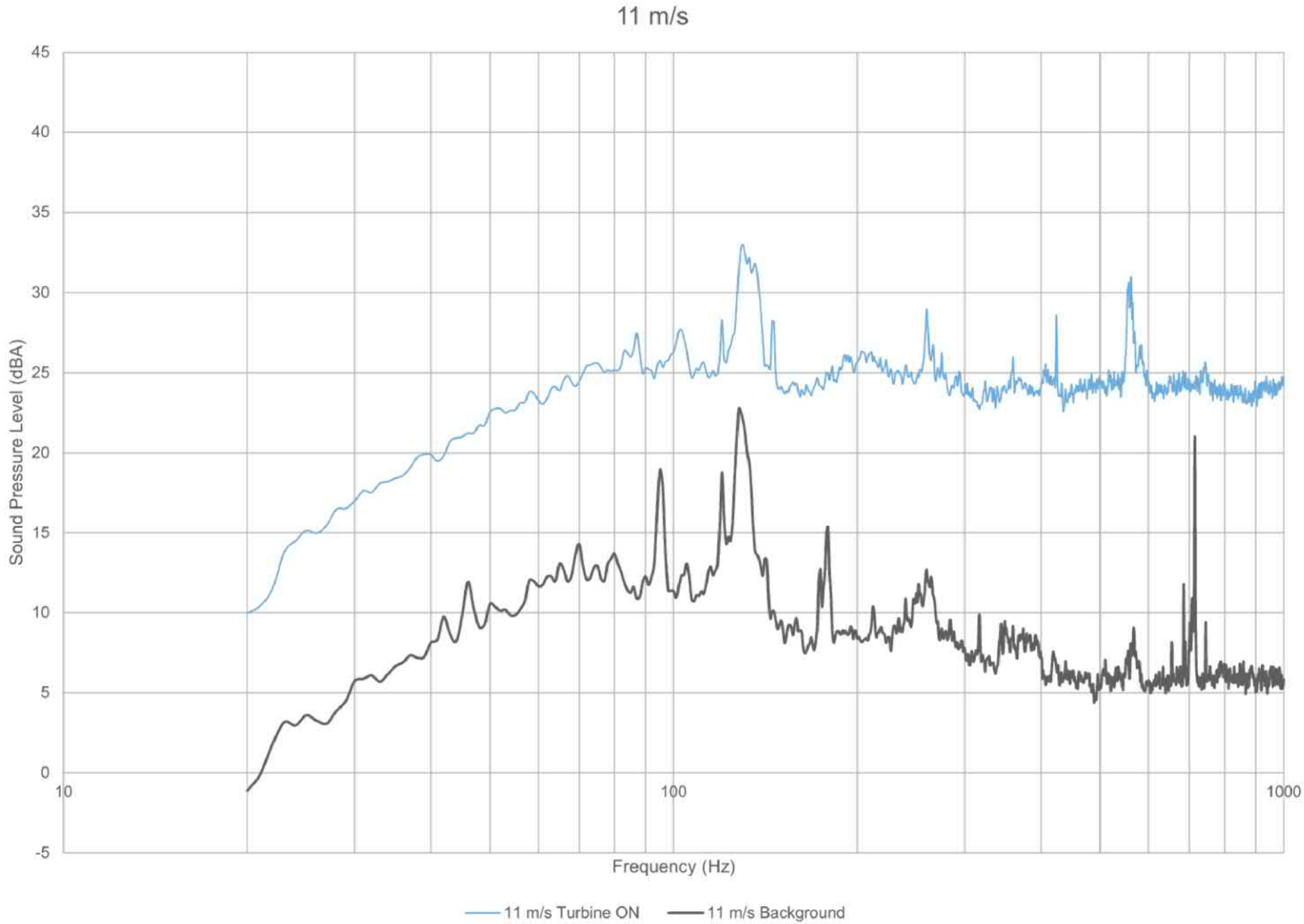
14462.00.J_WTG89.RP3	**Project Name**
Scale: NTS Drawn by: NT Reviewed by: PA Date: Apr 19, 2018 Revision: 1	Jericho Wind Energy Centre - IEC 61400-11 Edition 3.0 - Turbine J_WTG89
	Figure Title Plot of narrow band spectra - Turbine ON vs. Background at 10.5 m/s

Figure D.08



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14462.00.J_WTG89.RP3	**Project Name**
Scale: NTS Drawn by: NT Reviewed by: PA Date: Apr 19, 2018 Revision: 1	Jericho Wind Energy Centre - IEC 61400-11 Edition 3.0 - Turbine J_WTG89
	Figure Title Plot of narrow band spectra - Turbine ON vs. Background at 11 m/s

Figure D.09

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

Project: Jericho Wind Energy Centre- Turbine J_WTG89 - IEC 61400-11 Measurement

Report ID: 14462.00.J_WTG89.RP3

Created on: 4/16/2018

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

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

Project: Jericho Wind Energy Centre- Turbine J_WTG89 - IEC 61400-11 Measurement

Report ID: 14462.00.J_WTG89.RP3

Created on: 4/16/2018

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

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

Project: Jericho Wind Energy Centre- Turbine J_WTG89 - IEC 61400-11 Measurement

Report ID: 14462.00.J_WTG89.RP3

Created on: 4/16/2018

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

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

Project: Jericho Wind Energy Centre- Turbine J_WTG89 - IEC 61400-11 Measurement

Report ID: 14462.00.J_WTG89.RP3

Created on: 4/19/2018

Measurement #	Centre frequency (Hz)	Energy average of all masking lines (dB)	Background (dB)	Background adjusted criterion level (dB)	Masking level (dB)	Tone level (dB)	Determination of tonality (dB)	Frequency dependent audibility criterion (dB)	Tonal Audibility (dB)
300	522			24.1	43.1	36.8	-6.4	-2.3	-4.1
416	530			23.1	42.1	33.4	-8.7	-2.3	-6.4
43	536			23.8	42.8	42.0	-0.8	-2.3	1.5
126	541			24.7	43.8	40.2	-3.6	-2.3	-1.2
526	545			22.9	41.9	35.2	-6.7	-2.3	-4.4
183	550			24.4	43.5	32.8	-10.7	-2.4	-8.3
45	550			24.2	43.3	37.7	-5.6	-2.4	-3.2
113	550			24.2	43.2	40.7	-2.6	-2.4	-0.2
448	550			22.5	41.5	36.4	-5.2	-2.4	-2.8
137	550			24.6	43.6	38.8	-4.8	-2.4	-2.4
319	550			25.4	44.4	36.2	-8.2	-2.4	-5.9
268	551			24.3	43.3	38.9	-4.4	-2.4	-2.1
Average	544						-4.9	-2.3	-2.5

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

Project: Jericho Wind Energy Centre- Turbine J_WTG89 - IEC 61400-11 Measurement

Report ID: 14462.00.J_WTG89.RP3

Created on: 4/16/2018

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

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

Project: Jericho Wind Energy Centre- Turbine J_WTG89 - IEC 61400-11 Measurement

Report ID: 14462.00.J_WTG89.RP3

Created on: 4/19/2018

Measurement #	Centre frequency (Hz)	Energy average of all masking lines (dB)	Background (dB)	Background adjusted criterion level (dB)	Masking level (dB)	Tone level (dB)	Determination of tonality (dB)	Frequency dependent audibility criterion (dB)	Tonal Audibility (dB)
347	536			25.0	44.0	43.9	-0.1	-2.3	2.2
299	537			25.2	44.3	35.6	-8.6	-2.3	-6.3
432	537			23.1	42.2	33.8	-8.3	-2.3	-6.0
144	539			23.4	42.5	42.8	0.3	-2.3	2.7
127	539			25.7	44.8	34.8	-9.9	-2.3	-7.6
227	540			24.8	43.8	34.8	-9.0	-2.3	-6.6
404	541			22.8	41.9	40.4	-1.5	-2.3	0.8
263	545			24.4	43.5	39.0	-4.5	-2.3	-2.1
594	546			22.3	41.4	30.4	-11.0	-2.3	-8.6
176	549			24.6	43.6	39.1	-4.6	-2.4	-2.2
37	549			24.8	43.8	40.0	-3.8	-2.4	-1.4
182	549			25.5	44.6	36.2	-8.3	-2.4	-6.0
474	549			22.2	41.2	40.0	-1.2	-2.4	1.1
135	550			26.0	45.1	32.4	-12.7	-2.4	-10.3
476	550			22.7	41.8	41.8	0.0	-2.4	2.3
228	550			24.3	43.4	42.6	-0.8	-2.4	1.6
349	550			26.7	45.8	34.7	-11.1	-2.4	-8.7
388	550			23.2	42.3	37.3	-4.9	-2.4	-2.6
390	550			22.7	41.8	43.1	1.3	-2.4	3.6
211	550			25.6	44.7	47.2	2.5	-2.4	4.8
593	550			22.5	41.5	34.7	-6.8	-2.4	-4.4
422	550			23.0	42.1	42.8	0.8	-2.4	3.1
351	551			25.0	44.1	44.1	0.1	-2.4	2.4
148	551			23.5	42.6	42.1	-0.5	-2.4	1.8
412	552			22.2	41.3	40.0	-1.3	-2.4	1.1
346	553			25.3	44.4	34.7	-9.7	-2.4	-7.3
588	554			22.1	41.2	36.7	-4.5	-2.4	-2.1
481	555			23.3	42.3	29.6	-12.7	-2.4	-10.4
192	555			24.5	43.5	42.5	-1.1	-2.4	1.3
41	555			24.7	43.7	40.8	-2.9	-2.4	-0.6
357	556			23.2	42.3	44.7	2.4	-2.4	4.8
426	556			24.2	43.3	30.5	-12.8	-2.4	-10.4
334	556			25.1	44.2	38.4	-5.7	-2.4	-3.4
204	556			24.8	43.9	41.3	-2.6	-2.4	-0.2
190	556			24.1	43.2	38.1	-5.1	-2.4	-2.7
216	557			24.3	43.4	42.9	-0.5	-2.4	1.9
436	557			24.3	43.3	32.2	-11.1	-2.4	-8.8
413	557			22.5	41.6	36.2	-5.4	-2.4	-3.1
168	557			24.7	43.7	41.5	-2.3	-2.4	0.1
332	557			25.8	44.8	41.1	-3.7	-2.4	-1.4
329	558			26.1	45.2	37.0	-8.2	-2.4	-5.8
479	559			23.1	42.2	39.6	-2.6	-2.4	-0.2
471	560			23.2	42.3	29.3	-13.1	-2.4	-10.7
464	560			24.1	43.2	33.6	-9.6	-2.4	-7.2
188	560			25.3	44.4	34.4	-9.9	-2.4	-7.6
575	561			22.0	41.0	38.7	-2.3	-2.4	0.0
559	561			22.9	42.0	37.3	-4.7	-2.4	-2.3
24	562			24.8	43.8	40.4	-3.4	-2.4	-1.1
306	562			25.7	44.7	36.1	-8.6	-2.4	-6.3
265	562			25.4	44.5	33.5	-11.0	-2.4	-8.6
187	562			25.7	44.7	33.0	-11.8	-2.4	-9.4
383	562			23.4	42.5	36.4	-6.0	-2.4	-3.7
331	563			26.2	45.3	37.7	-7.6	-2.4	-5.3
141	563			24.7	43.8	38.0	-5.8	-2.4	-3.5
218	563			25.1	44.2	42.6	-1.6	-2.4	0.8
525	563			22.8	41.9	37.0	-4.9	-2.4	-2.5
342	564			26.3	45.4	39.5	-5.9	-2.4	-3.6
169	564			24.9	44.0	37.7	-6.3	-2.4	-4.0
46	564			25.2	44.3	33.4	-10.8	-2.4	-8.4
335	565			25.6	44.7	39.5	-5.2	-2.4	-2.8
203	565			24.5	43.6	41.9	-1.7	-2.4	0.6
201	565			25.4	44.5	36.7	-7.8	-2.4	-5.4
Average	554						-3.5	-2.4	-1.1

Table D.07 Tonality Assessment Table - 10 m/s (1)

Project: Jericho Wind Energy Centre- Turbine J_WTG89 - IEC 61400-11 Measurement

Report ID: 14462.00.J_WTG89.RP3

Created on: 4/19/2018

Measurement #	Centre frequency (Hz)	Energy average of all masking lines (dB)	Background (dB)	Background adjusted criterion level (dB)	Masking level (dB)	Tone level (dB)	Determination of tonality (dB)	Frequency dependent audibility criterion (dB)	Tonal Audibility (dB)
90	125			26.8	45.1	32.9	-12.3	-2.0	-10.3
36	125			26.7	45.0	36.9	-8.1	-2.0	-6.0
262	126			26.3	44.6	34.9	-9.7	-2.0	-7.7
239	126			26.8	45.1	35.6	-9.6	-2.0	-7.5
259	127			25.7	44.0	38.3	-5.7	-2.0	-3.7
475	127			23.8	42.1	39.6	-2.5	-2.0	-0.5
617	128			24.0	42.3	38.8	-3.5	-2.0	-1.5
210	128			26.7	45.0	38.1	-6.9	-2.0	-4.8
414	128			25.0	43.3	38.5	-4.8	-2.0	-2.8
618	128			25.1	43.4	38.7	-4.7	-2.0	-2.7
344	129			26.0	44.3	39.6	-4.7	-2.0	-2.7
34	129			25.0	43.3	41.7	-1.6	-2.0	0.4
298	129			26.9	45.1	37.0	-8.1	-2.0	-6.1
241	129			27.5	45.8	34.0	-11.8	-2.0	-9.8
619	129			24.4	42.7	39.1	-3.5	-2.0	-1.5
533	129			23.9	42.2	39.1	-3.1	-2.0	-1.1
89	129			26.0	44.3	36.1	-8.2	-2.0	-6.2
213	129			26.9	45.2	37.3	-7.9	-2.0	-5.9
557	130			25.9	44.2	39.8	-4.3	-2.0	-2.3
487	130			24.3	42.6	38.9	-3.6	-2.0	-1.6
246	130			26.6	44.9	32.6	-12.2	-2.0	-10.2
480	130			24.7	43.0	41.2	-1.8	-2.0	0.2
297	130			25.0	43.3	41.3	-1.9	-2.0	0.1
599	130			25.5	43.8	40.1	-3.7	-2.0	-1.7
521	130			26.3	44.6	38.6	-6.0	-2.0	-4.0
146	130			25.4	43.7	40.7	-3.0	-2.0	-1.0
174	130			25.4	43.7	39.7	-4.0	-2.0	-2.0
592	131			25.4	43.7	37.8	-6.0	-2.0	-3.9
224	131			26.9	45.1	39.5	-5.7	-2.0	-3.6
15	131			25.2	43.5	40.8	-2.7	-2.0	-0.7
524	131			25.4	43.7	38.3	-5.4	-2.0	-3.4
552	131			25.1	43.4	40.6	-2.8	-2.0	-0.8
225	132			27.1	45.4	37.9	-7.5	-2.0	-5.5
374	132			24.3	42.6	41.0	-1.6	-2.0	0.5
39	132			25.6	43.8	41.8	-2.1	-2.0	0.0
469	133			26.5	44.8	33.9	-10.9	-2.0	-8.9
170	133			26.8	45.1	33.3	-11.8	-2.0	-9.8
167	133			26.7	45.0	41.3	-3.7	-2.0	-1.7
25	133			25.7	44.0	42.3	-1.7	-2.0	0.4
397	133			25.9	44.2	38.2	-5.9	-2.0	-3.9
223	133			26.2	44.5	38.9	-5.5	-2.0	-3.5
172	133			25.2	43.5	38.2	-5.3	-2.0	-3.3
384	133			26.2	44.5	36.9	-7.7	-2.0	-5.6
409	133			24.4	42.7	40.7	-2.0	-2.0	0.0
387	134			24.9	43.2	35.9	-7.3	-2.0	-5.3
87	134			24.7	43.0	40.2	-2.8	-2.0	-0.8
296	134			26.3	44.6	34.5	-10.1	-2.0	-8.1
435	135			26.1	44.4	35.9	-8.5	-2.0	-6.4
386	135			25.1	43.4	33.1	-10.3	-2.0	-8.3
486	135			25.7	44.0	32.3	-11.7	-2.0	-9.7
579	135			24.4	42.7	37.6	-5.1	-2.0	-3.1
175	135			25.1	43.4	40.5	-2.9	-2.0	-0.9
333	139			27.8	46.1	34.0	-12.1	-2.0	-10.1
Average	131						-4.9	-2.0	-2.9

Table D.08 Tonality Assessment Table - 10 m/s (2)

Project: Jericho Wind Energy Centre- Turbine J_WTG89 - IEC 61400-11 Measurement

Report ID: 14462.00.J_WTG89.RP3

Created on: 4/19/2018

Measurement #	Centre frequency (Hz)	Energy average of all masking lines (dB)	Background (dB)	Background adjusted criterion level (dB)	Masking level (dB)	Tone level (dB)	Determination of tonality (dB)	Frequency dependent audibility criterion (dB)	Tonal Audibility (dB)
90	535			23.6	42.6	42.6	0.0	-2.3	2.3
36	535			24.3	43.3	43.7	0.3	-2.3	2.7
405	536			23.7	42.8	39.5	-3.2	-2.3	-0.9
262	542			24.8	43.9	41.4	-2.5	-2.3	-0.1
259	545			24.3	43.3	37.8	-5.5	-2.3	-3.2
475	546			22.2	41.3	33.5	-7.7	-2.3	-5.4
414	549			22.6	41.7	38.7	-3.0	-2.4	-0.6
617	549			22.1	41.2	34.8	-6.4	-2.4	-4.0
89	550			24.5	43.5	43.1	-0.4	-2.4	1.9
239	550			25.1	44.2	42.4	-1.8	-2.4	0.6
246	550			25.7	44.7	38.8	-5.9	-2.4	-3.5
22	550			26.2	45.2	38.0	-7.2	-2.4	-4.8
618	552			22.1	41.2	35.8	-5.4	-2.4	-3.0
210	552			24.9	43.9	43.0	-1.0	-2.4	1.4
619	553			22.3	41.4	35.8	-5.6	-2.4	-3.2
533	553			22.3	41.4	35.4	-6.0	-2.4	-3.6
213	555			24.7	43.8	41.8	-2.0	-2.4	0.4
344	555			25.2	44.3	41.5	-2.8	-2.4	-0.5
298	555			24.9	44.0	41.2	-2.8	-2.4	-0.4
592	555			22.8	41.8	34.8	-7.0	-2.4	-4.7
487	556			22.6	41.7	36.0	-5.7	-2.4	-3.3
557	559			23.4	42.4	33.0	-9.5	-2.4	-7.1
599	560			23.2	42.2	38.2	-4.0	-2.4	-1.7
480	560			23.5	42.6	37.4	-5.2	-2.4	-2.9
146	561			24.5	43.6	39.2	-4.3	-2.4	-2.0
225	561			25.4	44.5	38.0	-6.5	-2.4	-4.1
39	563			24.8	43.9	36.5	-7.4	-2.4	-5.1
241	563			25.5	44.6	36.8	-7.8	-2.4	-5.4
524	563			23.0	42.0	34.9	-7.2	-2.4	-4.8
297	563			25.1	44.2	37.1	-7.0	-2.4	-4.7
224	564			25.4	44.5	35.4	-9.1	-2.4	-6.8
374	564			23.1	42.2	37.5	-4.7	-2.4	-2.3
521	564			23.1	42.2	35.2	-7.0	-2.4	-4.7
167	564			24.8	43.9	43.1	-0.8	-2.4	1.6
Average	554						-3.9	-2.4	-1.6

Table D.09 Tonality Assessment Table - 10.5 m/s (1)

Project: Jericho Wind Energy Centre- Turbine J_WTG89 - IEC 61400-11 Measurement

Report ID: 14462.00.J_WTG89.RP3

Created on: 4/19/2018

Measurement #	Centre frequency (Hz)	Energy average of all masking lines (dB)	Background (dB)	Background adjusted criterion level (dB)	Masking level (dB)	Tone level (dB)	Determination of tonality (dB)	Frequency dependent audibility criterion (dB)	Tonal Audibility (dB)
613	126			26.3	44.6	35.7	-8.9	-2.0	-6.8
212	127			26.6	44.8	37.9	-7.0	-2.0	-5.0
258	128			25.8	44.1	36.3	-7.8	-2.0	-5.8
343	128			26.2	44.5	36.8	-7.8	-2.0	-5.8
143	129			25.0	43.2	37.8	-5.4	-2.0	-3.4
142	129			25.9	44.1	37.5	-6.6	-2.0	-4.6
252	129			25.6	43.9	34.4	-9.5	-2.0	-7.5
257	129			25.5	43.7	37.7	-6.1	-2.0	-4.1
247	130			25.5	43.8	39.5	-4.3	-2.0	-2.3
250	130			25.9	44.2	40.8	-3.4	-2.0	-1.4
289	131			27.2	45.5	33.6	-11.9	-2.0	-9.9
532	131			24.4	42.7	42.1	-0.6	-2.0	1.4
615	132			24.0	42.3	41.8	-0.5	-2.0	1.5
582	132			23.9	42.2	41.7	-0.5	-2.0	1.5
590	133			27.1	45.3	35.4	-10.0	-2.0	-7.9
614	134			25.1	43.4	40.5	-2.9	-2.0	-0.9
88	136			26.1	44.4	36.7	-7.7	-2.0	-5.7
40	138			26.2	44.5	40.1	-4.3	-2.0	-2.3
Average	131						-4.6	-2.0	-2.6

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

Project: Jericho Wind Energy Centre- Turbine J_WTG89 - IEC 61400-11 Measurement

Report ID: 14462.00.J_WTG89.RP3

Created on: 4/19/2018

Measurement #	Centre frequency (Hz)	Energy average of all masking lines (dB)	Background (dB)	Background adjusted criterion level (dB)	Masking level (dB)	Tone level (dB)	Determination of tonality (dB)	Frequency dependent audibility criterion (dB)	Tonal Audibility (dB)
613	543			22.4	41.4	34.0	-7.4	-2.3	-5.0
212	548			24.2	43.2	41.4	-1.8	-2.4	0.5
343	550			25.3	44.3	45.0	0.7	-2.4	3.1
258	550			24.5	43.6	43.6	0.0	-2.4	2.4
257	551			25.1	44.1	40.2	-3.9	-2.4	-1.6
289	551			25.6	44.7	41.8	-2.9	-2.4	-0.5
252	555			24.9	44.0	36.6	-7.4	-2.4	-5.0
143	556			24.6	43.6	39.9	-3.7	-2.4	-1.4
142	557			24.2	43.3	39.3	-4.0	-2.4	-1.6
532	561			22.6	41.7	34.6	-7.1	-2.4	-4.7
247	562			25.1	44.2	41.2	-3.1	-2.4	-0.7
250	562			25.5	44.6	39.0	-5.6	-2.4	-3.3
582	566			22.4	41.5	38.8	-2.7	-2.4	-0.4
615	567			22.8	41.9	36.6	-5.3	-2.4	-3.0
590	571			23.1	42.2	38.5	-3.7	-2.4	-1.3
614	572			23.1	42.2	36.2	-6.0	-2.4	-3.6
Average	558						-3.3	-2.4	-1.0

Table D.11 Tonality Assessment Table - 11 m/s (1)

Project: Jericho Wind Energy Centre- Turbine J_WTG89 - IEC 61400-11 Measurement

Report ID: 14462.00.J_WTG89.RP3

Created on: 4/19/2018

Measurement #	Centre frequency (Hz)	Energy average of all masking lines (dB)	Background (dB)	Background adjusted criterion level (dB)	Masking level (dB)	Tone level (dB)	Determination of tonality (dB)	Frequency dependent audibility criterion (dB)	Tonal Audibility (dB)
237	129			25.7	44.0	37.9	-6.1	-2.0	-4.1
254	129			24.1	42.4	40.0	-2.5	-2.0	-0.4
256	129			25.4	43.7	38.0	-5.7	-2.0	-3.7
616	130			24.2	42.5	41.0	-1.5	-2.0	0.5
238	130			26.8	45.1	36.9	-8.2	-2.0	-6.1
253	131			25.3	43.6	40.9	-2.6	-2.0	-0.6
206	132			25.3	43.6	41.5	-2.1	-2.0	-0.1
242	133			28.1	46.4	36.0	-10.4	-2.0	-8.4
611	136			26.0	44.3	38.7	-5.6	-2.0	-3.6
530	137			24.7	43.0	32.3	-10.6	-2.0	-8.6
Average	132						-4.5	-2.0	-2.5

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

Project: Jericho Wind Energy Centre- Turbine J_WTG89 - IEC 61400-11 Measurement

Report ID: 14462.00.J_WTG89.RP3

Created on: 4/19/2018

Measurement #	Centre frequency (Hz)	Energy average of all masking lines (dB)	Background (dB)	Background adjusted criterion level (dB)	Masking level (dB)	Tone level (dB)	Determination of tonality (dB)	Frequency dependent audibility criterion (dB)	Tonal Audibility (dB)
238	554			25.0	44.1	40.4	-3.7	-2.4	-1.4
237	554			24.6	43.7	38.6	-5.0	-2.4	-2.7
256	555			25.3	44.4	38.4	-6.0	-2.4	-3.6
254	558			24.8	43.9	38.8	-5.0	-2.4	-2.7
616	558			22.4	41.5	37.7	-3.8	-2.4	-1.4
253	562			25.2	44.3	41.2	-3.1	-2.4	-0.7
206	565			24.8	43.9	38.9	-5.0	-2.4	-2.7
242	569			26.7	45.9	36.9	-9.0	-2.4	-6.6
611	581			23.6	42.7	36.6	-6.1	-2.4	-3.7
Average	562						-4.9	-2.4	-2.6

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Appendix E
Measurement Data

Table E.01 Measurement data - Turbine ON

Project: Jericho Wind Energy Centre - Turbine J_WTG89 - IEC 61400-11 Measurement

Report ID: 14462.00.J_WTG89.RP3

Created on: 4/17/2018

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

Data Point #	Standardized Wind Speed	LAeq	Turbine Power Output (kW)	Reference Yaw Angle (°)	Yaw Angle (°)	Pitch Angle (°)	Rotor RPM	Nacelle Anemometer Wind Speed (m/s)	10m Anemometer Wind Speed (m/s)	Air Temperature (-C)	Pressure (kPa)	Relative Humidity (%)
1	7.9	51.1	1165	127.5	127.5	1.5	14.4	7.7	6.6	3.4	98.8	63
2	7.4	50.3	1003	127.5	127.5	1.5	13.7	7.3	6.8	3.4	98.8	63
3	7.2	50.1	931	127.5	127.5	1.4	13.4	7.2	6.9	3.4	98.8	63
4	7.4	50.6	990	127.5	127.5	1.2	13.7	7.3	6.6	3.4	98.8	63
5	7.5	50.2	1025	127.5	127.5	1.2	13.9	7.4	6.6	3.4	98.8	63
6	7.4	50.5	998	127.5	127.5	1.3	13.7	8.1	5.9	3.4	98.8	63
7			1051	127.5	127.5	1.3	14.0	8.8	6.7	3.4	98.8	63
8	7.8	51.3	1148	127.5	127.5	1.2	14.5	8.1	6.2	3.4	98.8	63
9	7.7	50.5	1094	127.5	127.5	1.4	14.1	7.4	5.0	3.4	98.8	63
10	7.4	50.2	993	127.5	127.5	1.4	13.7	7.5	5.8	3.4	98.8	63
11	7.5	50.6	1029	127.5	127.5	1.2	13.9	7.8	6.4	3.4	98.8	63
12	8.2	52.1	1268	127.5	127.5	0.7	14.8	8.1	5.8	3.4	98.8	63
13	8.9	52.2	1451	127.5	127.5	1.0	15.1	9.4	5.7	3.4	98.8	64
14	9.1	53.0	1489	127.5	127.5	1.1	15.1	9.1	5.8	3.4	98.8	64
15	10.2	52.4	1546	127.5	127.5	1.0	15.1	9.8	6.6	3.4	98.8	64
16	8.5	52.6	1343	127.5	127.5	1.2	15.0	8.1	6.3	3.4	98.8	64
17	7.9	51.3	1190	127.5	127.5	1.4	14.5	7.4	6.1	3.4	98.8	64
18	7.8	52.1	1138	127.5	127.5	1.2	14.3	8.2	6.0	3.4	98.8	64
19	7.8	51.7	1124	127.5	127.5	1.3	14.3	7.9	5.9	3.4	98.8	63
20	7.4	50.1	971	127.5	127.5	1.5	13.5	7.4	6.4	3.4	98.8	63
21	7.5	50.8	1039	127.5	127.5	1.1	13.8	8.2	6.1	3.4	98.8	63
22	9.8	53.2	1641	127.5	127.5	1.4	15.3	9.4	7.0	3.4	98.8	63
23			1624	127.5	127.5	3.9	15.3	8.3	7.1	3.4	98.8	63
24	9.5	53.0	1619	127.5	127.5	2.9	15.1	9.1	6.4	3.4	98.8	63
25	10.0	52.3	1625	127.5	127.5	3.3	15.2	9.6	6.9	3.4	98.8	63
26			1600	127.5	127.5	2.1	14.8	8.9	7.4	3.4	98.8	63
27	8.1	52.1	1249	127.5	127.5	0.9	14.6	8.5	7.0	3.4	98.8	63
28	8.2	52.2	1269	127.5	127.5	1.2	14.8	7.6	6.8	3.4	98.8	63
29			1528	127.5	127.5	0.7	15.1	8.3	6.4	3.4	98.8	63
30			1552	127.5	127.5	1.0	15.1	8.4	5.9	3.4	98.8	63
31	9.4	52.9	1649	127.5	127.5	2.5	15.4	9.0	6.3	3.4	98.8	63
32	9.6	52.5	1640	127.5	127.5	3.6	15.5	9.2	6.0	3.4	98.8	63
33			1634	127.5	127.5	5.1	15.6	8.8	6.0	3.4	98.8	63
34	10.1	52.1	1608	127.5	127.5	5.5	15.3	9.7	6.7	3.4	98.8	63
35			1588	127.5	127.5	3.5	14.7	8.8	6.4	3.4	98.8	63
36	10.0	52.4	1604	127.5	127.5	1.6	14.5	9.6	7.7	3.4	98.8	63
37	9.6	53.0	1655	127.5	127.5	2.5	15.1	9.3	7.2	3.4	98.8	63
38			1635	127.5	127.5	3.2	15.1	8.8	7.8	3.4	98.8	63
39	10.0	52.5	1644	127.5	127.5	4.1	15.3	9.6	8.8	3.4	98.8	63
40	10.3	52.6	1631	127.5	127.5	4.7	15.3	9.9	8.1	3.4	98.8	63
41	9.7	52.5	1620	127.5	127.5	3.9	15.1	9.3	7.0	3.4	98.8	63
42			1606	127.5	127.5	3.4	14.9	8.6	7.0	3.4	98.8	62
43	8.7	52.1	1404	127.5	127.5	0.6	14.4	7.7	7.4	3.4	98.8	62
44	8.0	52.0	1215	127.5	127.5	1.2	14.7	7.4	7.9	3.4	98.8	62
45	8.4	52.2	1332	127.5	127.5	1.2	15.0	7.4	8.1	3.4	98.8	62
46	9.5	53.2	1616	127.5	127.5	0.7	15.3	9.1	7.8	3.4	98.8	62
47	9.7	53.1	1625	127.5	127.5	1.9	15.3	9.3	7.6	3.4	98.8	62
48	8.9	52.7	1464	127.5	127.5	1.2	15.0	7.8	7.2	3.4	98.8	62
49	8.5	52.3	1345	127.5	127.5	1.0	15.0	8.0	7.3	3.4	98.8	61
50	8.0	52.1	1199	127.5	127.5	1.4	14.6	8.1	6.6	3.4	98.8	61
51	7.7	51.2	1104	127.5	127.5	1.3	14.2	6.8	6.9	3.4	98.8	61
52	7.8	51.5	1137	127.5	127.5	1.1	14.4	7.6	6.6	3.4	98.8	61
53	7.9	51.8	1165	127.5	127.5	1.2	14.5	8.2	6.1	3.4	98.8	61
54	7.9	51.6	1163	127.5	127.5	1.3	14.4	8.6	7.2	3.4	98.8	62
55	8.2	52.1	1281	127.5	127.5	1.1	14.8	8.3	7.0	3.4	98.8	62
56			1611	127.5	127.5	1.0	15.2	8.2	6.6	3.4	98.8	62
57	8.9	52.3	1457	127.5	127.5	1.2	15.0	8.5	6.9	3.4	98.8	62
58	8.0	51.8	1230	127.5	127.5	1.6	14.7	6.7	6.9	3.4	98.8	62
59	7.7	50.8	1102	127.5	127.5	1.4	14.1	7.7	6.7	3.4	98.8	62
60	7.7	51.3	1109	127.5	127.5	1.2	14.2	7.4	6.5	3.4	98.8	63
61	7.9	51.6	1187	127.5	127.5	1.2	14.6	8.1	8.7	3.5	98.8	64
62	7.8	51.4	1153	127.5	127.5	1.3	14.4	7.5	8.2	3.5	98.8	64
63	7.4	50.2	984	127.5	127.5	1.5	13.6	6.9	7.5	3.5	98.8	64
64	7.1	50.0	863	127.5	127.5	1.4	13.1	7.6	7.2	3.5	98.8	64
65			864	127.5	127.5	1.3	13.1	7.9	6.9	3.5	98.8	64
66	7.1	50.0	871	127.5	127.5	1.3	13.1	7.5	7.0	3.5	98.8	63
67	7.2	50.1	909	127.5	127.5	1.3	13.4	8.1	7.4	3.5	98.8	62
68	7.3	50.5	957	127.5	127.5	1.3	13.6	7.4	7.5	3.5	98.8	62
69	7.3	50.6	935	127.5	127.5	1.3	13.5	8.0	7.7	3.5	98.8	62
70	7.1	50.2	874	127.5	127.5	1.3	13.1	6.6	6.9	3.5	98.8	62
71			872	127.5	127.5	1.3	13.2	8.2	7.5	3.5	98.8	62
72			1025	127.5	127.5	1.0	13.9	8.4	7.3	3.5	98.8	62
73	8.5	52.6	1345	127.5	127.5	0.6	14.9	8.5	6.5	3.5	98.8	62
74	8.2	52.1	1258	127.5	127.5	1.5	14.8	7.5	6.0	3.5	98.8	62
75			1136	127.5	127.5	1.4	14.3	8.6	7.0	3.5	98.8	62
76	7.5	51.1	1022	127.5	127.5	1.4	13.8	6.9	6.9	3.5	98.8	62
77	7.4	50.7	1007	127.5	127.5	1.3	13.7	7.4	6.5	3.5	98.8	62
78	8.0	52.4	1222	127.5	127.5	0.7	14.7	8.8	6.0	3.5	98.8	62
79	8.2	53.1	1273	127.5	127.5	1.2	14.9	8.3	6.0	3.5	98.8	63
80	7.9	51.5	1169	127.5	127.5	1.5	14.4	8.3	5.4	3.5	98.8	63
81	8.0	52.3	1207	127.5	127.5	0.9	14.7	8.5	5.6	3.5	98.8	63
82	7.8	51.6	1159	127.5	127.5	1.4	14.4	8.2	5.8	3.5	98.8	63
83	7.3	50.6	938	127.5	127.5	1.6	13.3	6.8	6.8	3.5	98.8	63
84	6.8	49.0	789	127.5	127.5	1.5	12.5	6.6	6.7	3.5	98.8	63
85			1244	127.5	127.5	0.5	14.1	9.2	6.2	3.5	98.8	63
86	10.6	53.2	1675	127.5	127.5	4.8	15.7	10.2	6.5	3.5	98.8	63
87	10.1	52.7	1613	127.5	127.5	6.0	15.3	9.7	6.3	3.5	98.8	63
88	10.5	52.9	1624	127.5	127.5	5.9	15.3	10.1	6.7	3.5	98.8	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 (%)
89	10.0	52.4	1605	127.5	127.5	5.4	15.0	9.6	6.1	3.5	98.8	63
90	9.9	52.3	1594	127.5	127.5	3.1	14.5	9.5	6.8	3.5	98.8	63
91	8.8	51.9	1434	127.5	127.5	1.0	14.3	9.2	5.7	3.5	98.8	64
92	8.0	52.8	1218	127.5	127.5	1.3	14.7	8.2	6.1	3.5	98.8	64
93	7.8	52.0	1160	127.5	127.5	1.5	14.4	7.4	6.8	3.5	98.8	64
94	7.4	50.6	992	127.5	127.5	1.5	13.6	6.6	6.9	3.5	98.8	64
95	7.1	50.1	883	127.5	127.5	1.4	13.1	6.4	6.4	3.5	98.8	64
96	7.2	50.3	927	127.5	127.5	1.3	13.5	7.4	6.4	3.4	98.8	63
97	7.5	51.4	1040	127.5	127.5	1.1	14.0	8.1	6.4	3.4	98.8	63
98	7.6	51.4	1060	127.5	127.5	1.3	14.0	7.5	6.7	3.4	98.8	63
99	7.5	50.5	1013	127.5	127.5	1.3	13.7	7.0	5.6	3.4	98.8	63
100	7.7	51.6	1113	127.5	127.5	1.1	14.3	7.7	6.1	3.4	98.8	63
101	8.0	51.7	1217	127.5	127.5	1.4	14.7	6.9	7.8	3.4	98.8	63
102	8.1	52.2	1233	127.5	127.5	1.5	14.7	8.1	8.4	3.4	98.8	63
103	9.1	52.8	1493	127.5	127.5	0.9	15.1	8.9	8.3	3.4	98.8	63
104	8.1	51.6	1248	127.5	127.5	1.3	14.7	7.1	8.8	3.4	98.8	63
105	7.8	51.5	1153	127.5	127.5	1.3	14.3	7.4	8.1	3.4	98.8	63
106	8.2	52.3	1261	127.5	127.5	0.6	14.9	7.8	7.7	3.4	98.8	63
107	8.1	51.9	1255	127.5	127.5	1.2	14.8	8.6	7.4	3.4	98.8	63
108	7.9	51.4	1198	127.5	127.5	1.4	14.6	7.8	7.1	3.4	98.8	63
109	7.8	51.1	1128	127.5	127.5	1.3	14.3	7.7	6.9	3.5	98.8	63
110	7.7	51.2	1116	127.5	127.5	1.2	14.2	7.0	6.6	3.5	98.8	63
111	7.9	51.4	1188	127.5	127.5	1.2	14.5	7.7	6.2	3.5	98.8	63
112	8.1	52.0	1253	127.5	127.5	1.2	14.8	8.7	6.5	3.5	98.8	63
113	8.3	52.0	1302	127.5	127.5	1.3	14.9	8.3	7.0	3.5	98.8	63
114	8.1	51.8	1230	127.5	127.5	1.5	14.7	7.8	6.9	3.5	98.8	64
115	7.6	50.6	1068	127.5	127.5	1.5	13.9	7.1	6.4	3.5	98.8	64
116			1011	127.5	127.5	1.2	13.8	8.3	6.4	3.5	98.8	64
117	7.6	51.0	1050	127.5	127.5	1.2	14.0	7.9	8.4	3.5	98.8	64
118	7.8	51.6	1159	127.5	127.5	1.1	14.5	8.4	9.0	3.5	98.8	64
119	8.2	51.8	1277	127.5	127.5	1.2	14.9	7.4	8.2	3.5	98.8	64
120	8.1	51.5	1237	127.5	127.5	1.6	14.7	7.6	7.5	3.5	98.8	63
121	8.0	51.3	1208	127.5	127.5	1.3	14.6	7.2	7.6	3.5	98.8	62
122	8.4	52.3	1330	127.5	127.5	0.9	14.9	7.5	8.0	3.5	98.8	62
123	7.9	51.6	1192	127.5	127.5	1.5	14.5	5.9	8.0	3.5	98.8	62
124	7.7	51.1	1101	127.5	127.5	1.3	14.2	7.0	9.8	3.5	98.8	62
125	7.7	51.4	1116	127.5	127.5	1.2	14.2	7.3	9.0	3.5	98.8	62
126	8.7	52.5	1406	127.5	127.5	0.9	14.8	8.3	9.0	3.5	98.8	62
127	9.6	53.0	1653	127.5	127.5	2.6	15.5	9.2	8.8	3.5	98.8	62
128			1590	127.5	127.5	2.2	14.9	8.3	8.6	3.5	98.8	62
129			1583	127.5	127.5	0.6	15.0	7.9	9.5	3.5	98.8	62
130			1340	127.5	127.5	1.2	14.9	7.9	9.2	3.5	98.8	62
131			1267	127.5	127.5	1.3	14.8	7.4	8.7	3.5	98.8	62
132			1269	127.5	127.5	1.1	14.8	8.1	7.7	3.5	98.8	62
133			1083	127.5	127.5	1.6	14.0	6.6	7.2	3.5	98.8	62
134	7.6	52.3	1059	127.5	127.5	1.2	14.0	7.5	7.5	3.5	98.8	62
135	9.5	53.3	1580	127.5	127.5	0.7	15.1	9.1	7.7	3.5	98.8	62
136			1571	127.5	127.5	2.7	15.0	8.6	8.1	3.5	98.8	62
137	8.6	52.7	1380	127.5	127.5	1.5	14.9	8.4	7.5	3.5	98.8	62
138			1609	127.5	127.5	0.8	15.2	8.1	5.9	3.4	98.8	63
139			1659	127.5	127.5	0.7	15.4	8.8	5.7	3.4	98.8	63
140			1601	127.5	127.5	6.8	15.4	8.8	6.8	3.4	98.8	63
141	9.7	52.8	1608	127.5	127.5	6.3	15.2	9.3	7.6	3.4	98.8	63
142	10.7	52.4	1614	127.5	127.5	6.1	15.0	10.2	9.2	3.4	98.8	63
143	10.5	52.4	1621	127.5	127.5	6.0	15.0	10.1	7.5	3.4	98.8	63
144	9.5	51.9	1606	127.5	127.5	4.5	14.7	9.1	7.7	3.4	98.8	64
145			1636	127.5	127.5	3.5	14.8	8.0	8.7	3.4	98.8	64
146	10.1	52.7	1645	127.5	127.5	4.8	15.1	9.7	8.2	3.4	98.8	64
147			1630	127.5	127.5	4.6	15.1	8.5	7.3	3.4	98.8	64
148	9.4	51.9	1607	127.5	127.5	3.4	14.8	9.0	7.7	3.4	98.8	64
149	8.9	52.2	1455	127.5	127.5	1.1	14.4	8.2	9.2	3.4	98.8	64
150	8.1	52.3	1245	127.5	127.5	1.0	14.8	7.7	8.6	3.4	98.8	64
151	8.2	52.0	1261	127.5	127.5	1.4	14.8	7.7	7.8	3.4	98.8	64
152	7.9	51.5	1185	127.5	127.5	1.4	14.5	7.5	7.4	3.4	98.8	64
153	7.6	50.3	1056	127.5	127.5	1.4	13.9	7.7	7.5	3.4	98.8	64
154	7.5	51.0	1039	127.5	127.5	1.2	14.0	7.6	9.5	3.4	98.8	64
155	7.5	51.2	1041	127.5	127.5	1.2	13.9	7.2	8.3	3.4	98.8	64
156	7.6	51.1	1053	127.5	127.5	1.2	14.0	8.0	7.3	3.4	98.8	63
157	7.9	51.5	1161	127.5	127.5	1.1	14.5	8.2	6.9	3.4	98.8	63
158	8.0	52.1	1224	127.5	127.5	1.2	14.7	7.9	7.0	3.4	98.8	63
159	7.9	51.9	1185	127.5	127.5	1.4	14.5	8.2	7.3	3.4	98.8	63
160	7.7	51.4	1121	127.5	127.5	1.3	14.2	7.5	7.2	3.4	98.8	63
161	9.2	52.7	1503	127.5	127.5	0.5	14.9	8.8	6.8	3.4	98.8	63
162	10.4	53.1	1659	127.5	127.5	3.2	15.6	9.9	6.9	3.4	98.8	64
163	8.8	52.6	1416	127.5	127.5	2.0	14.7	8.6	6.4	3.4	98.8	64
164	7.9	53.1	1178	127.5	127.5	1.1	14.6	7.9	6.2	3.4	98.8	64
165	7.7	51.3	1093	127.5	127.5	1.4	14.1	8.3	7.0	3.4	98.8	64
166	8.3	52.0	1303	127.5	127.5	0.8	14.6	8.4	7.6	3.4	98.8	64
167	9.9	53.1	1637	127.5	127.5	1.1	15.3	9.5	7.2	3.4	98.8	64
168	9.3	52.7	1620	127.5	127.5	1.5	15.0	8.9	7.4	3.4	98.8	64
169	9.3	53.1	1637	127.5	127.5	1.4	15.3	8.9	6.9	3.4	98.8	64
170	10.0	52.7	1638	127.5	127.5	2.2	15.4	9.6	6.4	3.4	98.8	64
171			1629	127.5	127.5	3.1	15.3	8.6	7.6	3.4	98.8	64
172	9.8	52.5	1634	127.5	127.5	3.6	15.4	9.4	7.0	3.4	98.8	64
173	9.4	52.7	1626	127.5	127.5	4.7	15.4	9.0	6.7	3.4	98.8	64
174	10.0	52.5	1624	127.5	127.5	5.3	15.3	9.6	6.5	3.4	98.8	65
175	10.1	52.7	1623	127.5	127.5	5.8	15.3	9.7	5.7	3.5	98.8	65
176	9.6	52.1	1598	127.5	127.5	4.7	14.8	9.2	5.6	3.5	98.8	65

Table E.01 Measurement data - Turbine ON

Project: Jericho Wind Energy Centre - Turbine J_WTG89 - IEC 61400-11 Measurement

Report ID: 14462.00.J_WTG89.RP3

Created on: 4/17/2018

***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	8.9	51.9	1449	127.5	127.5	1.5	14.2	8.6	6.1	3.5	98.8	65
178	7.9	52.1	1181	127.5	127.5	1.1	14.6	7.1	6.8	3.5	98.8	65
179	8.6	52.9	1366	127.5	127.5	1.1	15.0	7.9	6.4	3.5	98.8	65
180	8.0	52.0	1210	127.5	127.5	1.6	14.6	7.6	8.8	3.5	98.8	65
181	9.2	52.9	1504	127.5	127.5	0.5	15.0	8.6	8.8	3.5	98.8	65
182	9.4	53.1	1626	127.5	127.5	2.2	15.2	9.1	8.1	3.5	98.8	65
183	8.4	52.3	1334	127.5	127.5	1.6	14.8	8.4	9.4	3.5	98.8	65
184			1518	127.5	127.5	0.8	15.2	8.1	9.8	3.5	98.8	65
185			1627	127.5	127.5	1.2	15.2	8.6	9.9	3.5	98.8	65
186	9.6	53.4	1660	127.5	127.5	3.4	15.7	9.2	8.5	3.5	98.8	63
187	9.3	52.9	1609	127.5	127.5	5.5	15.5	8.9	6.8	3.5	98.8	62
188	9.6	53.0	1614	127.5	127.5	4.9	15.3	9.2	7.6	3.5	98.8	62
189			1611	127.5	127.5	5.8	15.2	8.7	8.3	3.5	98.8	62
190	9.5	51.9	1613	127.5	127.5	5.1	15.0	9.1	8.3	3.5	98.8	62
191			1614	127.5	127.5	4.3	14.9	8.7	8.0	3.5	98.8	62
192	9.4	52.6	1631	127.5	127.5	3.8	14.9	9.0	7.9	3.4	98.8	63
193	9.7	52.6	1638	127.5	127.5	5.4	15.2	9.3	8.2	3.4	98.8	65
194			1612	127.5	127.5	4.1	14.9	8.7	7.5	3.4	98.8	65
195			1629	127.5	127.5	4.2	15.0	7.8	7.7	3.4	98.8	65
196			1615	127.5	127.5	3.3	14.9	7.7	7.4	3.4	98.8	65
197			1570	127.5	127.5	1.2	14.5	8.3	7.8	3.4	98.8	65
198	9.2	52.8	1504	127.5	127.5	0.8	14.9	7.8	7.8	3.4	98.8	65
199			1658	127.5	127.5	2.0	15.5	8.2	7.5	3.4	98.8	65
200			1644	127.5	127.5	5.6	15.8	8.5	8.9	3.4	98.8	65
201	9.3	53.1	1607	127.5	127.5	5.7	15.4	9.0	8.9	3.4	98.8	65
202			1612	127.5	127.5	5.3	15.2	7.8	9.6	3.4	98.8	65
203	9.6	52.6	1624	127.5	127.5	6.0	15.2	9.2	10.0	3.4	98.8	65
204	9.5	52.6	1617	127.5	127.5	6.4	15.1	9.1	9.3	3.4	98.8	64
205			1631	127.5	127.5	6.9	15.2	8.7	9.9	3.4	98.8	64
206	10.9	52.9	1633	127.5	127.5	8.2	15.3	10.4	10.7	3.4	98.8	64
207	11.4	53.3	1623	127.5	127.5	9.1	15.2	11.0	9.6	3.4	98.8	64
208	11.7	53.4	1628	127.5	127.5	9.5	15.1	11.2	8.9	3.4	98.8	64
209	11.9	52.9	1618	127.5	127.5	9.4	15.0	11.4	8.6	3.4	98.8	64
210	10.1	53.1	1627	127.5	127.5	7.7	14.9	9.7	8.3	3.3	98.8	64
211	9.5	54.0	1623	127.5	127.5	6.8	14.9	9.1	8.3	3.3	98.8	64
212	10.3	52.7	1622	127.5	127.5	5.5	14.8	9.9	8.5	3.3	98.8	64
213	10.0	52.9	1641	127.5	127.5	5.7	15.0	9.6	9.3	3.3	98.8	64
214			1614	127.5	127.5	4.9	14.8	8.7	8.2	3.3	98.8	64
215			1635	127.5	127.5	4.3	14.9	8.8	9.3	3.3	98.8	64
216	9.3	52.6	1624	127.5	127.5	4.5	14.9	8.9	8.6	3.3	98.8	64
217			1633	127.5	127.5	3.9	15.0	8.9	8.3	3.3	98.8	64
218	9.6	53.3	1643	127.5	127.5	5.1	15.3	9.3	9.4	3.3	98.8	64
219			1614	127.5	127.5	4.4	15.0	8.6	8.0	3.3	98.8	64
220			1624	127.5	127.5	4.0	15.0	8.7	8.1	3.3	98.8	64
221			1629	127.5	127.5	3.9	15.0	8.8	7.8	3.3	98.8	64
222			1634	127.5	127.5	4.0	15.1	8.5	7.8	3.2	98.8	65
223	10.0	53.0	1649	127.5	127.5	5.8	15.4	9.6	7.5	3.2	98.8	66
224	9.9	53.4	1627	127.5	127.5	6.1	15.3	9.5	7.6	3.2	98.8	66
225	9.8	52.9	1619	127.5	127.5	6.7	15.2	9.4	9.0	3.2	98.8	66
226			1585	127.5	127.5	4.4	14.6	7.7	9.0	3.2	98.8	66
227	9.5	52.5	1621	127.5	127.5	2.6	14.6	9.2	8.8	3.2	98.8	66
228	9.3	52.8	1641	127.5	127.5	3.2	14.9	8.9	9.6	3.2	98.8	66
229			1619	127.5	127.5	2.2	14.7	7.7	10.4	3.2	98.8	66
230			1644	127.5	127.5	2.2	15.0	8.2	9.7	3.2	98.8	66
231			1628	127.5	127.5	2.0	14.9	7.6	9.3	3.2	98.8	66
232			1656	127.5	127.5	2.6	15.3	8.5	9.4	3.2	98.8	66
233	9.9	53.0	1654	127.5	127.5	5.1	15.7	9.5	9.4	3.2	98.8	66
234	10.0	53.5	1630	127.5	127.5	6.2	15.5	9.6	8.8	3.1	98.8	65
235	11.4	53.6	1617	127.5	127.5	7.8	15.4	10.9	8.2	3.1	98.8	65
236	11.5	52.8	1612	127.5	127.5	7.6	15.1	11.0	8.5	3.1	98.8	65
237	10.9	52.4	1619	127.5	127.5	6.4	15.0	10.4	8.5	3.1	98.8	65
238	11.2	53.0	1625	127.5	127.5	6.2	15.0	10.7	7.3	3.1	98.8	65
239	10.0	53.2	1608	127.5	127.5	4.7	14.7	9.6	7.7	3.1	98.8	65
240			1632	127.5	127.5	4.0	14.8	8.6	7.0	3.1	98.8	67
241	9.9	53.5	1661	127.5	127.5	5.8	15.3	9.5	7.4	3.1	98.8	68
242	10.8	54.9	1638	127.5	127.5	7.5	15.4	10.3	8.0	3.1	98.8	68
243	11.4	55.1	1621	127.5	127.5	7.8	15.2	10.9	9.4	3.1	98.8	68
244	11.5	53.4	1622	127.5	127.5	7.8	15.1	11.1	7.7	3.1	98.8	68
245	11.5	52.8	1614	127.5	127.5	7.1	14.9	11.1	7.9	3.1	98.8	68
246	10.0	53.0	1631	127.5	127.5	6.4	15.0	9.6	7.8	3.1	98.8	68
247	10.5	53.1	1636	127.5	127.5	7.5	15.1	10.1	9.2	3.1	98.8	68
248	11.7	53.0	1629	127.5	127.5	7.5	15.1	11.3	8.8	3.1	98.8	68
249	11.5	53.3	1629	127.5	127.5	8.0	15.1	11.0	9.8	3.1	98.8	68
250	10.7	53.5	1626	127.5	127.5	8.4	15.1	10.3	9.2	3.1	98.8	68
251	11.5	53.0	1624	127.5	127.5	8.0	15.0	11.0	7.7	3.1	98.8	68
252	10.5	52.6	1624	127.5	127.5	7.3	15.0	10.1	9.0	3.0	98.8	68
253	11.2	52.8	1636	127.5	127.5	8.1	15.2	10.8	9.1	3.0	98.8	67
254	11.1	52.6	1625	127.5	127.5	8.4	15.1	10.7	9.8	3.0	98.8	67
255	11.4	52.9	1627	127.5	127.5	8.3	15.1	10.9	10.0	3.0	98.8	67
256	11.2	53.0	1627	127.5	127.5	7.9	15.0	10.8	9.8	3.0	98.8	67
257	10.7	53.1	1623	127.5	127.5	7.7	15.0	10.3	8.9	3.0	98.8	67
258	10.6	52.8	1619	127.5	127.5	6.4	14.8	10.2	8.3	3.0	98.8	68
259	9.9	52.5	1620	127.5	127.5	5.0	14.7	9.5	8.9	3.0	98.8	69
260			1630	127.5	127.5	4.4	14.8	8.5	8.6	3.0	98.8	69
261			1623	127.5	127.5	3.6	14.7	8.4	8.2	3.0	98.8	69
262	10.0	53.0	1627	127.5	127.5	2.1	14.7	9.6	8.8	3.0	98.8	69
263	9.4	52.8	1627	127.5	127.5	1.7	14.7	9.0	8.8	3.0	98.8	69
264			1511	127.5	127.5	1.0	14.8	8.7	8.0	2.9	98.8	69

***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	9.4	53.4	1573	127.5	127.5	1.3	15.1	9.0	7.4	2.9	98.8	69
266			1593	127.5	127.5	1.3	15.1	8.5	7.9	2.9	98.8	69
267	8.6	53.0	1382	127.5	127.5	1.1	15.0	7.5	7.2	2.9	98.8	69
268	8.3	52.8	1283	127.5	127.5	1.3	14.9	6.7	7.3	2.9	98.8	69
269	8.8	53.1	1420	127.5	127.5	0.6	15.0	8.0	7.7	2.9	98.8	69
270	8.0	52.2	1221	127.5	127.5	1.6	14.7	7.3	6.6	2.9	98.8	70
271	7.6	51.7	1075	127.5	127.5	1.4	14.0	7.0	6.1	2.9	98.8	71
272	7.6	52.0	1069	127.5	127.5	1.2	14.0	6.7	6.9	2.9	98.8	71
273	7.8	52.2	1125	127.5	127.5	1.2	14.3	7.6	7.2	2.9	98.8	71
274	7.8	52.0	1123	127.5	127.5	1.2	14.2	7.1	7.6	2.9	98.8	71
275	7.9	52.4	1163	127.5	127.5	1.1	14.5	8.1	7.1	2.9	98.8	71
276	7.8	51.8	1134	127.5	127.5	1.3	14.3	7.5	7.0	2.9	98.8	71
277	7.4	51.1	972	127.5	127.5	1.6	13.5	6.8	6.7	2.9	98.8	71
278	6.8	49.3	784	127.5	127.5	1.5	12.5	6.8	6.9	2.9	98.8	71
279	6.9	49.9	806	127.5	127.5	1.1	12.9	7.1	7.5	2.9	98.8	71
280	7.4	51.3	992	127.5	127.5	1.0	13.8	7.4	8.6	2.9	98.8	71
281	8.0	52.3	1204	127.5	127.5	1.2	14.6	7.4	8.7	2.9	98.8	71
282	8.0	52.2	1222	127.5	127.5	1.4	14.7	7.1	9.3	2.9	98.8	69
283	8.0	52.6	1219	127.5	127.5	1.3	14.7	7.6	8.5	2.9	98.8	69
284	8.1	52.8	1237	127.5	127.5	1.2	14.7	7.1	7.4	2.9	98.8	69
285	8.4	53.0	1332	127.5	127.5	1.0	15.0	7.9	7.8	2.9	98.8	69
286	8.1	52.4	1241	127.5	127.5	1.4	14.7	8.1	8.6	2.9	98.8	69
287	9.1	53.5	1491	127.5	127.5	1.3	15.1	9.5	8.2	2.9	98.8	69
288	10.5	53.8	1640	127.5	127.5	2.5	15.5	10.1	8.0	2.8	98.8	70
289	10.3	53.3	1587	127.5	127.5	1.8	14.9	9.8	8.3	2.8	98.8	70
290			1544	127.5	127.5	0.8	15.0	8.1	8.4	2.8	98.8	70
291			1643	127.5	127.5	2.0	15.4	8.5	7.8	2.8	98.8	70
292	9.3	53.6	1639	127.5	127.5	3.5	15.5	8.9	7.2	2.8	98.8	70
293			1610	127.5	127.5	3.0	15.2	7.5	6.9	2.8	98.8	70
294			1619	127.5	127.5	2.3	15.0	8.5	6.7	2.8	98.8	72
295	9.7	53.8	1655	127.5	127.5	5.1	15.6	9.3	6.1	2.8	98.8	72
296	10.0	53.3	1625	127.5	127.5	6.2	15.4	9.6	7.0	2.8	98.8	72
297	9.8	52.8	1608	127.5	127.5	5.6	15.2	9.4	6.7	2.8	98.8	72
298	9.9	52.8	1610	127.5	127.5	4.6	14.9	9.5	6.0	2.8	98.8	72
299	9.6	53.0	1587	127.5	127.5	3.0	14.4	9.2	7.1	2.8	98.8	72
300	8.4	52.6	1328	127.5	127.5	1.2	14.4	8.0	7.9	2.7	98.8	72
301	8.2	53.2	1256	127.5	127.5	1.4	14.8	8.3	6.4	2.7	98.8	72
302	7.9	52.5	1168	127.5	127.5	1.5	14.4	6.3	7.5	2.7	98.8	72
303	7.9	52.6	1197	127.5	127.5	0.9	14.6	7.1	7.8	2.7	98.8	72
304	8.5	53.4	1349	127.5	127.5	0.6	15.0	8.4	8.0	2.7	98.8	72
305	8.5	53.5	1351	127.5	127.5	1.3	15.0	8.3	7.4	2.7	98.8	72
306	9.6	53.7	1608	127.5	127.5	1.7	15.4	9.2	7.5	2.7	98.8	72
307	9.3	53.6	1628	127.5	127.5	3.3	15.5	8.9	7.2	2.7	98.8	72
308			1595	127.5	127.5	1.8	14.9	8.0	7.1	2.7	98.8	72
309			1593	127.5	127.5	0.3	14.9	8.3	7.4	2.7	98.8	72
310			1599	127.5	127.5	1.1	15.1	8.3	7.4	2.7	98.8	72
311	8.4	53.3	1325	127.5	127.5	1.5	14.9	7.7	7.3	2.7	98.8	72
312	8.7	53.1	1388	127.5	127.5	1.2	15.0	8.0	7.7	2.7	98.8	73
313	8.4	53.3	1316	127.5	127.5	0.8	15.0	8.3	9.0	2.7	98.8	73
314	8.2	52.7	1282	127.5	127.5	1.3	14.9	8.0	8.1	2.7	98.8	73
315	8.1	52.7	1244	127.5	127.5	1.2	14.7	8.3	7.4	2.7	98.8	73
316	8.0	52.6	1217	127.5	127.5	1.2	14.7	7.5	7.3	2.7	98.8	73
317	8.0	53.1	1217	127.5	127.5	1.1	14.7	6.6	6.9	2.7	98.8	73
318	8.0	52.7	1218	127.5	127.5	1.1	14.7	7.7	7.7	2.7	98.8	73
319	8.4	53.1	1314	127.5	127.5	1.0	14.9	8.0	8.0	2.7	98.8	73
320	8.6	53.6	1377	127.5	127.5	0.8	15.0	8.2	7.3	2.7	98.8	73
321	8.3	53.1	1294	127.5	127.5	1.3	14.9	7.7	6.6	2.7	98.8	73
322	8.0	52.8	1208	127.5	127.5	1.1	14.6	7.5	7.2	2.7	98.8	73
323	8.1	52.8	1233	127.5	127.5	0.9	14.7	7.4	6.2	2.7	98.8	73
324	8.2	53.2	1270	127.5	127.5	1.5	14.9	7.7	6.2	2.7	98.8	73
325	8.2	53.4	1276	127.5	127.5	1.6	14.9	8.1	5.9	2.7	98.8	73
326	8.6	53.8	1386	127.5	127.5	0.6	15.0	8.4	6.2	2.7	98.8	73
327	8.2	53.4	1267	127.5	127.5	1.2	14.8	7.1	7.5	2.7	98.8	73
328	8.1	53.4	1245	127.5	127.5	1.0	14.5	8.0	8.4	2.7	98.8	73
329	9.7	53.9	1633	127.5	127.5	0.3	15.2	9.3	8.3	2.6	98.8	73
330	10.0	54.0	1643	127.5	127.5	2.0	15.4	9.6	9.6	2.6	98.8	72
331	9.3	54.0	1618	127.5	127.5	2.7	15.3	8.9	8.6	2.6	98.8	72
332	9.5	54.3	1621	127.5	127.5	1.9	15.1	9.1	7.9	2.6	98.8	72
333	9.8	53.6	1634	127.5	127.5	3.3	15.4	9.4	7.7	2.6	98.8	72
334	9.7	53.3	1614	127.5	127.5	2.9	15.1	9.3	7.7	2.6	98.8	72
335	9.5	53.6	1631	127.5	127.5	3.5	15.3	9.1	7.7	2.6	98.8	72
336			1603	127.5	127.5	2.5	14.8	8.3	7.7	2.6	98.8	72
337			1555	127.5	127.5	1.0	14.7	8.0	7.7	2.6	98.8	72
338			1515	127.5	127.5	0.5	14.9	7.7	7.7	2.6	98.8	72
339	10.5	54.5	1667	127.5	127.5	2.7	15.6	10.1	7.7	2.6	98.8	72
340	9.7	53.2	1620	127.5	127.5	6.1	15.6	9.3	7.7	2.6	98.8	72
341	10.2	53.8	1619	127.5	127.5	6.3	15.5	9.8	7.7	2.5	98.8	72
342	9.3	53.3	1601	127.5	127.5	6.0	15.1	8.9	7.7	2.5	98.8	72
343	10.7	53.1	1610	127.5	127.5	4.6	14.8	10.3	7.7	2.5	98.8	72
344	10.0	53.0	1630	127.5	127.5	4.9	15.0	9.6	7.7	2.5	98.8	72
345			1636	127.5	127.5	5.0	15.1	8.6	7.7	2.5	98.8	72
346	9.7	53.0	1626	127.5	127.5	4.7	15.0	9.3	7.7	2.5	98.8	72
347	9.6	53.1	1597	127.5	127.5	3.5	14.6	9.2	7.7	2.5	98.8	72
348	9.0	52.8	1472	127.5	127.5	1.2	14.3	8.6	7.7	2.5	98.8	72
349	9.3	53.7	1585	127.5	127.5	0.9	15.1	8.9	7.7	2.5	98.8	72
350	9.7	53.9	1630	127.5	127.5	2.3	15.3	9.3	7.7	2.5	98.8	72
351	9.3	53.5	1594	127.5	127.5	1.1	14.9	9.0	7.7	2.5	98.8	72
352	8.8	54.0	1439	127.5	127.5	0.4	15.0	8.2	7.7	2.5	98.8	72

Table E.01 Measurement data - Turbine ON

Project: Jericho Wind Energy Centre - Turbine J_WTG89 - IEC 61400-11 Measurement

Report ID: 14462.00.J_WTG89.RP3

Created on: 4/17/2018

***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			1560	127.5	127.5	0.5	15.1	8.5	7.7	2.4	98.8	74
354	8.9	53.6	1448	127.5	127.5	0.6	15.0	8.1	7.7	2.4	98.8	75
355	8.6	53.7	1376	127.5	127.5	1.2	15.1	7.6	7.7	2.4	98.8	75
356			1566	127.5	127.5	0.6	15.1	7.8	7.7	2.4	98.8	75
357	9.5	52.7	1613	112.0	107.0	1.9	15.0	9.1	8.0	3.0	98.7	75
358			1515	112.0	107.0	1.4	14.8	8.1	8.9	3.0	98.7	75
359	8.1	52.1	1236	112.0	107.0	1.1	14.8	7.7	9.2	3.0	98.7	75
360	8.1	52.0	1236	112.0	107.0	1.4	14.7	7.7	8.8	3.0	98.7	75
361	8.0	51.8	1224	112.0	107.0	1.3	14.7	8.0	7.5	3.1	98.7	73
362	7.9	51.2	1191	112.0	107.0	1.2	14.6	8.4	6.9	3.1	98.7	73
363	7.6	50.4	1050	112.0	107.0	1.5	13.9	6.2	6.5	3.1	98.7	73
364	7.1	49.7	894	112.0	107.0	1.5	13.2	5.7	7.4	3.1	98.7	73
365	6.9	49.5	807	112.0	107.0	1.5	12.8	6.3	7.8	3.1	98.7	73
366	6.7	48.8	745	112.0	107.0	1.4	12.4	6.3	8.0	3.1	98.7	73
367	6.9	49.6	816	112.0	107.0	1.1	12.9	7.5	9.4	3.1	98.7	73
368			1025	112.0	107.0	1.0	14.0	8.3	8.4	3.1	98.7	73
369	8.8	53.4	1420	112.0	107.0	1.0	14.9	7.4	8.8	3.1	98.7	73
370			1656	112.0	107.0	3.9	15.7	8.3	8.2	3.1	98.7	73
371			1595	112.0	107.0	3.8	15.2	8.5	8.0	3.1	98.7	73
372			1623	112.0	107.0	3.1	15.2	8.9	8.3	3.1	98.7	73
373			1627	112.0	107.0	4.3	15.3	8.5	9.2	3.1	98.7	73
374	10.1	52.4	1623	112.0	107.0	4.6	15.2	9.7	9.6	3.1	98.7	73
375			1603	112.0	107.0	3.6	14.9	8.7	8.7	3.1	98.7	73
376			1530	112.0	107.0	1.3	14.4	8.1	8.0	3.1	98.7	73
377	8.1	52.1	1251	112.0	107.0	1.0	14.7	7.8	8.0	3.1	98.7	73
378			1577	112.0	107.0	1.1	15.2	8.7	7.6	3.1	98.7	73
379	9.9	53.2	1650	112.0	107.0	3.5	15.7	9.5	6.5	3.1	98.7	74
380			1603	112.0	107.0	3.3	15.2	8.8	8.2	3.1	98.7	74
381	8.8	52.2	1423	112.0	107.0	1.0	14.6	9.1	8.0	3.1	98.7	74
382			1523	112.0	107.0	0.6	15.1	8.3	7.4	3.1	98.7	74
383	9.6	52.7	1631	112.0	107.0	1.6	15.3	9.2	8.6	3.1	98.7	74
384	10.1	52.9	1640	112.0	107.0	2.3	15.4	9.6	7.4	3.1	98.7	74
385			1636	112.0	107.0	3.6	15.4	8.8	7.5	3.1	98.7	74
386	10.0	52.9	1635	112.0	107.9	4.8	15.6	9.6	7.3	3.1	98.7	74
387	10.0	52.3	1631	112.0	113.3	6.1	15.5	9.6	6.5	3.1	98.7	74
388	9.7	52.1	1596	112.0	115.8	6.0	15.1	9.3	7.0	3.1	98.7	74
389			1604	112.0	115.8	4.0	14.8	8.2	7.0	3.1	98.7	74
390	9.3	52.3	1618	112.0	115.8	3.8	14.8	8.9	7.5	3.1	98.7	74
391			1560	112.0	115.8	1.5	14.4	8.2	6.2	3.1	98.7	76
392	7.9	52.0	1165	112.0	115.8	1.1	14.5	7.4	6.0	3.2	98.7	76
393	7.8	51.9	1149	112.0	115.8	1.4	14.4	6.4	7.1	3.2	98.7	76
394	7.7	51.0	1093	112.0	115.8	1.3	14.1	7.3	7.7	3.2	98.7	76
395	7.9	51.8	1186	112.0	115.8	1.1	14.4	7.7	6.7	3.2	98.7	76
396	9.4	53.2	1610	112.0	115.8	0.5	15.2	9.0	8.8	3.2	98.7	76
397	9.9	52.7	1626	112.0	115.8	3.0	15.4	9.5	9.1	3.2	98.7	73
398			1555	112.0	115.8	1.8	14.9	8.6	9.6	3.2	98.7	73
399	8.5	52.4	1338	112.0	115.8	0.6	14.9	8.5	8.6	3.2	98.7	73
400			1621	112.0	115.8	1.6	15.4	8.7	8.3	3.2	98.7	73
401	9.6	53.4	1641	112.0	115.8	5.9	15.8	9.2	8.5	3.2	98.7	73
402			1593	112.0	115.8	5.4	15.2	8.4	8.1	3.2	98.7	73
403			1588	112.0	115.8	3.3	14.7	7.3	8.6	3.2	98.7	73
404	9.7	52.1	1608	112.0	115.8	1.8	14.6	9.3	8.6	3.2	98.7	73
405	9.9	52.9	1609	112.0	115.8	0.9	14.7	9.5	9.4	3.2	98.7	73
406	9.6	53.3	1675	112.0	115.8	3.5	15.6	9.2	9.8	3.2	98.7	73
407			1632	112.0	115.8	5.3	15.5	8.7	9.6	3.2	98.7	73
408			1621	112.0	115.8	5.1	15.4	8.6	9.2	3.2	98.7	71
409	9.9	52.2	1623	112.0	115.8	5.6	15.3	9.5	8.8	3.3	98.7	70
410	9.7	51.9	1619	112.0	115.8	6.9	15.3	9.3	8.1	3.3	98.7	70
411			1611	112.0	115.8	5.9	15.0	8.7	7.5	3.3	98.7	70
412	9.3	51.8	1622	112.0	115.8	5.3	14.9	9.0	7.6	3.3	98.7	70
413	9.7	52.2	1633	112.0	115.8	5.5	15.1	9.3	7.5	3.3	98.7	70
414	9.8	52.0	1613	112.0	115.8	4.8	14.8	9.4	7.0	3.3	98.7	73
415			1594	112.0	115.8	2.1	14.4	8.8	7.1	3.3	98.7	75
416	8.7	51.9	1399	112.0	115.8	0.7	14.5	8.1	7.5	3.3	98.7	75
417	9.1	52.7	1490	112.0	115.8	1.3	15.0	8.2	7.5	3.3	98.7	75
418			1657	112.0	115.8	2.8	15.6	8.4	7.7	3.3	98.7	75
419			1622	112.0	115.8	4.0	15.4	8.2	8.0	3.3	98.7	75
420	9.5	52.2	1620	112.0	115.8	4.0	15.3	9.1	7.8	3.3	98.7	74
421			1601	112.0	115.8	3.0	14.9	8.4	6.6	3.3	98.7	73
422	9.6	52.4	1614	112.0	115.8	2.1	14.8	9.2	8.0	3.3	98.7	73
423			1626	112.0	115.8	2.0	14.9	8.6	8.5	3.3	98.7	73
424			1626	112.0	115.8	1.5	14.9	8.6	7.7	3.3	98.7	73
425			1593	112.0	115.8	0.8	14.9	7.8	7.8	3.3	98.7	73
426	9.4	52.9	1664	112.0	115.8	2.0	15.5	9.0	7.5	3.3	98.7	74
427			1647	112.0	115.8	5.1	15.7	8.2	7.1	3.3	98.7	74
428			1600	112.0	115.8	4.2	15.2	8.4	7.3	3.3	98.7	74
429			1629	112.0	115.8	4.9	15.4	8.7	7.7	3.3	98.7	74
430			1605	112.0	115.8	5.0	15.0	8.8	6.1	3.3	98.7	74
431			1589	112.0	115.8	2.7	14.5	7.9	6.4	3.3	98.7	74
432	9.5	52.0	1627	112.0	115.8	1.6	14.7	9.1	6.8	3.3	98.7	74
433			1514	112.0	115.8	1.0	14.7	8.2	6.9	3.3	98.7	75
434	9.1	52.4	1489	112.0	115.8	0.9	15.0	8.6	6.8	3.3	98.7	75
435	10.0	52.9	1637	112.0	115.8	0.9	15.3	9.6	7.4	3.3	98.7	75
436	9.3	52.7	1562	112.0	115.8	1.2	15.1	8.9	7.0	3.3	98.7	75
437	8.2	51.8	1259	112.0	115.8	1.3	14.8	8.4	7.8	3.3	98.7	74
438	7.8	51.2	1158	112.0	115.8	1.3	14.4	7.8	6.6	3.3	98.7	74
439	7.8	51.1	1136	112.0	115.8	1.3	14.4	7.3	7.4	3.3	98.7	74
440	7.6	50.8	1063	112.0	115.8	1.3	14.0	7.3	6.6	3.3	98.7	74

***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	7.4	50.1	971	112.0	115.8	1.3	13.6	6.8	7.0	3.3	98.7	74
442	7.4	50.5	972	112.0	115.8	1.3	13.6	6.2	7.2	3.3	98.7	74
443	8.7	52.1	1407	112.0	115.8	0.5	14.7	8.6	7.8	3.3	98.7	74
444	9.6	52.7	1648	112.0	115.8	1.6	15.4	9.2	7.1	3.4	98.7	74
445			1635	112.0	115.8	3.5	15.4	8.4	7.1	3.4	98.7	74
446			1623	112.0	115.8	3.3	15.3	8.7	6.8	3.4	98.7	74
447			1602	112.0	115.8	2.6	15.0	8.8	6.8	3.4	98.7	74
448	8.6	51.9	1377	112.0	115.8	0.7	14.6	8.4	6.4	3.4	98.7	74
449	9.0	52.6	1466	112.0	115.8	0.7	15.0	8.1	5.9	3.4	98.7	75
450	8.4	52.2	1318	112.0	115.8	1.5	14.9	7.8	6.2	3.4	98.7	77
451	8.8	53.0	1436	112.0	115.8	0.9	15.1	7.9	5.5	3.4	98.7	77
452	8.4	52.8	1325	112.0	115.8	0.8	15.0	9.2	5.9	3.4	98.7	77
453	8.0	52.2	1224	112.0	115.8	1.6	14.6	7.9	5.8	3.4	98.7	77
454	7.9	51.9	1189	112.0	115.8	1.2	14.6	7.7	6.8	3.4	98.7	77
455	7.8	51.3	1149	112.0	115.8	1.3	14.4	7.5	6.4	3.4	98.7	77
456	7.6	51.1	1081	112.0	115.8	1.4	14.1	7.3	6.7	3.4	98.7	76
457	7.4	50.5	1008	112.0	115.8	1.4	13.7	7.5	6.3	3.4	98.7	76
458	7.4	50.1	1006	112.0	115.8	1.4	13.8	7.2	6.5	3.4	98.7	76
459	7.5	50.3	1020	112.0	115.8	1.4	13.9	7.2	7.6	3.4	98.7	76
460	7.5	50.2	1025	112.0	115.8	1.4	13.8	7.3	5.7	3.4	98.7	76
461	7.8	51.6	1145	112.0	115.8	1.1	14.4	8.2	5.9	3.4	98.7	76
462	8.3	52.1	1291	112.0	115.8	1.2	14.9	7.8	6.5	3.5	98.7	78
463	8.4	51.9	1315	112.0	115.8	1.5	14.7	8.8	5.7	3.5	98.7	78
464	9.5	53.2	1637	112.0	115.8	1.2	15.3	9.1	5.7	3.5	98.7	78
465	9.2	52.4	1498	112.0	115.8	1.5	15.0	8.5	5.1	3.5	98.7	78
466	8.4	52.1	1324	112.0	115.8	1.2	15.0	7.9	5.4	3.5	98.7	78
467	7.8	50.7	1141	112.0	115.8	1.6	14.3	6.8	5.5	3.5	98.7	78
468	7.6	50.4	1058	112.0	115.8	1.3	13.9	6.9	5.7	3.6	98.7	78
469	10.1	53.0	1553	112.0	115.8	1.1	15.2	9.6	5.4	3.6	98.7	78
470			1636	112.0	115.8	4.7	15.6	8.6	5.7	3.6	98.7	78
471	9.5	52.3	1617	112.0	115.8	4.4	15.2	9.1	5.3	3.6	98.7	78
472			1620	112.0	115.8	4.8	15.3	8.4	5.2	3.6	98.7	78
473			1619	112.0	115.8	4.5	15.1	8.7	5.1	3.6	98.7	79
474	9.5	51.6	1607	112.0	115.8	3.7	14.9	9.1	5.5	3.6	98.7	79
475	9.8	51.4	1617	112.0	115.8	2.8	14.8	9.4	5.7	3.6	98.7	79
476	9.5	52.2	1637	112.0	115.8	2.6	14.9	9.1	7.3	3.6	98.7	79
477			1625	112.0	115.8	1.8	14.9	7.5	7.0	3.6	98.7	79
478			1627	112.0	115.8	1.0	14.8	8.4	6.1	3.6	98.7	79
479	9.4	52.3	1643	112.0	115.8	1.4	15.1	9.0	6.7	3.7	98.7	74
480	10.2	52.6	1639	112.0	115.8	2.0	15.2	9.8	7.0	3.7	98.7	74
481	9.5	52.0	1623	112.0	115.8	2.1	15.1	9.1	7.2	3.7	98.7	74
482			1522	112.0	115.8	0.8	14.9	8.2	7.1	3.7	98.7	74
483	8.7	52.2	1387	112.0	115.8	1.0	15.0	7.3	5.8	3.7	98.7	74
484			1561	112.0	115.8	1.0	15.1	8.0	7.8	3.7	98.7	74
485			1635	112.0	115.8	1.1	15.3	8.6	7.0	3.7	98.7	74
486	9.9	52.8	1648	112.0	115.8	3.7	15.7	9.5	5.4	3.7	98.7	74
487	9.9	52.2	1599	112.0	115.8	3.1	15.1	9.5	6.4	3.7	98.7	74
488			1622	112.0	115.8	2.4	15.2	8.2	6.4	3.7	98.7	74
489			1585	112.0	115.8	2.1	14.8	7.8	6.1	3.7	98.7	74
490	7.9	51.6	1191	112.0	115.8	1.3	14.5	7.4	5.0	3.7	98.7	74
491	7.8	50.9	1133	112.0	115.8	1.4	14.3	7.5	5.4	3.8	98.7	76
492	7.9	52.0	1189	112.0	115.8	1.0	14.6	7.9	5.9	3.8	98.7	76
493	7.9	51.3	1188	112.0	115.8	1.4	14.6	7.8	6.4	3.8	98.7	76
494	7.6	50.8	1069	112.0	115.8	1.4	14.0	8.0	6.2	3.8	98.7	76
495	7.3	49.5	968	112.0	115.8	1.4	13.5	7.1	6.2	3.8	98.7	76
496	7.1	49.0	887	112.0	115.8	1.4	13.2	6.5	6.1	3.8	98.7	76
497	7.3	49.5	940	112.0	115.8	1.2	13.5	7.2	5.1	3.8	98.7	76
498	7.8	51.4	1126	112.0	115.8	1.0	14.4	8.3	4.8	3.8	98.7	76
499	7.8	50.9	1155	112.0	115.8	1.5	14.4	7.1	4.1	3.8	98.7	76
500	7.6	50.2	1062	112.0	115.8	1.4	14.0	7.7	5.3	3.8	98.7	76
501	7.5	50.3	1040	112.0	115.8	1.3	13.9	7.0	6.7	3.8	98.7	76
502	7.6	50.5	1070	112.0	115.8	1.3	14.1	7.9	6.2	3.8	98.7	76
503	7.6	50.8	1070	112.0	115.8	1.3	14.1	7.5	5.6	3.8	98.7	76
504	7.3	49.8	966	112.0	115.8	1.5	13.5	7.5	5.9	3.8	98.7	76
505	7.2	49.6	902	112.0	115.8	1.4	13.3	7.0	5.8	3.8	98.7	76
506	7.2	49.6	900	112.0	115.8	1.4	13.3	6.7	5.1	3.8	98.7	76
507	7.2	49.6	916	112.0	115.8	1.4	13.4	6.8	5.1	3.8	98.7	76
508	7.4	50.1	995	112.0	115.8	1.1	13.8	7.6	4.5	3.8	98.7	76
509	7.5	50.3	1043	112.0	115.8	1.2	13.9	7.4	5.8	3.9	98.7	78
510	7.7	51.2	1119	112.0	115.8	1.2	14.4	8.0	6.2	3.9	98.7	78
511	7.8	50.8	1125	112.0	115.8	1.2	14.3	7.9	6.6	3.9	98.7	78
512	7.4	49.8	991	112.0	115.8	1.5	13.6	6.3	6.3	3.9	98.7	78
513	7.2	49.3	899	112.0	115.8	1.3	13.3	7.6	5.8	3.9	98.7	78
514	7.2	49.2	901	112.0	115.8	1.3	13.3	6.6	7.3	3.9	98.7	78
515	7.2	49.4	916	112.0	115.8	1.3	13.4	7.4	7.3	4.0	98.7	73
516			1020	112.0	115.8	1.1	13.9	8.2	6.4	4.0	98.7	73
517	8.4	52.2	1318	112.0	115.8	1.2	15.0	8.0	6.8	4.0	98.7	73
518	8.0	51.5	1226	112.0	115.8	1.6	14.7	7.9	6.4	4.0	98.7	73
519	8.0	51.2	1217	112.0	115.8	1.1	14.7	8.1	6.7	4.0	98.7	73
520	8.9	52.2	1452	112.0	115.8	0.5	15.0	8.7	6.1	4.0	98.7	74
521	9.8	52.6	1539	112.0	115.8	1.0	15.1	9.4	6.0	4.0	98.7	74
522			1637	112.0	115.8	1.7	15.3	8.6	6.3	4.0	98.7	74
523	9.7	52.7	1618	112.0	115.8	2.2	15.2	9.3	5.6	4.0	98.7	74
524	9.8	52.3	1623	112.0	115.8	1.4	15.1	9.4	5.8	4.0	98.7	74
525	9.7	52.2	1623	112.0	117.1	1.9	15.1	9.3	5.7	4.0	98.7	74
526	8.7	51.9	1394	112.0	121.6	1.0	14.8	8.9	6.0	4.0	98.7	77
527	8.4	52.1	1310	112.0	121.6	1.1	15.0	7.2	5.5	4.0	98.7	77
528	8.5	52.2	1352	112.0	121.6	1.1	15.0	7.8	6.1	4.0	98.7	77

Table E.01 Measurement data - Turbine ON

Project: Jericho Wind Energy Centre - Turbine J_WTG89 - IEC 61400-11 Measurement

Report ID: 14462.00.J_WTG89.RP3

Created on: 4/17/2018

***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	9.9	52.6	1653	112.0	121.6	2.2	15.5	9.5	6.6	4.0	98.7	77
530	11.2	52.9	1651	112.0	121.6	6.2	15.9	10.8	6.9	4.0	98.7	77
531	11.3	52.3	1608	112.0	121.6	7.2	15.5	10.8	5.9	4.0	98.7	76
532	10.5	52.2	1608	112.0	121.6	6.3	15.2	10.1	5.3	4.1	98.7	75
533	9.9	51.6	1609	112.0	121.6	5.8	14.9	9.5	5.9	4.1	98.7	75
534			1606	112.0	121.6	4.0	14.6	8.8	5.8	4.1	98.7	75
535			1581	112.0	121.6	1.8	14.3	8.1	5.9	4.1	98.7	75
536	8.3	51.8	1306	112.0	121.6	0.7	14.6	8.2	5.6	4.1	98.7	75
537	8.2	51.7	1260	112.0	121.6	1.5	14.8	7.6	5.5	4.1	98.7	75
538			1555	112.0	121.6	1.2	15.1	8.4	5.1	4.1	98.7	77
539	8.7	52.2	1392	112.0	121.6	1.0	15.0	8.8	4.5	4.1	98.7	77
540	7.9	51.6	1179	112.0	121.6	1.6	14.5	6.9	6.1	4.1	98.7	77
541	7.6	50.3	1056	112.0	121.6	1.4	13.9	6.7	7.1	4.1	98.7	77
542	7.4	49.8	1001	112.0	121.6	1.3	13.8	6.9	6.9	4.1	98.7	77
543			1020	112.0	121.6	1.3	13.8	8.5	6.8	4.1	98.7	77
544			1346	112.0	121.6	0.3	14.8	9.8	7.3	4.1	98.6	75
545	8.5	52.1	1341	112.0	121.6	1.1	14.9	8.1	7.8	4.1	98.6	75
546	7.7	50.4	1090	112.0	121.6	1.8	14.0	6.5	8.5	4.1	98.6	75
547	7.0	48.7	852	112.0	121.6	1.6	12.9	6.6	8.0	4.1	98.6	75
548			948	112.0	121.6	1.1	13.5	8.2	8.3	4.1	98.6	75
549	10.1	52.8	1606	112.0	121.6	1.0	15.3	9.7	8.1	4.1	98.6	75
550			1612	112.0	121.6	3.1	15.1	8.3	7.5	4.2	98.6	72
551			1611	112.0	121.6	1.6	14.9	7.9	7.8	4.2	98.6	72
552	10.0	52.2	1642	112.0	121.6	2.0	15.2	9.6	7.7	4.2	98.6	72
553			1602	112.0	121.6	1.7	14.8	8.6	7.2	4.2	98.6	72
554	8.8	51.7	1420	112.0	121.6	0.4	14.9	9.2	7.1	4.2	98.6	72
555	8.0	50.7	1203	112.0	121.6	1.5	14.6	7.9	6.5	4.2	98.6	72
556	7.7	50.2	1090	112.0	121.6	1.4	14.1	6.9	5.4	4.2	98.6	74
557	10.0	52.4	1551	112.0	121.6	0.6	15.1	9.6	5.2	4.2	98.6	74
558			1648	112.0	121.6	2.8	15.5	8.7	5.8	4.2	98.6	74
559	9.4	52.2	1612	112.0	121.6	3.0	15.2	9.0	5.6	4.2	98.6	74
560	9.6	52.6	1627	112.0	121.6	2.8	15.3	9.2	5.4	4.2	98.6	74
561			1608	112.0	121.6	2.6	15.0	8.9	4.8	4.2	98.6	76
562	9.1	51.7	1494	112.0	121.6	0.8	14.7	8.5	4.6	4.2	98.6	77
563	8.1	51.8	1253	112.0	121.6	1.3	14.8	7.5	4.8	4.2	98.6	77
564	7.8	50.7	1149	112.0	121.6	1.4	14.3	8.2	5.1	4.2	98.6	77
565			1188	112.0	121.6	1.0	14.6	8.8	5.1	4.2	98.6	77
566	8.2	51.8	1270	112.0	121.6	1.1	14.9	7.2	5.3	4.2	98.6	77
567	8.4	52.0	1328	112.0	121.6	1.2	15.0	8.1	5.6	4.3	98.6	77
568	9.0	52.4	1467	112.0	121.6	0.9	15.1	8.5	4.8	4.3	98.6	77
569	8.5	52.0	1346	112.0	121.6	1.3	15.0	8.1	5.1	4.3	98.6	77
570			1585	112.0	121.6	1.0	15.2	8.8	6.4	4.3	98.6	77
571	9.7	52.5	1641	112.0	121.6	2.6	15.5	9.3	5.7	4.3	98.6	77
572	9.5	51.9	1622	112.0	121.6	3.0	15.3	9.1	6.2	4.3	98.6	77
573			1609	112.0	121.6	2.3	15.1	8.6	6.7	4.3	98.6	76
574			1587	112.0	121.6	2.8	15.1	8.6	7.2	4.3	98.6	76
575	9.7	52.1	1620	112.0	121.6	3.1	15.1	9.3	8.3	4.3	98.6	76
576			1530	112.0	121.6	1.3	14.6	8.1	9.1	4.3	98.6	76
577	9.7	52.4	1584	112.0	121.6	0.7	15.0	9.3	9.6	4.3	98.6	76
578	9.5	52.5	1665	112.0	121.6	3.8	15.7	9.1	9.7	4.3	98.6	76
579	10.0	52.2	1632	112.0	121.6	5.4	15.6	9.6	8.6	4.3	98.6	70
580			1597	112.0	121.6	4.3	15.1	8.4	7.4	4.3	98.6	70
581			1616	112.0	121.6	3.2	15.0	8.7	8.1	4.3	98.6	70
582	10.3	51.9	1637	112.0	121.6	4.6	15.2	9.9	7.6	4.3	98.6	70
583			1546	112.0	121.6	4.0	14.8	8.7	7.3	4.3	98.6	70
584			1535	112.0	121.6	3.8	14.9	8.8	6.8	4.3	98.6	70
585			1604	112.0	121.6	5.1	14.9	8.6	7.5	4.3	98.6	72
586			1625	112.0	121.6	3.7	14.9	8.4	7.6	4.3	98.6	72
587			1627	112.0	121.6	3.4	14.9	7.9	5.9	4.3	98.6	72
588	9.4	51.4	1632	112.0	121.6	3.3	14.9	9.0	7.7	4.3	98.6	72
589			1632	112.0	121.6	2.8	15.0	8.8	7.6	4.3	98.6	72
590	10.4	52.7	1651	112.0	121.6	4.4	15.3	9.9	7.2	4.3	98.6	72
591			1611	112.0	121.6	3.7	15.0	8.9	7.4	4.4	98.6	72
592	10.2	51.9	1621	112.0	121.6	3.0	15.0	9.8	7.5	4.4	98.6	72
593	9.6	51.6	1620	112.0	121.6	2.5	14.9	9.2	7.6	4.4	98.6	72
594	9.4	51.6	1619	112.0	121.6	1.7	14.8	9.1	7.7	4.4	98.6	72
595			1630	112.0	121.6	0.8	14.8	8.4	7.8	4.4	98.6	72
596			1642	112.0	121.6	1.2	15.0	8.7	7.3	4.4	98.6	72
597	8.0	51.5	1223	112.0	121.6	1.3	14.7	7.4	7.1	4.4	98.6	72
598	8.9	52.2	1450	112.0	121.6	0.6	15.0	9.1	6.5	4.4	98.6	72
599	10.0	52.5	1579	112.0	121.6	0.5	15.1	9.6	7.6	4.4	98.6	72
600	8.2	51.7	1277	112.0	121.6	1.6	14.8	7.3	8.2	4.4	98.6	72
601	7.9	50.7	1165	112.0	121.6	1.4	14.4	7.6	8.2	4.4	98.6	72
602	8.5	52.4	1359	112.0	121.6	0.6	14.9	7.1	7.4	4.5	98.6	71
603	8.1	51.7	1253	112.0	121.6	1.2	14.7	8.7	7.9	4.5	98.6	71
604	7.5	50.0	1027	112.0	121.6	1.6	13.8	6.7	9.1	4.5	98.6	71
605	7.1	49.0	892	112.0	121.6	1.4	13.2	6.8	8.6	4.5	98.6	71
606	7.1	49.0	890	112.0	121.6	1.3	13.3	6.9	7.8	4.5	98.6	71
607	7.1	48.4	858	112.0	121.6	1.3	13.0	6.6	7.3	4.5	98.6	71
608	7.1	49.2	879	112.0	121.6	1.3	13.2	6.2	7.6	4.5	98.6	70
609	8.7	51.7	1403	112.0	121.6	0.5	14.7	9.2	7.5	4.5	98.6	70
610	9.6	52.8	1669	112.0	121.6	4.3	15.8	9.2	7.2	4.5	98.6	70
611	11.0	52.9	1634	112.0	121.6	6.8	15.7	10.6	6.8	4.5	98.6	70
612	9.5	52.1	1586	112.0	121.6	5.3	15.0	9.1	7.0	4.5	98.6	70
613	10.3	51.8	1607	112.0	121.6	3.4	14.8	9.9	6.3	4.5	98.6	70
614	10.6	52.4	1651	112.0	121.6	6.1	15.4	10.2	6.8	4.6	98.6	72
615	10.7	52.5	1624	112.0	121.6	7.3	15.3	10.3	7.1	4.6	98.6	72
616	10.8	52.2	1619	112.0	121.6	7.1	15.1	10.3	7.3	4.6	98.6	72

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

Data Point #	Standardized Wind Speed	LAeq	Turbine Power Output (kW)	Reference Yaw Angle (°)	Yaw Angle (°)	Pitch Angle (°)	Rotor RPM	Nacelle Anemometer Wind Speed (m/s)	10m Anemometer Wind Speed (m/s)	Air Temperature (-C)	Pressure (kPa)	Relative Humidity (%)
617	9.9	51.3	1611	112.0	121.6	5.7	14.9	9.5	7.1	4.6	98.6	72
618	10.2	51.8	1629	112.0	121.6	5.0	14.9	9.8	6.2	4.6	98.6	72
619	9.8	51.6	1625	112.0	121.6	4.8	14.9	9.4	6.2	4.6	98.6	72
620			1628	112.0	121.6	3.9	14.8	8.4	6.3	4.6	98.6	72
621			1608	112.0	121.6	2.9	14.7	7.4	7.6	4.6	98.6	72
622	8.8	51.6	1433	112.0	121.6	0.7	14.4	8.5	6.9	4.6	98.6	72
623	8.0	51.2	1203	112.0	121.6	1.2	14.7	7.9	6.9	4.6	98.6	72
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Table E.02 Measurement data - Background

Project: Jericho Wind Energy Centre - Turbine J_WTG89 - IEC 61400-11 Measurement

Report ID: 14462.00.J_WTG89.RP3

Created on: 4/17/2018

***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			0.5	7.4	2	98.8	77
2			0.5	6.9	2	98.8	77
3			0.3	5.9	2	98.8	77
4			0.3	5.0	2	98.8	77
5			0.6	4.8	2	98.8	77
6			0.6	5.8	2	98.8	77
7			0.4	5.8	2	98.8	77
8	7.8	42.5	0.6	6.6	2	98.8	77
9	8.3	43.4	0.5	7.1	2	98.8	77
10	8.6	43.7	0.5	7.3	2	98.8	77
11	8.4	42.9	0.7	7.1	2	98.8	76
12	8.2	43.5	0.6	6.9	2	98.8	76
13	8.0	43.6	0.4	6.8	2	98.8	76
14	9.6	40.6	0.5	8.1	2	98.8	76
15	8.1	41.3	0.5	6.8	2	98.8	76
16	7.8	42.4	0.5	6.6	2	98.8	77
17	6.9	42.2	0.4	5.8	2	98.8	77
18	6.8	42.4	0.3	5.7	2	98.8	77
19	8.4	43.1	0.4	7.1	2	98.8	77
20	9.0	42.1	0.5	7.6	2	98.8	77
21	9.8	43.2	0.5	8.3	2	98.8	77
22	9.0	42.6	0.4	7.6	2	98.8	76
23	8.2	42.5	0.5	7.0	2	98.8	76
24	7.5	41.9	0.5	6.4	2	98.8	76
25	7.6	42.4	0.5	6.4	2	98.8	76
26	7.6	41.5	0.6	6.5	2	98.8	76
27	7.7	40.6	0.4	6.5	2	98.8	76
28	7.7	41.3	0.5	6.6	2	98.8	77
29	7.4	41.0	0.4	6.2	2	98.8	78
30	8.1	40.5	0.5	6.9	2	98.8	78
31	8.0	41.2	0.5	6.8	2	98.8	78
32	7.8	41.1	0.4	6.6	2	98.8	78
33	7.7	41.4	0.4	6.6	2	98.8	78
34	7.8	41.3	0.5	6.6	2	98.8	78
35	7.2	40.0	0.5	6.1	2	98.8	78
36	8.2	41.5	0.5	7.0	2	98.8	78
37	7.6	41.5	0.4	6.4	2	98.8	78
38	7.6	41.4	0.4	6.4	2	98.8	78
39	8.3	41.9	0.5	7.0	2	98.8	78
40	8.4	41.1	0.4	7.1	2	98.8	78
41	7.0	41.6	0.4	6.0	2	98.8	77
42	8.4	41.9	0.4	7.1	2	98.8	77
43	8.5	41.7	0.4	7.2	2	98.8	77
44	8.8	41.8	0.4	7.5	2	98.8	77
45	9.2	41.9	0.5	7.8	2	98.8	77
46	8.0	41.5	0.5	6.8	2	98.8	76
47	8.2	41.7	0.5	6.9	2	98.8	76
48	7.9	41.8	0.5	6.7	2	98.8	76
49	8.6	41.3	0.5	7.3	2	98.8	76
50	9.8	41.0	0.7	8.3	2	98.8	76
51	8.8	42.3	0.5	7.5	2	98.8	76
52	8.0	43.3	0.5	6.8	2	98.8	77
53	7.6	43.7	0.4	6.5	2	98.8	77
54	8.0	41.9	0.5	6.8	2	98.8	77
55	8.4	42.6	0.5	7.1	2	98.8	77
56	7.2	42.0	0.5	6.1	2	98.8	77
57	7.5	41.6	0.4	6.3	2	98.8	77
58	9.0	42.0	0.4	7.7	2	98.8	77
59	8.8	42.2	0.4	7.5	2	98.8	78
60	8.2	42.8	0.5	6.9	2	98.8	78
61	9.6	42.2	0.4	8.2	2	98.8	78
62	9.9	42.3	0.5	8.4	2	98.8	78
63	9.6	41.9	0.5	8.1	2	98.8	78
64	8.8	42.0	0.5	7.5	2	98.8	77
65	8.7	41.4	0.5	7.4	2	98.8	76
66	8.1	41.4	0.5	6.9	2	98.8	76
67	7.9	41.9	0.4	6.7	2	98.8	76
68	7.0	41.3	0.5	5.9	2	98.8	76
69	7.2	43.8	0.4	6.1	2	98.8	76
70	9.2	40.7	0.5	7.8	2	98.8	76
71	8.2	40.8	0.6	6.9	2	98.8	76
72	8.0	41.0	0.6	6.8	2	98.8	76
73	8.8	41.6	0.5	7.5	2	98.8	76
74	8.0	41.3	0.4	6.8	2	98.8	76
75	8.0	40.8	0.4	6.8	2	98.8	76
76	7.4	40.7	0.5	6.2	2	98.8	77
77	7.2	41.5	0.4	6.1	2	98.8	78
78	7.5	41.7	0.4	6.4	2	98.8	78
79	7.1	41.5	0.5	6.0	2	98.8	78
80	6.6	42.0	0.6	5.6	2	98.8	78
81	6.9	41.6	0.4	5.8	2	98.8	78
82	7.0	41.2	0.4	5.9	2	98.8	80
83	5.6	41.7	0.5	4.7	2	98.8	80

***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	5.9	41.2	0.4	5.0	2	98.8	80
85	6.1	41.0	0.4	5.2	2	98.8	80
86	6.3	40.8	0.5	5.3	2	98.8	80
87	5.5	41.0	0.4	4.7	2	98.8	80
88	5.5	42.9	0.5	4.6	2	98.8	81
89	7.1	41.7	0.4	6.1	2	98.8	81
90	7.7	42.0	0.6	6.5	2	98.8	81
91	7.4	42.0	0.6	6.2	2	98.8	81
92	7.5	42.0	0.5	6.4	2	98.8	81
93	7.0	42.5	0.4	6.0	2	98.8	81
94			0.5	5.9	2	98.8	80
95	7.1	40.8	0.5	6.0	2	98.8	80
96	8.0	41.9	0.5	6.8	2	98.8	80
97	8.3	40.6	0.4	7.0	2	98.8	80
98	6.9	41.8	0.4	5.8	2	98.8	80
99	6.9	41.5	0.5	5.8	2	98.8	80
100	7.6	42.5	0.5	6.4	2	98.8	80
101	7.2	41.9	0.4	6.1	2	98.8	80
102	7.5	41.0	0.4	6.4	2	98.8	80
103	8.1	40.5	0.5	6.9	2	98.8	80
104	7.2	41.1	0.5	6.1	2	98.8	80
105	6.2	41.3	0.4	5.2	2	98.8	80
106	5.5	41.5	0.5	4.7	2	98.8	81
107			0.5	5.3	2	98.8	81
108	7.2	41.1	0.5	6.1	2	98.8	81
109	7.5	40.9	0.5	6.4	2	98.8	81
110	7.4	42.2	0.5	6.3	2	98.8	81
111	6.5	42.4	0.6	5.5	2	98.8	81
112	7.3	42.6	0.6	6.2	2	98.8	80
113	8.1	42.6	0.5	6.9	2	98.8	80
114	7.4	41.6	0.6	6.2	2	98.8	80
115	6.5	42.3	0.5	5.5	2	98.8	80
116	6.7	41.4	0.5	5.7	2	98.8	80
117	6.7	42.3	0.5	5.7	2	98.8	80
118	6.3	41.6	0.4	5.4	2	98.8	80
119	6.7	42.2	0.4	5.7	2	98.8	80
120	6.2	42.3	0.4	5.2	2	98.8	80
121	5.7	42.2	0.4	4.8	2	98.8	80
122			0.5	4.0	2	98.8	80
123			0.4	5.3	2	98.8	80
124			0.5	5.7	2	98.8	81
125			0.4	5.9	2	98.8	81
126			0.4	6.1	2	98.8	81
127	9.8	43.1	0.4	8.3	2	98.8	81
128	10.0	43.0	0.4	8.5	2	98.8	81
129	10.1	42.8	0.3	8.5	2	98.8	81
130	9.5	41.6	0.4	8.0	2	98.8	76
131	8.3	42.5	0.5	7.0	2	98.8	76
132	9.5	42.7	0.4	8.0	2	98.8	76
133	9.5	42.5	0.5	8.0	2	98.8	76
134	8.3	42.9	0.5	7.0	2	98.8	76
135			0.5	7.0	2	98.8	76
136			0.4	7.9	2	98.8	77
137			0.5	6.9	2	98.8	77
138			0.5	7.0	2	98.8	77
139			0.5	6.1	2	98.8	77
140			0.5	5.2	2	98.8	77
141			0.5	5.0	2	98.8	78
142	6.8	42.7	0.5	5.7	2	98.8	80
143	5.5	42.9	0.4	4.7	2	98.8	80
144	7.2	43.8	0.4	6.1	2	98.8	80
145	6.4	44.0	0.4	5.4	2	98.8	80
146	6.6	43.1	0.3	5.6	2	98.8	80
147	7.5	46.4	0.4	6.3	2	98.8	80
148	7.4	45.2	0.4	6.2	2	98.8	80
149	7.2	44.2	0.5	6.1	2	98.8	80
150	7.5	42.4	0.5	6.3	2	98.8	80
151	7.7	39.7	0.5	6.5	2	98.8	78
152	8.9	39.4	0.5	7.6	2	98.8	78
153	8.6	40.8	0.4	7.3	2	98.8	78
154	9.3	40.5	0.5	7.9	2	98.8	78
155	8.7	40.8	0.4	7.4	2	98.8	78
156	7.9	40.4	0.5	6.7	2	98.8	78
157	7.5	39.2	0.4	6.4	2	98.8	78
158	8.6	41.2	0.4	7.3	2	98.8	78
159	9.7	40.9	0.4	8.3	2	98.8	78
160	9.1	41.1	0.5	7.7	2	98.8	78
161	8.7	40.3	0.5	7.3	2	98.8	78
162	9.3	40.5	0.5	7.9	2	98.8	78
163	8.9	41.5	0.5	7.5	2	98.8	78
164	8.3	40.4	0.5	7.1	2	98.8	78
165	6.9	40.8	0.5	5.8	2	98.8	76
166	8.1	42.6	0.5	6.9	2	98.8	76

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

Data Point #	Standardized Wind Speed	LAeq	Rotor RPM	10m Anemometer Wind Speed (m/s)	Air Temperature (-C)	Pressure (kPa)	Relative Humidity (%)
167	6.7	41.2	0.5	5.7	2	98.8	76
168	6.7	41.0	0.4	5.7	2	98.8	76
169	7.6	40.4	0.4	6.4	2	98.8	76
170	7.3	41.2	0.4	6.2	2	98.8	77
171	6.6	40.6	0.3	5.6	2	98.8	80
172	6.8	40.9	0.3	5.8	2	98.8	80
173	7.1	40.0	0.4	6.1	2	98.8	80
174	7.2	40.8	0.5	6.1	2	98.8	80
175	7.5	39.5	0.5	6.3	2	98.8	80
176	7.4	40.0	0.5	6.2	2	98.8	80
177	6.7	41.2	0.4	5.7	2	98.8	80
178	7.5	41.7	0.5	6.4	2	98.8	80
179	8.8	40.9	0.5	7.5	2	98.8	80
180	7.6	40.4	0.5	6.5	2	98.8	80
181	6.5	40.2	0.4	5.5	2	98.8	80
182	6.7	39.3	0.4	5.7	2	98.8	80
183	7.9	39.9	0.5	6.7	2	98.8	79
184	7.8	39.1	0.5	6.6	2	98.8	79
185	7.5	39.9	0.5	6.3	2	98.8	79
186	6.9	40.1	0.3	5.8	2	98.8	79
187	6.3	40.0	0.3	5.3	2	98.8	79
188	6.4	40.2	0.4	5.4	2	98.8	79
189	9.0	39.8	0.5	7.6	2	98.8	80
190	8.3	40.0	0.5	7.1	2	98.8	80
191	7.4	40.3	0.5	6.3	2	98.8	80
192	7.9	40.4	0.4	6.7	2	98.8	80
193	8.3	40.4	0.5	7.0	2	98.8	80
194	8.7	40.7	0.5	7.3	2	98.8	79
195	9.2	41.4	0.5	7.8	2	98.8	78
196	9.5	40.5	0.5	8.1	2	98.8	78
197	9.0	40.8	0.4	7.6	2	98.8	78
198	8.0	43.2	0.4	6.8	2	98.8	78
199	7.8	41.0	0.4	6.6	2	98.8	78
200	7.8	40.8	0.4	6.6	2	98.8	78
201	7.4	40.8	0.4	6.3	2	98.8	79
202	6.9	41.1	0.5	5.9	2	98.8	79
203	8.0	40.9	0.5	6.8	2	98.8	79
204	8.8	40.0	0.5	7.4	2	98.8	76
205	7.4	40.1	0.4	6.3	2	98.8	76
206	8.5	40.0	0.4	7.2	2	98.8	76
207	9.5	40.8	0.6	8.0	2	98.8	77
208	8.7	40.0	0.6	7.4	2	98.8	77
209	9.0	40.4	0.5	7.7	2	98.8	77
210	8.3	40.0	0.5	7.0	2	98.8	77
211	7.0	40.2	0.5	5.9	2	98.8	77
212	7.7	41.4	0.5	6.5	2	98.8	77
213	8.7	40.3	0.4	7.4	2	98.8	78
214	7.9	39.4	0.4	6.7	2	98.8	78
215	9.1	40.6	0.5	7.7	2	98.8	78
216	8.5	39.5	0.5	7.2	2	98.8	78
217	8.3	39.2	0.5	7.0	2	98.8	78
218	9.4	39.2	0.5	8.0	2	98.8	78
219	8.8	39.5	0.4	7.5	2	98.8	78
220	9.7	41.3	0.6	8.2	2	98.8	77
221	10.5	40.7	0.5	8.9	2	98.8	77
222	8.9	40.2	0.5	7.6	2	98.8	77
223	8.4	41.3	0.4	7.1	2	98.8	77
224	7.8	38.5	0.3	6.6	2	98.8	77
225	7.5	39.5	0.4	6.3	2	98.8	78
226	7.0	40.6	0.5	5.9	2	98.8	79
227	7.0	40.5	0.4	5.9	2	98.8	79
228	7.1	39.8	0.4	6.0	2	98.8	79
229	6.4	39.3	0.5	5.4	2	98.8	79
230	6.8	40.3	0.5	5.8	2	98.8	79
231	7.1	39.6	0.4	6.0	2	98.8	79
232	7.0	40.2	0.4	6.0	2	98.8	80
233	6.2	39.5	0.5	5.3	2	98.8	80
234	7.5	39.5	0.6	6.4	2	98.8	80
235	7.0	39.9	0.5	6.0	2	98.8	80
236	6.6	40.3	0.4	5.6	2	98.8	80
237	7.0	38.8	0.4	6.0	2	98.8	81
238	6.2	39.8	0.4	5.3	2	98.8	81
239	6.8	39.6	0.4	5.7	2	98.8	81
240	6.5	39.8	0.5	5.5	2	98.8	81
241	6.4	40.6	0.5	5.4	2	98.8	81
242	6.6	40.2	0.4	5.6	2	98.8	81
243	7.0	40.5	0.4	5.9	2	98.8	80
244	7.0	42.0	0.4	5.9	2	98.8	79
245	6.8	40.1	0.4	5.8	2	98.8	79
246	6.6	40.4	0.5	5.6	2	98.8	79
247	7.7	39.7	0.4	6.5	2	98.8	79
248	7.2	40.1	0.5	6.1	2	98.8	79
249	7.0	39.3	0.5	5.9	2	98.8	79

Table E.02 Measurement data - Background

Project: Jericho Wind Energy Centre - Turbine J_WTG89 - IEC 61400-11 Measurement

Report ID: 14462.00.J_WTG89.RP3

Created on: 4/17/2018

***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	6.8	40.2	0.5	5.8	2	98.8	80
251	6.8	40.2	0.4	5.8	2	98.8	80
252	7.4	39.8	0.3	6.3	2	98.8	80
253	6.0	41.2	0.3	5.1	2	98.8	80
254	5.9	40.5	0.4	5.0	2	98.8	80
255	6.2	40.9	0.5	5.2	2	98.8	81
256	5.9	40.6	0.4	5.0	2	98.8	81
257	6.0	40.2	0.3	5.1	2	98.8	81
258	6.3	39.7	0.3	5.4	2	98.8	81
259	8.5	39.6	0.3	7.2	2	98.8	81
260	8.2	40.0	0.3	6.9	2	98.8	81
261	7.4	39.0	0.3	6.3	2	98.8	79
262	7.3	39.0	0.3	6.2	2	98.8	79
263	6.9	39.0	0.4	5.9	2	98.8	79
264	7.5	39.4	0.4	6.3	2	98.8	79
265	7.0	38.8	0.4	5.9	2	98.8	79
266	6.3	39.2	0.3	5.3	2	98.8	79
267	7.8	39.3	0.4	6.7	2	98.8	80
268	9.1	38.1	0.4	7.7	2	98.8	80
269	9.2	38.9	0.4	7.8	2	98.8	80
270	8.8	39.0	0.4	7.4	2	98.8	80
271	8.1	39.7	0.4	6.9	2	98.8	80
272	6.6	39.7	0.3	5.6	2	98.8	80
273	7.8	40.1	0.4	6.6	2	98.8	79
274	7.7	40.0	0.5	6.5	2	98.8	79
275	7.9	40.2	0.5	6.7	2	98.8	79
276	7.5	40.1	0.5	6.4	2	98.8	79
277	7.4	40.2	0.4	6.3	2	98.8	79
278	6.6	40.8	0.4	5.6	2	98.8	79
279	6.8	41.0	0.4	5.8	2	98.8	80
280	6.7	39.4	0.4	5.7	2	98.8	80
281	6.3	39.9	0.4	5.4	2	98.8	80
282	6.3	39.6	0.4	5.3	2	98.8	80
283	6.0	39.8	0.4	5.1	2	98.8	80
284	5.7	40.0	0.3	4.9	2	98.8	80
285	7.0	39.6	0.4	6.0	2	98.8	82
286	6.6	39.9	0.4	5.6	2	98.8	82
287	6.7	39.7	0.4	5.7	2	98.8	82
288	6.9	40.2	0.4	5.8	2	98.8	82
289	7.0	40.8	0.5	6.0	2	98.8	82
290	7.0	40.3	0.3	5.9	2	98.8	82
291	8.8	39.6	0.4	7.5	2	98.8	80
292	7.1	40.2	0.5	6.0	2	98.8	80
293	7.7	40.4	0.4	6.5	2	98.8	80
294	7.2	39.7	0.4	6.1	2	98.8	80
295	7.0	40.9	0.5	6.0	2	98.8	80
296	6.6	40.9	0.5	5.6	2	98.8	80
297	7.1	40.3	0.4	6.0	2	98.8	80
298	6.3	40.5	0.4	5.3	2	98.8	80
299	6.6	40.6	0.4	5.6	2	98.8	80
300	6.9	41.0	0.4	5.9	2	98.8	80
301	6.8	41.7	0.4	5.7	2	98.8	80
302	5.9	41.4	0.5	5.0	2	98.8	80
303	5.9	41.7	0.5	5.0	2	98.8	81
304	5.5	41.8	0.4	4.6	2	98.8	81
305	5.6	42.4	0.3	4.7	2	98.8	81
306	6.7	42.0	0.4	5.7	2	98.8	81
307	6.4	41.8	0.5	5.5	2	98.8	81
308	6.2	41.3	0.5	5.3	2	98.8	81
309	6.9	40.6	0.4	5.8	2	98.8	82
310	7.4	42.6	0.4	6.3	2	98.8	82
311	7.8	41.4	0.5	6.6	2	98.8	82
312	7.2	42.8	0.5	6.1	2	98.8	82
313	8.0	44.7	0.3	6.8	2	98.8	82
314	8.3	44.3	0.4	7.0	2	98.8	82
315	7.9	43.4	0.4	6.7	2	98.8	79
316	7.7	42.6	0.4	6.5	2	98.8	78
317	7.0	42.9	0.4	5.9	2	98.8	78
318	6.5	43.1	0.4	5.5	2	98.8	78
319	6.7	43.2	0.4	5.7	2	98.8	78
320	6.3	42.8	0.5	5.3	2	98.8	78
321	6.1	41.6	0.4	5.2	2	98.8	81
322	6.5	41.4	0.5	5.5	2	98.8	81
323	7.3	41.8	0.5	6.2	2	98.8	81
324	6.7	41.6	0.4	5.7	2	98.8	81
325	6.1	41.7	0.4	5.2	2	98.8	81
326	7.6	40.6	0.3	6.4	2	98.8	81
327	6.5	40.4	0.3	5.5	2	98.8	80
328	6.5	40.6	0.3	5.5	2	98.8	80
329	5.9	41.3	0.3	5.0	2	98.8	80
330	6.8	41.3	0.4	5.8	2	98.8	80
331	6.4	41.5	0.5	5.5	2	98.8	80
332	7.2	40.9	0.4	6.1	2	98.8	80

***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	6.8	41.0	0.5	5.7	2	98.8	81
334	6.7	41.4	0.5	5.7	2	98.8	81
335	6.9	41.0	0.4	5.9	2	98.8	81
336	7.1	41.0	0.4	6.0	2	98.8	81
337	7.6	41.2	0.3	6.4	2	98.8	81
338	7.5	41.1	0.3	6.4	2	98.8	80
339	6.9	40.7	0.3	5.8	2	98.8	80
340	6.7	41.4	0.4	5.7	2	98.8	80
341	6.0	41.4	0.5	5.1	2	98.8	80
342	6.1	43.3	0.4	5.2	2	98.8	80
343	5.1	43.3	0.4	4.3	2	98.8	80
344	5.3	43.6	0.4	4.5	2	98.8	80
345	5.2	42.1	0.4	4.4	2	98.8	82
346	5.3	42.5	0.5	4.5	2	98.8	82
347	6.2	43.3	0.4	5.2	2	98.8	82
348	6.4	42.6	0.3	5.4	2	98.8	82
349	5.3	42.5	0.3	4.5	2	98.8	82
350	5.2	42.3	0.3	4.4	2	98.8	82
351	6.5	41.4	0.4	5.5	2	98.8	82
352	6.6	40.6	0.4	5.6	2	98.8	82
353	6.1	42.3	0.5	5.2	2	98.8	82
354	5.8	40.9	0.5	4.9	2	98.8	82
355	5.6	40.7	0.4	4.8	2	98.8	82
356	6.2	41.1	0.4	5.2	2	98.8	82
357	5.7	42.1	0.5	4.9	2	98.8	82
358	6.3	42.3	0.4	5.3	2	98.7	82
359	7.0	43.0	0.4	5.9	2	98.7	82
360	6.8	41.9	0.4	5.8	2	98.8	82
361	5.8	41.4	0.4	5.0	2	98.7	82
362	6.2	42.6	0.4	5.2	2	98.7	81
363	5.7	42.1	0.4	4.8	2	98.7	81
364	6.6	42.5	0.4	5.6	2	98.7	81
365	6.9	42.7	0.4	5.8	2	98.7	81
366	6.4	42.6	0.4	5.4	2	98.7	81
367	6.5	41.4	0.3	5.5	2	98.7	81
368	6.5	41.5	0.2	5.5	2	98.7	80
369	6.3	40.8	0.3	5.3	2	98.7	80
370	6.3	40.6	0.3	5.4	2	98.7	80
371	5.9	40.6	0.4	5.0	2	98.7	80
372	5.8	41.7	0.3	4.9	2	98.7	80
373	6.1	41.2	0.3	5.2	2	98.7	80
374	5.8	41.1	0.3	4.9	2	98.7	81
375	5.9	40.4	0.3	5.0	2	98.7	81
376	5.7	40.2	0.3	4.8	2	98.7	81
377	5.4	40.3	0.3	4.6	2	98.7	81
378	6.0	39.8	0.3	5.1	2	98.7	81
379	6.4	39.3	0.4	5.4	2	98.7	81
380	6.2	39.4	0.4	5.3	2	98.7	81
381	6.1	39.7	0.3	5.2	2	98.7	81
382	6.0	40.0	0.2	5.1	2	98.7	81
383	5.7	40.1	0.3	4.8	2	98.7	81
384	5.6	39.1	0.3	4.7	2	98.7	81
385	6.1	39.7	0.4	5.2	2	98.7	81
386	5.6	39.3	0.3	4.8	2	98.7	81
387	5.7	39.2	0.4	4.8	2	98.7	81
388	6.1	39.3	0.4	5.2	2	98.7	81
389	5.5	39.2	0.4	4.7	2	98.7	81
390	5.0	38.7	0.4	4.3	2	98.7	81
391	5.3	38.6	0.5	4.5	2	98.7	81
392	5.3	39.1	0.5	4.5	2	98.7	82
393	5.0	38.7	0.4	4.3	2	98.7	83
394	5.1	39.5	0.4	4.4	2	98.7	83
395	5.0	38.9	0.4	4.3	2	98.7	83
396	7.1	38.7	0.4	6.0	2	98.7	83
397	8.0	38.6	0.3	6.8	2	98.7	83
398	6.9	39.1	0.3	5.8	2	98.7	80
399	6.6	38.3	0.3	5.6	2	98.7	78
400	7.2	39.1	0.4	6.1	2	98.7	78
401	6.4	38.7	0.4	5.5	2	98.7	78
402	6.5	38.4	0.5	5.5	2	98.7	78
403	7.3	38.8	0.5	6.2	2	98.7	78
404	6.4	38.6	0.3	5.4	2	98.7	78
405	5.7	38.9	0.3	4.9	2	98.7	78
406	5.7	38.5	0.5	4.8	2	98.7	78
407	6.5	39.1	0.4	5.5	2	98.7	78
408	7.2	38.5	0.4	6.1	2	98.7	78
409	6.6	38.1	0.4	5.6	2	98.7	78
410	6.3	38.2	0.4	5.4	2	98.7	80
411	6.0	38.3	0.5	5.0	2	98.7	80
412	6.8	39.1	0.5	5.8	2	98.7	80
413	5.6	38.5	0.5	4.7	2	98.7	80
414	5.3	38.3	0.5	4.5	2	98.7	80
415	6.6	38.3	0.4	5.6	2	98.7	80

***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	6.1	38.8	0.4	5.2	2	98.7	81
417	6.8	39.4	0.4	5.8	2	98.7	81
418	6.8	39.2	0.4	5.8	2	98.7	81
419	6.2	40.2	0.4	5.3	2	98.7	81
420	6.4	41.1	0.4	5.4	2	98.7	81
421			0.3	5.0	2	98.7	81
422			0.4	5.3	2	98.7	80
423			0.4	5.4	2	98.7	80
424			0.4	5.7	2	98.7	80
425			0.4	5.5	2	98.7	80
426	6.6	40.1	0.4	5.6	2	98.7	80
427	6.9	40.2	0.4	5.9	2	98.7	80
428	6.4	40.1	0.4	5.5	2	98.7	80
429	5.8	39.2	0.4	4.9	2	98.7	79
430	4.8	39.3	0.4	4.1	2	98.7	79
431	4.8	39.1	0.3	4.0	2	98.7	79
432	5.5	38.7	0.4	4.6	2	98.7	79
433	5.0	39.0	0.4	4.3	2	98.7	79
434	5.2	38.7	0.4	4.4	2	98.7	80
435	5.7	38.8	0.3	4.8	2	98.7	81
436	5.6	39.1	0.3	4.8	2	98.7	81
437	4.8	38.5	0.3	4.1	2	98.7	81
438	5.5	39.1	0.4	4.7	2	98.7	81
439	5.1	40.1	0.4	4.3	2	98.7	81
440	5.7	40.3	0.4	4.9	2	98.7	82
441	5.0	39.5	0.5	4.2	2	98.7	82
442	5.3	38.4	0.4	4.5	2	98.7	82
443	5.9	39.5	0.3	5.0	2	98.7	82
444	6.8	39.0	0.5	5.7	2	98.7	82
445	6.3	37.2	0.5	5.3	2	98.7	82
446	5.4	38.1	0.6	4.6	2	98.7	81
447	4.0	38.1	0.6	3.4	2	98.7	81
448	4.3	38.3	0.5	3.7	2	98.7	81
449	6.0	37.7	0.5	5.1	2	98.7	81
450	6.8	37.9	0.5	5.8	2	98.7	81
451	6.6	38.3	0.4	5.6	2	98.7	81
452	6.1	37.9	0.4	5.2	2	98.7	79
453	6.1	38.5	0.4	5.1	2	98.7	79
454	5.4	39.9	0.5	4.5	2	98.7	79
455	5.9	40.5	0.5	5.0	2	98.7	79
456	4.6	38.4	0.5	3.9	2	98.7	79
457	4.6	38.8	0.5	3.9	2	98.7	80
458	5.5	38.2	0.4	4.7	2	98.7	81
459	6.6	38.8	0.3	5.6	2	98.7	81
460	6.8	38.0	0.4	5.8	2	98.7	81
461	6.9	38.1	0.5	5.9	2	98.7	81
462	7.4	38.0	0.5	6.3	2	98.7	81
463	6.2	38.7	0.5	5.3	2	98.7	81
464	5.6	38.3	0.5	4.8	2	98.7	78
465	5.6	37.6	0.5	4.8	2	98.7	78
466	5.3	38.1	0.5	4.5	2	98.7	78
467	5.3	38.8	0.5	4.5	2	98.7	78
468	5.2	38.5	0.4	4.4	2	98.7	78
469	5.4	38.8	0.4	4.6	2	98.7	79
470	4.9	39.0	0.4	4.2	2	98.7	80
471	6.4	39.3	0.4	5.4	2	98.7	80
472	6.7	40.2	0.5	5.6	2	98.7	80
473	5.4	40.0	0.4	4.6	2	98.7	80
474	6.1	40.3	0.3	5.2	2	98.7	80
475	6.6	39.3	0.4	5.6	2	98.7	80
476	8.9	39.0	0.3	7.6	2	98.7	79
477	7.9	39.6	0.4	6.7	2	98.7	79
478	9.1	39.6	0.5	7.7	2	98.7	79
479	8.0	39.7	0.4	6.8	2	98.7	79
480	6.7	39.4	0.5	5.7	2	98.7	79
481	5.6	39.8	0.5	4.7	2	98.7	79
482	6.2	38.9	0.5	5.3	2	98.7	78
483	5.1	39.5	0.4	4.3	2	98.7	78
484	5.1	39.5	0.4	4.3	2	98.7	78
485	4.8	40.3	0.4	4.1	2	98.7	78
486	5.0	40.8	0.4	4.2	2	98.7	78
487	6.1	40.0	0.4	5.2	2	98.7	79
488	6.3	39.5	0.4	5.3	2	98.7	81
489	5.5	38.4	0.5	4.7	2	98.7	81
490	7.2	39.1	0.6	6.1	2	98.7	81
491	7.3	38.9	0.5	6.2	2	98.7	81
492	7.7	38.1	0.4	6.5	2	98.7	81
493	7.6	38.1	0.4	6.5	2	98.7	80
494	6.3	38.0	0.5	5.4	2	98.7	79
495	7.2	38.5	0.5	6.1	2	98.7	79
496	8.7	38.8	0.4	7.4	2	98.7	79
497	7.8	38.7	0.6	6.6	2	98.7	79
498	6.3	39.6	0.4	5.3	2	98.7	79

Table E.02 Measurement data - Background

Project: Jericho Wind Energy Centre - Turbine J_WTG89 - IEC 61400-11 Measurement

Report ID: 14462.00.J_WTG89.RP3

Created on: 4/17/2018

***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	4.9	39.6	0.4	4.2	2	98.7	79
500	4.6	38.7	0.5	3.9	2	98.7	80
501	6.4	39.0	0.4	5.4	2	98.7	80
502	5.1	38.6	0.4	4.4	2	98.7	80
503	5.6	38.1	0.5	4.8	2	98.7	80
504	6.6	39.3	0.6	5.6	2	98.7	80
505	6.0	38.8	0.5	5.1	2	98.7	80
506	6.9	39.5	0.5	5.9	2	98.7	79
507	7.2	39.7	0.4	6.1	2	98.7	79
508	7.7	39.1	0.4	6.5	2	98.7	79
509	6.4	40.5	0.5	5.5	2	98.7	79
510	5.0	40.6	0.5	4.2	2	98.7	79
511	4.9	39.6	0.5	4.1	2	98.7	80
512	7.0	39.7	0.5	5.9	2	98.7	80
513	7.9	38.7	0.5	6.7	2	98.7	80
514	8.0	38.9	0.5	6.8	2	98.7	80
515	7.0	38.9	0.5	5.9	2	98.7	80
516	6.4	37.8	0.5	5.5	2	98.7	80
517	6.1	36.9	0.4	5.1	2	98.7	80
518	7.9	38.3	0.4	6.7	2	98.7	79
519	9.2	38.2	0.4	7.8	2	98.7	79
520	8.8	38.1	0.4	7.4	2	98.7	79
521	8.1	38.0	0.4	6.9	2	98.7	79
522	6.9	38.2	0.5	5.8	2	98.7	79
523	6.7	38.9	0.4	5.7	2	98.7	79
524	7.2	37.9	0.4	6.1	2	98.7	80
525	7.1	38.3	0.5	6.0	2	98.7	80
526	8.7	38.1	0.5	7.4	2	98.7	80
527	7.5	38.2	0.4	6.3	2	98.7	80
528	7.7	38.4	0.4	6.5	2	98.7	80
529	6.6	38.0	0.5	5.6	3	98.7	81
530	6.1	37.1	0.5	5.2	3	98.7	81
531	6.8	38.6	0.4	5.8	3	98.7	81
532	7.4	37.9	0.4	6.2	3	98.7	81
533	6.6	38.0	0.4	5.6	3	98.7	81
534	7.8	38.6	0.6	6.6	3	98.7	81
535	8.7	38.4	0.5	7.4	3	98.7	80
536	9.1	40.8	0.7	7.7	5	98.6	69
537	8.6	40.0	0.4	7.3	5	98.6	69
538	9.1	39.8	0.4	7.7	5	98.6	69
539	9.2	40.2	0.4	7.8	5	98.6	69
540	9.2	39.5	0.4	7.8	5	98.6	70
541	8.4	39.3	0.5	7.1	5	98.6	70
542	8.0	39.3	0.5	6.8	5	98.6	70
543	8.0	40.1	0.5	6.8	5	98.6	70
544	7.9	39.8	0.4	6.7	5	98.6	70
545	9.5	39.3	0.4	8.1	5	98.6	70
546	10.1	39.7	0.5	8.6	5	98.6	69
547	8.8	39.2	0.4	7.4	5	98.6	68
548	9.4	40.0	0.3	8.0	5	98.6	68
549	9.7	39.6	0.4	8.2	5	98.6	68
550	8.2	39.9	0.5	7.0	5	98.6	68
551	8.0	39.6	0.4	6.8	5	98.6	68
552	8.5	40.2	0.4	7.2	5	98.6	69
553	7.3	42.2	0.4	6.2	5	98.6	70
554	7.5	42.1	0.4	6.4	5	98.6	70
555	7.7	39.9	0.5	6.5	5	98.6	70
556	8.5	41.3	0.5	7.2	5	98.6	70
557	9.5	39.7	0.4	8.0	5	98.6	70
558	9.7	40.3	0.5	8.3	5	98.6	69
559	9.2	42.0	0.5	7.8	5	98.6	68
560	8.8	39.6	0.4	7.5	5	98.6	68
561	7.5	40.0	0.4	6.4	5	98.6	68
562	7.7	38.7	0.4	6.5	5	98.6	68
563	7.5	39.5	0.4	6.4	5	98.6	68
564	9.0	39.4	0.4	7.6	5	98.6	69
565	10.0	40.8	0.5	8.5	5	98.6	69
566	9.1	40.0	0.4	7.7	5	98.6	69
567	10.0	40.4	0.4	8.4	5	98.6	69
568	9.9	40.5	0.4	8.4	5	98.6	69
569	10.0	40.5	0.5	8.4	5	98.6	69
570	9.7	39.6	0.5	8.3	5	98.6	68
571	10.5	39.5	0.5	8.9	5	98.6	67
572	11.1	40.0	0.5	9.4	5	98.6	67
573	10.4	39.0	0.5	8.9	5	98.6	67
574	9.1	40.7	0.6	7.7	5	98.6	67
575	8.1	40.9	0.6	6.9	5	98.6	67
576	11.0	41.3	0.6	9.4	5	98.6	68
577	11.4	39.9	0.6	9.7	5	98.6	69
578	11.5	41.0	0.5	9.7	5	98.6	69
579	11.4	43.9	0.5	9.7	5	98.6	69
580	11.7	43.0	0.4	10.0	5	98.6	69
581	10.6	38.9	0.3	9.0	5	98.6	69

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

Data Point #	Standardized Wind Speed	LAeq	Rotor RPM	10m Anemometer Wind Speed (m/s)	Air Temperature (-C)	Pressure (kPa)	Relative Humidity (%)
582	9.6	40.6	0.5	8.1	5	98.6	66
583	10.4	40.4	0.5	8.8	5	98.6	66
584	10.4	39.5	0.4	8.9	5	98.6	66
585	10.0	40.6	0.4	8.5	5	98.6	66
586	9.1	39.9	0.4	7.7	5	98.6	66
587	7.8	40.9	0.4	6.6	5	98.6	66
588	8.2	40.4	0.5	6.9	5	98.6	68
589	9.6	40.5	0.7	8.1	5	98.6	69
590	8.8	41.4	0.6	7.5	5	98.6	69
591	8.2	41.1	0.5	6.9	5	98.6	69
592	7.8	39.5	0.5	6.7	5	98.6	69
593	8.7	42.0	0.6	7.3	5	98.6	69
594	9.1	39.4	0.4	7.7	5	98.6	68
595	8.3	40.5	0.4	7.0	5	98.6	68
596	7.0	41.6	0.3	5.9	5	98.6	68
597	7.7	40.8	0.6	6.5	5	98.6	68
598	7.6	39.7	0.6	6.4	5	98.6	68
599	6.8	39.0	0.4	5.8	5	98.6	68
600	8.4	38.9	0.4	7.1	5	98.6	71
601	11.9	41.6	0.4	10.1	5	98.6	72
602	11.5	39.7	0.5	9.8	5	98.6	72
603	9.6	40.6	0.5	8.2	5	98.6	72
604	9.7	40.7	0.4	8.2	5	98.6	72
605	9.9	41.8	0.4	8.4	5	98.6	72
606	10.8	40.4	0.5	9.1	5	98.6	67
607	11.4	41.2	0.5	9.7	5	98.6	66
608	11.3	41.5	0.4	9.6	5	98.6	66
609	11.1	39.4	0.4	9.4	5	98.6	66
610	10.2	39.2	0.3	8.6	5	98.6	66
611	9.7	41.9	0.5	8.2	5	98.6	66
612	7.5	42.8	0.5	6.4	6	98.6	68
613	8.7	38.4	0.5	7.4	6	98.6	68
614	8.9	39.2	0.5	7.5	6	98.6	68
615	9.3	39.3	0.4	7.9	6	98.6	68
616	6.6	41.1	0.3	5.6	6	98.6	68
617	6.2	39.7	0.4	5.3	6	98.6	68
618	10.1	43.4	0.6	8.6	6	98.6	71
619	10.5	44.5	0.5	8.9	6	98.6	71
620	11.1	39.2	0.7	9.4	6	98.6	71
621	11.3	36.7	0.7	9.6	6	98.6	71
622	10.5	38.4	0.6	8.9	6	98.6	71
623	10.8	39.0	0.5	9.1	6	98.6	70
624	11.1	37.3	0.6	9.4	6	98.6	63
625	9.5	38.2	0.5	8.0	6	98.6	63
626	10.0	38.3	0.6	8.5	6	98.6	63
627	10.3	39.7	0.5	8.7	6	98.6	63
628	9.0	37.4	0.5	7.6	6	98.6	63
629	9.3	38.6	0.6	7.9	6	98.6	64
630	9.7	38.3	0.6	8.3	6	98.6	66
631	9.5	37.8	0.5	8.0	6	98.6	66
632	9.3	37.8	0.5	7.9	6	98.6	66
633	10.9	37.2	0.7	9.3	6	98.6	66
634	10.1	39.6	0.7	8.6	6	98.6	66
635	9.7	37.4	0.5	8.2	6	98.6	66
636	9.5	36.8	0.4	8.1	6	98.6	65
637	10.5	37.9	0.4	8.9	6	98.6	65
638	8.7	38.8	0.5	7.4	6	98.6	65
639	9.2	38.1	0.5	7.8	6	98.6	65
640	8.3	40.3	0.4	7.0	6	98.6	65
641	7.3	43.5	0.5	6.2	6	98.6	66
642	7.9	38.3	0.5	6.7	6	98.6	70
643	10.9	40.4	0.5	9.2	6	98.6	70
644	9.8	40.6	0.5	8.3	6	98.6	70
645	9.1	41.4	0.6	7.7	6	98.6	70
646	9.8	42.3	0.5	8.3	6	98.6	70
647	9.3	39.1	0.6	7.9	6	98.6	69
648	10.2	38.8	0.6	8.6	6	98.6	67
649	9.0	38.0	0.5	7.6	6	98.6	67
650	8.5	38.1	0.4	7.2	6	98.6	67
651	7.5	38.1	0.4	6.4	6	98.6	67
652	8.1	37.8	0.7	6.9	6	98.6	67
653	9.3	37.8	0.7	7.9	6	98.6	67
654	10.8	40.3	0.5	9.2	6	98.6	66
655	10.3	41.2	0.3	8.7	6	98.6	66
656	9.8	38.2	0.2	8.3	6	98.6	66
657	10.0	38.7	0.3	8.5	6	98.6	66
658	9.4	41.0	0.3	8.0	6	98.6	66
659	9.4	40.2	0.3	8.0	6	98.6	66
660	8.5	39.1	0.4	7.2	6	98.6	65
661	8.6	39.0	0.3	7.3	6	98.6	65
662	8.0	38.4	0.4	6.8	6	98.6	65
663	6.7	38.4	0.4	5.7	6	98.6	65
664	7.6	37.5	0.4	6.4	6	98.6	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 (%)
665	9.2	39.9	0.4	7.8	6	98.6	66
666	9.6	37.6	0.5	8.1	6	98.6	66
667	10.8	39.9	0.5	9.2	6	98.6	66
668	10.0	40.5	0.5	8.5	6	98.6	66
669	9.6	38.2	0.4	8.2	6	98.6	66
670	9.1	38.0	0.5	7.7	6	98.6	66
671	8.8	37.6	0.5	7.5	6	98.6	67
672	8.7	38.0	0.4	7.4	6	98.6	67
673	8.6	39.0	0.4	7.3	6	98.6	67
674	8.8	38.9	0.3	7.4	6	98.6	67
675	7.3	38.0	0.5	6.1	6	98.6	67
676	9.5	39.9	0.5	8.0	6	98.6	67
677	10.8	37.9	0.5	9.2	6	98.6	66
678	9.2	37.8	0.5	7.8	6	98.6	64
679	9.3	42.2	0.5	7.9	6	98.6	64
680	8.0	38.0	0.4	6.8	6	98.6	64
681	9.1	39.2	0.3	7.7	6	98.6	64
682	10.0	40.8	0.4	8.5	6	98.6	64
683	8.6	39.4	0.4	7.3	6	98.6	65
684	9.0	40.1	0.3	7.6	6	98.6	65
685	9.4	37.8	0.3	7.9	6	98.6	65
686	8.3	41.0	0.3	7.0	6	98.6	65
687	8.2	39.3	0.5	7.0	6	98.6	65
688	8.0	41.7	0.5	6.8	6	98.6	65
689	8.9	43.0	0.5	7.5	6	98.6	66
690	8.9	41.5	0.5	7.6	6	98.6	67
691	8.4	41.2	0.6	7.2	6	98.6	67
692	8.7	40.3	0.7	7.4	6	98.6	67
693	9.7	40.5	0.5	8.2	6	98.6	67
694	9.2	39.8	0.5	7.8	6	98.6	67
695	9.9	39.9	0.5	8.4	7	98.6	64
696	10.1	38.4	0.4	8.6	7	98.6	61
697	9.6	39.5	0.4	8.1	7	98.6	61
698	10.1	41.0	0.5	8.6	7	98.6	61
699	9.0	41.0	0.3	7.6	7	98.6	61
700	8.0	40.7	0.5	6.8	7	98.6	61
701	7.7	39.1	0.5	6.5	7	98.6	63
702	9.1	38.0	0.1	7.7	6	98.6	64
703	10.3	37.4	0.1	8.7	6	98.6	64
704	9.5	39.6	0.5	8.1	6	98.6	64
705	7.7	37.8	0.4	6.6	6	98.6	64
706	11.2	38.0	0.4	9.5	6	98.6	64
707	11.7	38.1	0.5	9.9	6	98.6	63
708	11.6	37.8	0.4	9.9	6	98.6	63
709	12.5	38.6	0.6	10.6	6	98.6	63
710	10.7	39.1	0.5	9.1	6	98.6	63
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aercoustics

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

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

Appendix F
Information for the Regulator

aercoustics

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

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

Appendix F.01
Calibration Certificates

ISO17025

As Found RECALIBRATION CERTIFICATE

Sales Region:	NA
Account:	Aercoustics Engineering Limited
Instrument:	LMS SCADAS
Manufacturer:	Siemens Industry Software B.V.
Type:	SCR202
Serial number(s):	22163146
Calibration method:	Two calibrated external standards (DC voltage and frequency) are used to calibrate the internal 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 23.4°C ± 0.3°C and a relative humidity of 19% ± 5%.
Calibration date:	February 27, 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, February 27 2018

Calibration performed by:

Hans Dam, Customer Service Engineer

Certificate approved by:

Frank Lemmens, Production Manager

Siemens Industry Software B.V.
Weidehek 53
4824 AT Breda
The Netherlands
Phone: +31 76 573 6363

West Caldwell Calibration Laboratories Inc.

Certificate of Calibration

for

MICROPHONE & PREAMPLIFIER

Manufactured by:	BRUEL & KJAER
Model No:	4189-2671
Serial No:	3060528-2369795
Calibration Recall No:	27511

Submitted By:

Customer:

Company: AEROCOUSTICS 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. 4189-2671 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: 16-Jun-17

Certificate No: 27511 - 2

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 & Preamplifier Model No.: 4189&2671 Serial No.: 3060528-2369795
Mic. Model No.: 4189 Serial No.: 3060528
Preamp Model No.: 2671 Serial No.: 2369795
Company: Aercoustics Engineering LTD I. D. No.: XXXX

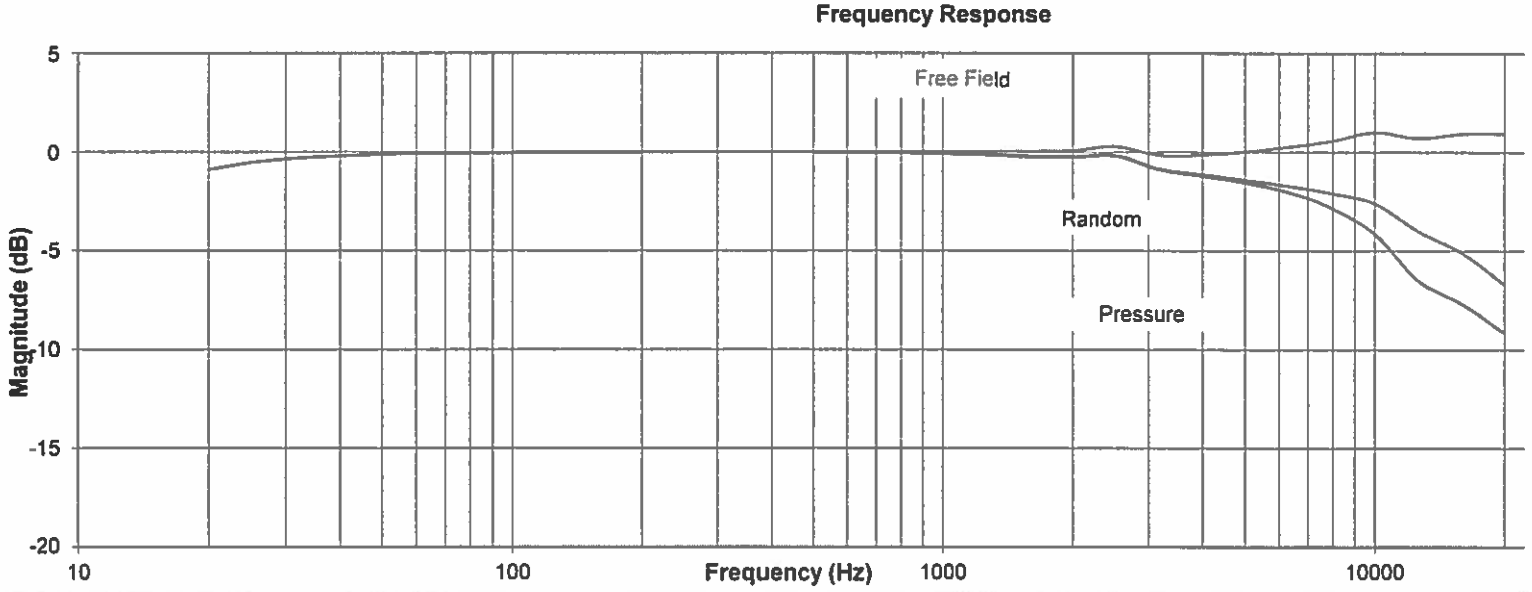
Calibration results:

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

Combined Sensitivity @ 250 Hz and pressure of 98.803 kPa
(Sens. with mic. and preamp.) 0 Volts Polarization voltage (External):
-26.38 dB re.1V/Pascal
47.95 mV/Pascal
0.38 Ko (- dB re 50 mV/Pascal)
Sensitivity: Pass
Freq. Response: Pass
All tests: Pass

Ambient Temperature:	23.3	°C
Ambient Humidity:	48.8	% RH
Ambient Pressure:	98.803	kPa
Calibration Date:	16-Jun-2017	
Re-calibration Due:	16-Jun-2018	
Report Number:	27511	-2
Control Number:	27511	

The above listed instrument meets or exceeds the tested manufacturer's specifications.
The IEC 651:1979 & 1993 Type 1 and ANSI S1.4 1983 Type 2 specification passed.
This Calibration is traceable through NIST test numbers: 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 P4189&2671B&K**

Calibration was performed by West Caldwell Calibration Laboratories Inc. under Operating Procedures intended to implement the requirements of ISO10012-1, IEC Guide 25, ANSI/NCSL Z540-1, (MIL-STD-45662A) and ISO 9001:2008, ISO 17025

Measurements performed by: .....
James Zhu

Calibrated on WCCL system type 9700

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

Calibration Data Record

for

Brüel & Kjær Microphone & Preamplifier **Model No.: 4189&2671** **Serial No.: 3060528-2369795**
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	-0.88	-0.88	-0.88
25.12	-0.52	-0.52	-0.52
31.62	-0.31	-0.31	-0.31
39.81	-0.20	-0.20	-0.20
50.12	-0.11	-0.11	-0.11
63.10	-0.07	-0.07	-0.07
79.43	-0.04	-0.04	-0.04
100.00	-0.02	-0.02	-0.02
125.89	-0.02	-0.02	-0.02
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	0.01	0.00
398.11	0.00	0.01	0.00
501.19	-0.01	0.02	-0.01
630.96	-0.02	0.02	-0.02
794.33	-0.03	0.03	-0.03
1000.00	-0.07	0.03	-0.09
1258.93	-0.11	0.04	-0.15
1584.89	-0.19	0.03	-0.24
1995.26	-0.24	0.08	-0.25
2511.89	-0.19	0.29	-0.15
3162.28	-0.86	-0.15	-0.82
3981.07	-1.20	-0.13	-1.11
5011.87	-1.54	0.04	-1.40
6309.57	-2.01	0.27	-1.70
7943.28	-2.81	0.57	-2.06
10000.00	-4.12	1.00	-2.59
12589.25	-6.49	0.71	-3.98
15848.93	-7.66	0.93	-5.08
19952.62	-9.12	0.93	-6.64

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: 16-Jun-2017 **Tested by: James Zhu**

Calibrated on WCCL system type 9700

West Caldwell Calibration Laboratories Inc.

Certificate of Calibration

for

ACOUSTICAL CALIBRATOR

Manufactured by:	BRUEL & KJAER
Model No:	4231
Serial No:	2513182
Calibration Recall No:	27880

Submitted By:

Customer:

Company: Aercoustics Egineering 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.

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: 25-Jul-17

Felix Christopher (QA Mgr.)

Certificate No: 27880 - 2

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 Acoustical Calibrator **Model No.: 4231** **Serial No.: 2513182**
Company: Aercoustics Engineering LTD **ID No.: XXXX**

Calibration results:

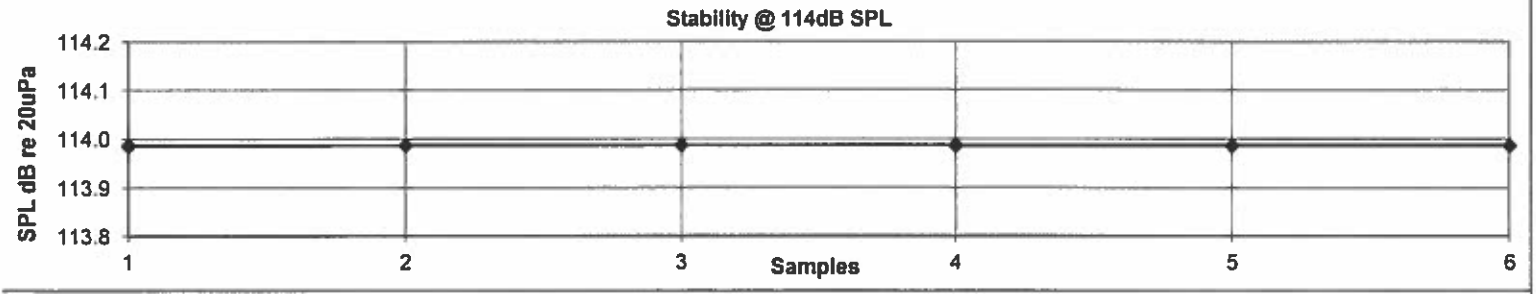
Before data: ..... **After data:** .....
Before & after data same: ...X...
Sound Pressure Level at 1000.0 Hz and pressure of 1013 hPa (mbar)
was 113.99 dB re 20µPa
(Calibrator tested with ½" adaptor UC 0210)
IEC 1094-4 Type WS 2 P Microphone was used for measurement.

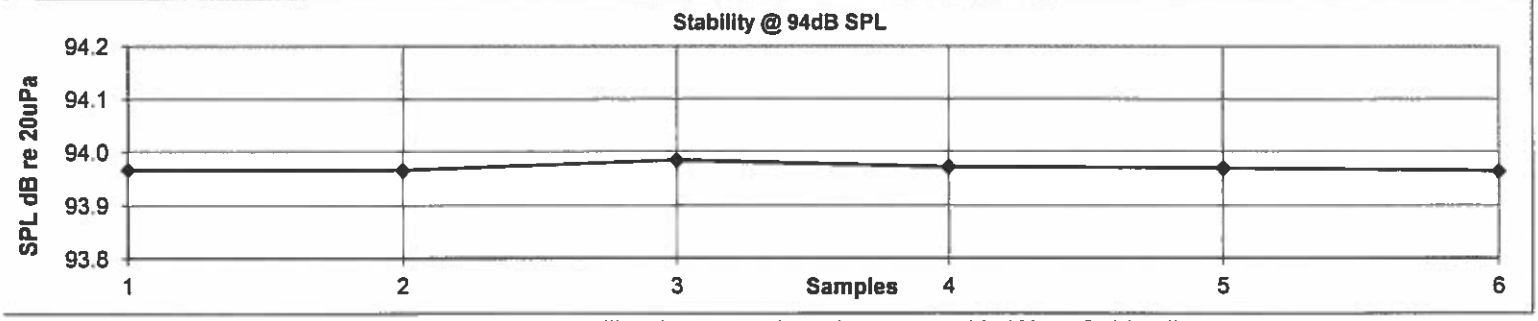
	114dB	94dB
Sound Pressure Level:	Pass	Pass
Frequency:	Pass	Pass
Distortion:	Pass	Pass
Stability:	Pass	Pass
All tested parameters:		Pass

Laboratory Environment:		
Ambient Temperature:	22.6	°C
Ambient Humidity:	54.8	% RH
Ambient Pressure:	99.611	kPa
Calibration Date:	25-Jul-2017	
Calibration Due:	25-Jul-2019	
Report Number:	27880 -2	
Control Number:	27880	

The above listed instrument meets or exceeds the tested manufacturer's specifications
The IEC 942:1988 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: 0.09dB at 95% confidence level with a coverage factor of k=2.

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: 25-Jul-2017

Measurements performed by: .....
James Zhu

Calibrated on WCCL system type 9700

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

Calibration Data Record

for

Brüel & Kjær Acoustical Calibrator **Model No.: 4231** **Serial No.: 2513182**
Company: Aercoustics Engineering LTD

All tested parameters: Pass

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

Sample	1	113.99 dB re 20µPa		93.97 dB re 20µPa	
	2	113.99		93.97	
	3	113.99		93.98	
	4	113.99		93.97	
	5	113.99		93.97	
	6	113.99		93.96	
	Average	**113.99**	Spec. 114dB ± 0.2dB	**93.97**	Spec. 94dB ± 0.2dB

Frequency measured (Three samples at 30 sec. Interval)

Sample	1	999.98 Hz		1000.00 Hz	
	2	999.98		999.96	
	3	999.98		999.95	
	Average	**999.98**		**999.97**	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	-49.9 dB		-46.6 dB	Spec. ≤-40dB

Instruments used for calibration:			Date of Cal.	Traceability No.	Re-cal. Due Date
Brüel & Kjær	4231	S/N 2205492	1-Nov-2016	683/284413-14	1-Nov-2017
Brüel & Kjær	4134	S/N 173494	1-Nov-2016	683/284413-14	1-Nov-2017
Brüel & Kjær	2669	S/N 1835080	1-Nov-2016	683/284413-14	1-Nov-2017
HP	34401A	S/N MY440029	1-Nov-2016	,287708	1-Nov-2017
Brüel & Kjær	2636	S/N 1487493	1-Nov-2016	683/284413-14	1-Nov-2017
HP	33120A	S/N SG400116	1-Nov-2016	,287708	1-Nov-2017

Cal. Date: 25-Jul-2017 **Tested by: James Zhu**

Calibrated on WCCL system type 9700

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: 16.US2.13242 **Date of issue:** November 1, 2016

Type: Vaisala Weather Transmitter, WXT520 **Serial number:** K4250007.0Deg

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

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

Anemometer received: October 28, 2016 **Anemometer calibrated:** 12:26 November 1, 2016

Calibrated by: cjf **Procedure:** MEASNET, IEC 61400-12-1:2005(E) Annex F

Certificate prepared by: cjf **Approved by:** Calibration engineer, rds

Calibration equation obtained: v [m/s] = 1.02488 · f [m/s] + 0.20659

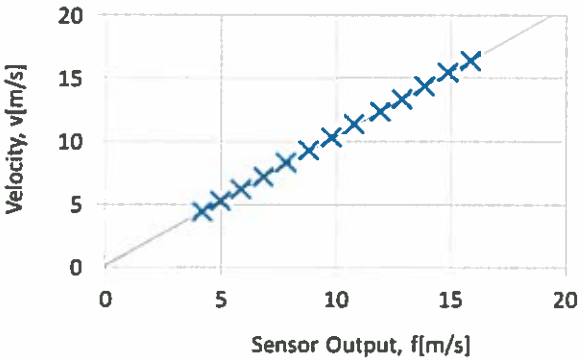
Standard uncertainty, slope: 0.00515 **Standard uncertainty, offset:** 0.26065

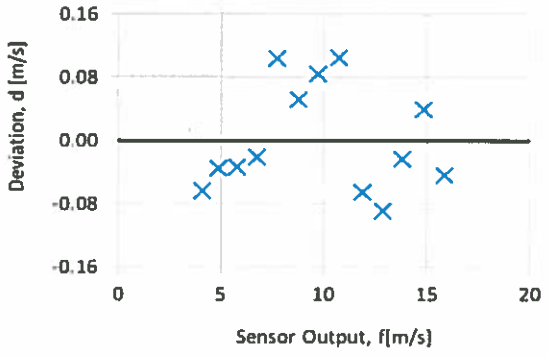
Covariance: -0.0002755 (m/s)²/ m/s **Coefficient of correlation:** ρ = 0.999854

Absolute maximum deviation: 0.104 m/s at 11.380 m/s

Barometric pressure: 1011.4 hPa **Relative humidity:** 24.4%

Succession	Velocity pressure, q. [Pa]	Temperature in wind tunnel [°C]	d.p. box [°C]	Wind velocity, v. [m/s]	Anemometer Output, f. [m/s]	Deviation, d. [m/s]	Uncertainty u_c (k=2) [m/s]
2	10.30	23.9	26.8	4.415	4.1690	-0.065	0.024
4	14.60	24.0	26.8	5.259	4.9655	-0.036	0.025
6	20.25	24.0	26.8	6.170	5.8517	-0.034	0.027
8	27.59	24.0	26.8	7.189	6.8345	-0.022	0.029
10	36.37	24.0	26.8	8.304	7.8000	0.103	0.032
12	46.01	23.9	26.8	9.312	8.8345	0.051	0.035
13-last	56.51	23.9	26.8	10.327	9.7931	0.084	0.038
11	69.14	23.9	26.8	11.380	10.8000	0.104	0.042
9	83.91	24.0	26.8	12.372	11.9345	-0.066	0.045
7	98.08	24.0	26.8	13.324	12.8862	-0.089	0.048
5	114.02	24.0	26.8	14.379	13.8517	-0.024	0.052
3	131.07	23.9	26.8	15.498	14.8828	0.038	0.055
1-first	149.22	23.9	26.8	16.423	15.8655	-0.044	0.058





AC-1746

EQUIPMENT USED

Serial Number	Description
Njord 2	Wind tunnel, blockage factor = 1.004
13924	Control cup anemometer
-	Mounting tube, D = 30 mm
TT001	Summit RT-AUI, wind tunnel
TP001	Summit RT-AUI, differential pressure box
DP007	Setra Model 239 pressure transducer
HY003	Dwyer Instruments RHP-2D20 humidity transmitter
BP003	Setra Model 278 barometer
PL3	Pitot tube
XB001	Computer Board. 16 bit A/D data acquisition board
66GSPS1	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 2.5 x 2.5 m.

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.

Certificate number: 16.US2.13242

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: 16.US2.13243 **Date of issue:** November 1, 2016

Type: Vaisala Weather Transmitter, WXT520 **Serial number:** K4250007.90deg

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

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

Anemometer received: October 28, 2016 **Anemometer calibrated:** 12:55 November 1, 2016

Calibrated by: ejf **Procedure:** MEASNET, IEC 61400-12-1:2005(E) Annex F

Certificate prepared by: ejf **Approved by:** Calibration engineer, rds

Calibration equation obtained: v [m/s] = 1.03019· f [m/s] + 0.33373

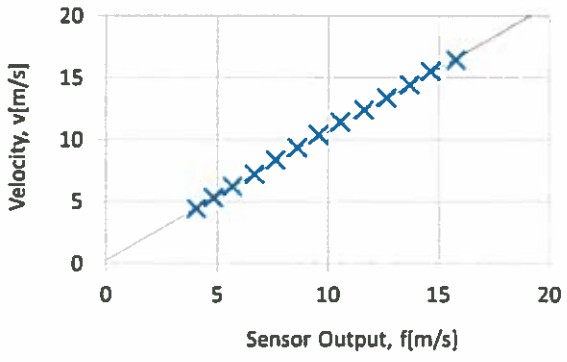
Standard uncertainty, slope: 0.00815 **Standard uncertainty, offset:** 0.25263

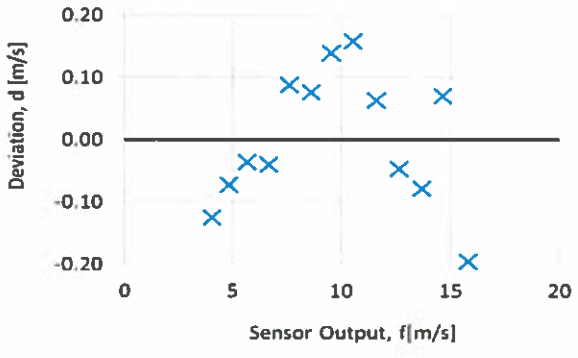
Covariance: -0.0006847 (m/s)²/ m/s **Coefficient of correlation:** $\rho = 0.999635$

Absolute maximum deviation: 0.195 m/s at 16.423 m/s

Barometric pressure: 1010.8 hPa **Relative humidity:** 24.4%

Succession	Velocity pressure, q. [Pa]	Temperature in wind tunnel [°C]	d.p. box [°C]	Wind velocity, v. [m/s]	Anemometer Output, f. [m/s]	Deviation, d. [m/s]	Uncertainty u_c (k=2) [m/s]
2	10.27	23.9	26.8	4.415	4.0828	-0.125	0.024
4	14.54	24.0	26.8	5.259	4.8517	-0.072	0.025
6	20.18	24.0	26.8	6.170	5.7000	-0.036	0.027
8	27.60	24.0	26.8	7.189	6.6931	-0.040	0.029
10	36.22	24.0	26.8	8.304	7.6517	0.088	0.032
12	45.89	24.0	26.8	9.312	8.6414	0.076	0.035
13-last	56.62	23.9	26.8	10.327	9.5655	0.139	0.038
11	68.84	24.0	26.8	11.380	10.5690	0.158	0.041
9	83.82	24.0	26.8	12.372	11.6241	0.063	0.045
7	97.78	24.0	26.8	13.324	12.6552	-0.047	0.048
5	113.96	24.0	26.8	14.379	13.7103	-0.079	0.052
3	130.87	23.9	26.8	15.498	14.6517	0.070	0.055
1-first	149.36	23.9	26.8	16.423	15.8069	-0.195	0.058





AC-1746

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BP003	Setra Model 278 barometer
PL3	Pitot tube
XB001	Computer Board. 16 bit A/D data acquisition board
66GSPS1	PC dedicated to data acquisition

Traceable calibrations of the equipment are carried out by external accredited institutions: Atlantic Scale, Esseo 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 2.5 x 2.5 m.

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.

Certificate number: 16.US2.13243

TRANSCAT CANADA
Trust in every measure

CERTIFICATE OF CALIBRATION

SCC Accredited LAB — LAB Accrédité CCN — SCC Lab No 827

CLAS NRC CNRC — CLAS 2016-02

Customer: AEROCOUSTICS ENGINEERING LTD
1004 MIDDLEGATE ROAD
SUITE 1100
MISSISSAUGA, ON L4Y 1M4
PO Number: 2017.01.12C

Certificate/SO Number: 33-Q0M0D-20-1 Revision 0

Manufacturer: Nokeval
Model Number: 7470
Description: Serial to Analog Converter
Serial Number: A165164
ID: NONE

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

Calibration Date: Feb 02, 2017
Due Date: Feb 02, 2019

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 on this Certificate of Calibration. Any measurements on an accredited calibration not covered by that Lab's Scope of Accreditation are listed in the notes section of the certificate. This report must not be used to claim product certification, approval, or endorsement by NVLAP, NIST, SCC, NRC, CLAS, ANAB or any agency of the Federal Government. NVLAP, NIST, 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 Revision I, ISO 9001:2008, ANSI/NCSL Z540.1-1994 (R2002), and ISO 10012:2003. When specified contractually, the requirements of ISO TS16949:2009, 10CFR21, 10CFR50 App. B and ASME NQA-1:2012 are also covered. Complete records of work performed are maintained by Transcat and are available for inspection. Laboratory standards used in the performance of this calibration are shown on the Supplemental Report.

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 recognized 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 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 on the Supplemental Report. 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, and the determination of in or out of tolerance is specific to the model/serial no. referenced above based on the tolerances shown on the supplemental report; these tolerances are either the original equipment manufacturer's (OEM's) warranted specifications or the client's requested specifications. Any number of factors can cause a unit to drift out of tolerance at any time following its calibration. Limitations on the uses of this instrument are detailed in the OEM's operating instructions. 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).

TRANSCAT CANADA
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CERTIFICATE OF CALIBRATION

SCC Accredited LAB
LAB Accrédité CCN
SCC Lab No 827

CLAS NRC·CNRC
CLAS 2016-02

Customer: AEROCOUSTICS ENGINEERING LTD
1004 MIDDLEGATE ROAD
SUITE 1100
MISSISSAUGA, ON L4Y 1M4
PO Number: 2017.01.12C

Certificate/SO Number: 33-Q0M0D-20-1 Revision 0

As Found/As Left Data

Description	Setpoints	Accuracy	Low Limit	High Limit	As Found / As Left	OOT	Cal Process Uncertainty (k=2; ±)	Measurement Uncertainty (k=2; ±)	Units	TUR
DC Current % Source - 4-20mA Ch #1										
4 - 20mA	0%	±(0.1% Span)	3.984	4.016	4.002 mA		1.6e-004	1.9e-003	mA	100.0 : 1
	25%	±(0.1% Span)	7.984	8.016	8.003 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	16.001 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
DC Current % Source - 4-20mA Ch #2										
4 - 20mA	0%	±(0.1% Span)	3.984	4.016	4.004 mA		1.6e-004	1.9e-003	mA	100.0 : 1
	25%	±(0.1% Span)	7.984	8.016	7.998 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	16.001 mA		1.3e-004	1.9e-003	mA	100.0 : 1
	100%	±(0.1% Span)	19.984	20.016	20.001 mA		1.4e-003	2.3e-003	mA	11.4 : 1
DC Current % Source - 4-20mA Ch #3										
4 - 20mA	0%	±(0.1% Span)	3.984	4.016	3.999 mA		1.6e-004	1.9e-003	mA	100.0 : 1
	25%	±(0.1% Span)	7.984	8.016	8.000 mA		2.7e-004	1.9e-003	mA	59.3 : 1
	50%	±(0.1% Span)	11.984	12.016	12.003 mA		1.1e-003	2.2e-003	mA	14.5 : 1
	75%	±(0.1% Span)	15.984	16.016	16.004 mA		1.3e-003	2.3e-003	mA	12.3 : 1
	100%	±(0.1% Span)	19.984	20.016	19.999 mA		1.1e-003	2.2e-003	mA	14.5 : 1
DC Current % Source - 4-20mA Ch #4										
4 - 20mA	0%	±(0.1% Span)	3.984	4.016	4.003 mA		1.6e-004	1.9e-003	mA	100.0 : 1
	25%	±(0.1% Span)	7.984	8.016	8.006 mA		2.7e-004	1.9e-003	mA	59.3 : 1
	50%	±(0.1% Span)	11.984	12.016	12.010 mA		1.1e-003	2.2e-003	mA	14.5 : 1
	75%	±(0.1% Span)	15.984	16.016	16.007 mA		1.3e-003	2.3e-003	mA	12.3 : 1
	100%	±(0.1% Span)	19.984	20.016	20.008 mA		1.4e-003	2.3e-003	mA	11.4 : 1

TRANSCAT CANADA
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CERTIFICATE OF CALIBRATION

SCC Accredited LAB
LAB Accrédité CCN
SCC Lab No 827

CLAS NRC·CNRC
CLAS 2016-02

Customer: AEROCOUSTICS ENGINEERING LTD
1004 MIDDLEGATE ROAD
SUITE 1100
MISSISSAUGA, ON L4Y 1M4
PO Number: 2017.01.12C

Certificate/SO Number: 33-Q0M0D-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	5.003 mA		1.9e-004	2.3e-003	mA	100.0 : 1
	50%	±(0.1% Span)	9.980	10.020	10.002 mA		3.2e-004	2.3e-003	mA	62.5 : 1
	75%	±(0.1% Span)	14.980	15.020	14.999 mA		1.2e-003	2.6e-003	mA	16.7 : 1
	100%	±(0.1% Span)	19.980	20.020	20.000 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	0.000 mA		9.2e-007	2.3e-003	mA	100.0 : 1
	25%	±(0.1% Span)	4.980	5.020	4.999 mA		1.9e-004	2.3e-003	mA	100.0 : 1
	50%	±(0.1% Span)	9.980	10.020	10.002 mA		3.2e-004	2.3e-003	mA	62.5 : 1
	75%	±(0.1% Span)	14.980	15.020	14.999 mA		1.3e-003	2.7e-003	mA	15.4 : 1
	100%	±(0.1% Span)	19.980	20.020	20.000 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	5.001 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	15.002 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 #4										
0 - 20mA	0%	±(0.1% Span)	-0.020	0.020	0.002 mA		9.2e-007	2.3e-003	mA	100.0 : 1
	25%	±(0.1% Span)	4.980	5.020	5.004 mA		1.9e-004	2.3e-003	mA	100.0 : 1
	50%	±(0.1% Span)	9.980	10.020	10.006 mA		3.2e-004	2.3e-003	mA	62.5 : 1
	75%	±(0.1% Span)	14.980	15.020	15.011 mA		1.3e-003	2.7e-003	mA	15.4 : 1
	100%	±(0.1% Span)	19.980	20.020	20.008 mA		1.4e-003	2.7e-003	mA	14.3 : 1

TRANSCAT CANADA
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CERTIFICATE OF CALIBRATION

SCC Accredited LAB — LAB Accrédité CCN — SCC Lab No 827

CLAS ARC·CNRC — CLAS 2016-02

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1004 MIDDLEGATE ROAD
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PO Number: 2017.01.12C

Certificate/SO Number: 33-Q0M0D-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	0.0006 V		5.0e-007	5.8e-004	V	100.0 : 1
	20%	±(0.1% Span)	0.9950	1.0050	0.9987 V		5.5e-006	5.8e-004	V	100.0 : 1
	40%	±(0.1% Span)	1.9950	2.0050	2.0004 V		1.1e-005	5.8e-004	V	100.0 : 1
	60%	±(0.1% Span)	2.9950	3.0050	2.9994 V		1.6e-005	5.8e-004	V	100.0 : 1
	80%	±(0.1% Span)	3.9950	4.0050	4.0011 V		2.1e-005	5.8e-004	V	100.0 : 1
	100%	±(0.1% Span)	4.9950	5.0050	5.0001 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	0.0000 V		5.8e-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	2.0000 V		2.2e-005	5.8e-004	V	100.0 : 1
	60%	±(0.1% Span)	2.9950	3.0050	3.0000 V		1.6e-005	5.8e-004	V	100.0 : 1
	80%	±(0.1% Span)	3.9950	4.0050	4.0020 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	1.0000 V		5.5e-006	5.8e-004	V	100.0 : 1
	40%	±(0.1% Span)	1.9950	2.0050	2.0005 V		1.1e-005	5.8e-004	V	100.0 : 1
	60%	±(0.1% Span)	2.9950	3.0050	2.9993 V		1.6e-005	5.8e-004	V	100.0 : 1
	80%	±(0.1% Span)	3.9950	4.0050	4.0000 V		2.1e-005	5.8e-004	V	100.0 : 1
	100%	±(0.1% Span)	4.9950	5.0050	5.0013 V		2.6e-005	5.8e-004	V	100.0 : 1

TRANSCAT CANADA
Trust in every measure

CERTIFICATE OF CALIBRATION

SCC Accredited LAB — LAB Accrédité CCN — SCC Lab No 827

CLAS NRC·CNRC — CLAS 2016-02

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PO Number: 2017.01.12C

Certificate/SO Number: 33-Q0M0D-20-1 Revision 0

As Found/As Left Data

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DC Voltage % Source - 0-5V Ch#4										
0 -5V	0%	±(0.1% Span)	-0.0050	0.0050	0.0004 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	2.0000 V		1.1e-005	5.8e-004	V	100.0 : 1
	60%	±(0.1% Span)	2.9950	3.0050	3.0020 V		1.6e-005	5.8e-004	V	100.0 : 1
	80%	±(0.1% Span)	3.9950	4.0050	4.0020 V		2.1e-005	5.8e-004	V	100.0 : 1
	100%	±(0.1% Span)	4.9950	5.0050	5.0036 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	4.001 V		2.1e-005	1.2e-003	V	100.0 : 1
	60%	±(0.1% Span)	5.990	6.010	6.002 V		3.1e-005	1.2e-003	V	100.0 : 1
	80%	±(0.1% Span)	7.990	8.010	7.999 V		4.1e-005	1.2e-003	V	100.0 : 1
	100%	±(0.1% Span)	9.990	10.010	9.999 V		5.2e-005	1.2e-003	V	100.0 : 1
DC Voltage % Source - 0-10V Ch#2										
0 - 10V	0%	±(0.1% Span)	-0.010	0.010	0.001 V		5.0e-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	4.002 V		2.1e-005	1.2e-003	V	100.0 : 1
	60%	±(0.1% Span)	5.990	6.010	6.002 V		3.1e-005	1.2e-003	V	100.0 : 1
	80%	±(0.1% Span)	7.990	8.010	8.006 V		4.1e-005	1.2e-003	V	100.0 : 1
	100%	±(0.1% Span)	9.990	10.010	9.999 V		5.2e-005	1.2e-003	V	100.0 : 1

TRANSCAT CANADA
Trust in every measure

CERTIFICATE OF CALIBRATION

SCC Accredited LAB — LAB Accrédité CCN — SCC Lab No 827

CLAS NRC·CNRC — CLAS 2016-02

Customer: AEROCOUSTICS ENGINEERING LTD
1004 MIDDLEGATE ROAD
SUITE 1100
MISSISSAUGA, ON L4Y 1M4
PO Number: 2017.01.12C

Certificate/SO Number: 33-Q0M0D-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	0.001 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	4.000 V		2.1e-005	1.2e-003	V	100.0 : 1
	60%	±(0.1% Span)	5.990	6.010	6.000 V		3.1e-005	1.2e-003	V	100.0 : 1
	80%	±(0.1% Span)	7.990	8.010	8.001 V		4.1e-005	1.2e-003	V	100.0 : 1
	100%	±(0.1% Span)	9.990	10.010	10.000 V		5.2e-005	1.2e-003	V	100.0 : 1
DC Voltage % Source - 0-10V Ch#4										
0 - 10V	0%	±(0.1% Span)	-0.010	0.010	0.000 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	4.002 V		2.1e-005	1.2e-003	V	100.0 : 1
	60%	±(0.1% Span)	5.990	6.010	6.003 V		3.1e-005	1.2e-003	V	100.0 : 1
	80%	±(0.1% Span)	7.990	8.010	8.004 V		4.1e-005	1.2e-003	V	100.0 : 1
	100%	±(0.1% Span)	9.990	10.010	10.003 V		5.2e-005	1.2e-003	V	100.0 : 1

TRANSCAT CANADA
Trust in every measure

CERTIFICATE OF CALIBRATION

SCC Accredited LAB
LAB Accrédité CCN
SCC Lab No 827

CLAS ARC·CNRC
CLAS 2016-02

Customer: AEROCOUSTICS ENGINEERING LTD
1004 MIDDLEGATE ROAD
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Certificate/SO Number: 33-Q0M0D-20-1 Revision 0

Traceable Standards

Asset	Manufacturer	Model Number	Description	Cal Date	Due Date	Traceability Number
N0118	Agilent/HP	3458A Opt 002	Multimeter, 8.5 Digit	22-Nov-16	30-Nov-17	5-&N0118-727-1

Environmental Data

Temperature	Relative Humidity	Temp / RH Asset
69.30°F /20.72°C	35.30%	N0438A

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

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

Calibrated By:
Digitally Signed On February 02, 2017
By Mark King
Mark King
Calibration Technician

Reviewed By:
Digitally Signed On February 02, 2017
By Francis Kane for
Robert Whittaker
Lab Manager

Unit Barcode: 901B0188547

Date Received: January 17, 2017
Service Level : R9

Customer Number: 9-322110-000

aercoustics

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Appendix F.02
E-Audit Checklist

Appendix F.02 - (2017 Compliance Protocol AF5): E-Audit checklist

Wind Energy Project – Screening Document – Acoustic Audit Report – Emmission IEC61400-11 Standard

Information Required in the Acoustic Audit Report – Immission

Item #	Description	Complete?	Comment
1	Characterization of the wind turbine Items 1 to 26; IEC61400-11:2013, Section 10.2	✓	
2	Physical environment Items 27 to 33; IEC61400-11:2013, Section 10.3, Physical Environment	✓	
3	Measurement instrumentation Items 34 to 39; IEC61400-11:2013, Section 10.4, Instrumentation	✓	
4	Acoustic data Items 40 to 52; IEC61400-11:2013, Section 10.5, Acoustic Data	✓	
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	✓	
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	✓	
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	✓	All data Excel sheet to be provided separately
8	Items 68 to 72; IEC61400-11:2013, Section 10.5, Acoustic Data	⊘	Items 68 to 72 acoustic data as per IEC 61400-11 standard are optional; low frequency noise, infrasound, impulsivity, amplitude modulation not reported
9	Non-acoustic data Items 73 to 74 are from IEC61400-11:2013, Section 10.6, Non-Acoustic Data	⊘	Items 73 to 74 non-acoustic data as per IEC 64100-11 standard are optional; turbulence intensity during acoustic meeasurements not reported

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End of Report