



Cush Wind Farm
Phase II

Environmental Impact Assessment Report

Annex 12.4: Background Noise Survey

Cush Wind Limited



Trinity
Consultants

 **awnconsulting**

Background Noise Survey

Project Title: Cush Wind Farm Phase II, Co. Offaly

CLIENT

Cush Wind Farm Ltd

DOCUMENT REFERENCE

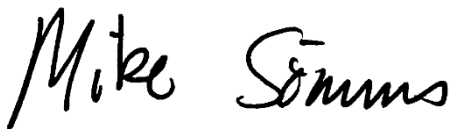
257501.0107NR01

DATE

19 October 2026

DOCUMENT CONTROL SHEET

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Signature		
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Title	Principal Acoustic Consultant	Acoustic Consultant
Date	19 October 2026	

Disclaimer

This report has been prepared by AWN Consulting Ltd. with the reasonable skill, care and diligence to be expected of a competent consulting practice experienced in environmental and engineering disciplines. All analyses and conclusions have been produced and reviewed by suitably qualified and competent experts. Any use of software tools, including artificial intelligence, has been subject to appropriate professional oversight and validation. This report has been prepared and validated by the above-named consultants. The contents are based on the information available at the time of preparation and are intended for the sole use of the named client in accordance with the agreed scope of work. The contents of this report are not intended for third-party use or reliance, and no responsibility is accepted for any third party unless expressly agreed. The provisions in this report apply solely to this project and should not be assumed applicable to other developments.



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1. INTRODUCTION

AWN Consulting, a Trinity Consultants Company, have been appointed to prepare the noise and vibration EIR chapter and assessment for the Cush Wind Farm Phase II Co. Offaly. This report has been prepared to provide details and methodology of the background noise survey undertaken and confirm the derived background noise levels the various Noise Monitoring Locations (NMLs).

2. BACKGROUND NOISE SURVEY

The noise survey and subsequent data analysis was carried out in accordance with best practice following the guidance contained in the Institute of Acoustics publication *A Good Practice Guide to the Application of ETSU-R-97 for the Assessment and Rating of Wind Turbine Noise* (May 2013), (IOA GPG).

2.1 Measurement Locations

The background noise survey was conducted through installing unattended sound level meters at 4 no. representative locations in the surrounding area. The coordinates for selected locations for the noise monitoring locations are outlined in Table 2-1 and identified on a map in Figure 2-1.

Table 2-1. Coordinates of Noise Monitoring Equipment

Location	Coordinates (ITM)	
	Easting	Northing
A (H057)	E609000	N710151
B (H032)	E608187	N712007
C (H014)	E606111	N711029
D (H084)	E607284	N709378

Site visits by survey personnel were carried out during morning and afternoon periods; during these visits, primary noise sources contributing to noise environment were noted as being occasional local traffic noise, birdsongs, distant railway noise and distant agricultural activity. In respect of night-time periods, when noise due to traffic on local roads, agricultural activities and other sources tend to reduce, there was no indication of any significant local night-time sources of noise at any location.

In general, the significant noise sources in the area were noted to be local and distant traffic movements, activity in and around the residences, wind generated noise from local foliage and other typical anthropogenic sources typically found in such rural settings.

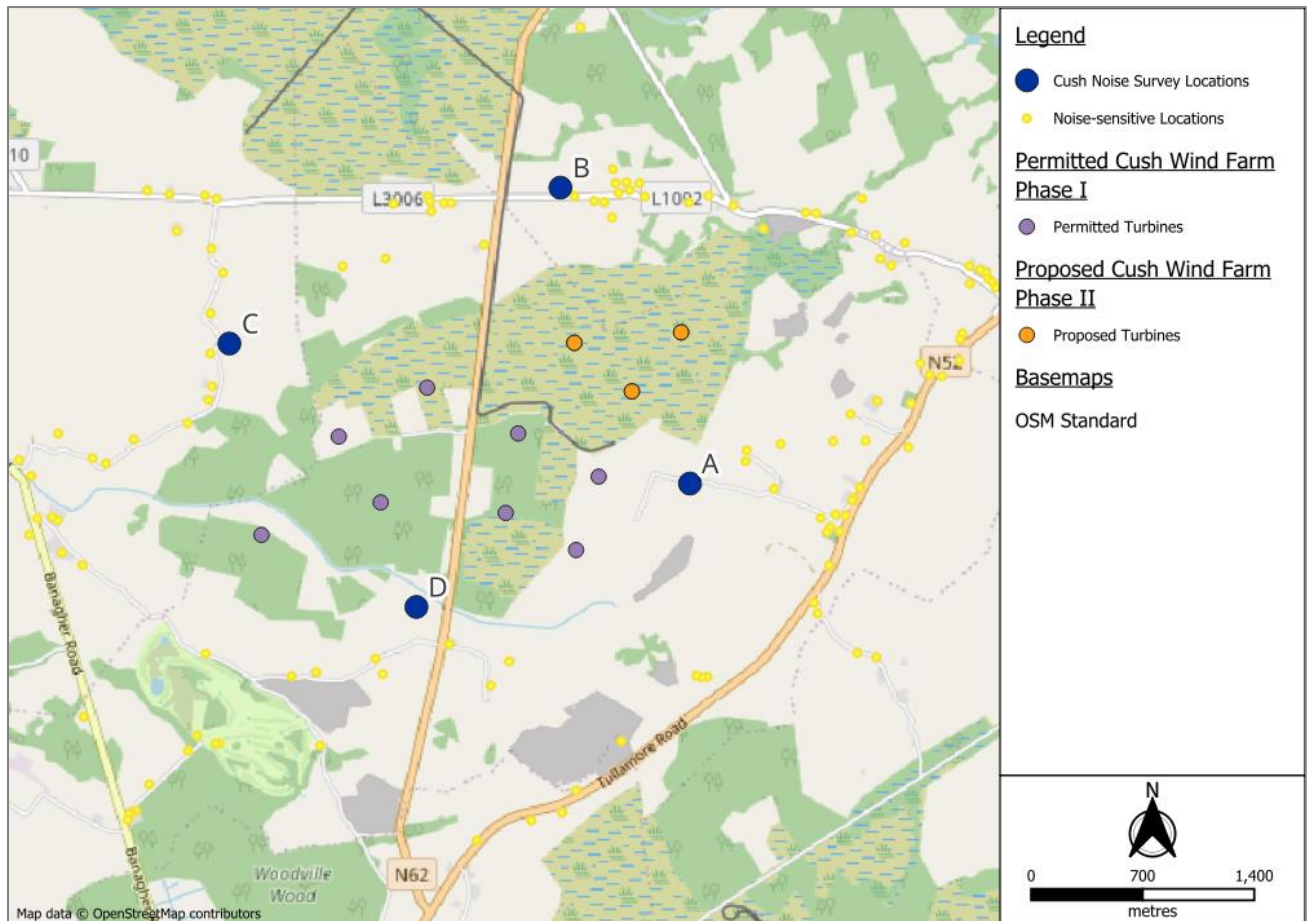


Figure 2-1. Noise Survey Locations

2.2 Measurement Periods

The periods of noise measurements used in the background noise monitoring assessment are outlined in Table 2-2. The survey was deemed completed when an adequate number of datasets had been measured as recommended in the IOA GPG to determine a suitable representation of the typical background noise.

Table 2-2. Measurement periods of Noise Monitoring Equipment

Location Reference	Survey Period	
	Start Date	End Date
A (H057)	14:30 hrs. on 20 December 2022	12:30 hrs. on 24 January 2023
B (H032)	16:40 hrs. on 20 December 2022	16:50 hrs. on 24 January 2023
C (H014)	13:00 hrs. on 20 December 2022	13:20 hrs. on 24 January 2023
D (H084)	14:00 hrs. on 20 December 2022	12:50 hrs. on 24 January 2023

2.3 Measurement Procedure

Measurements were conducted at all locations over the survey periods outlined in Table 2-2. Data samples for all measurements (noise, rainfall, and wind) were logged continuously at 10-minute interval periods for the duration of the survey. The $L_{Aeq,10min}$ and $L_{A90,10min}$ noise parameters were measured in this instance and the results were saved to the instrument memory for later analysis.

Survey personnel noted potential primary noise sources contributing to noise build-up during the installation and removal of the sound level meters from site.

2.4 Instrumentation

Table 2-3 confirms the details of the noise monitoring instrumentation installed at each location.

Table 2-3. Details of Noise Measurement Instrumentation

Location Reference	Equipment Make and Model	Serial Number
A (H057)	Svantek 977A	92648
B (H032)	Larson Davis LxT	5837
C (H014)	Svantek 977C	92647
D (H084)	Svantek 977C	46009

Before and after the survey the measurement apparatus was check calibrated using a Svantek Sound Level Meter Calibrator. Instruments were calibrated on each interim visit and any drift noted. All calibration drifts were less than ± 0.4 dB and within acceptable tolerances outlined in the IOA GPG.

2.5 Rainfall Data

Rainfall was monitored and logged using a 'Theodor Friedrichs 7041.00' tipping bucket rain gauge which was installed on the on-site meteorological mast.

2.6 Wind Data

Average wind speed and direction was measured in 10-minute intervals at a Met Mast and provided to AWN. The coordinates of the equipment are provided in Table 2-4.

Table 2-4. Wind Measurement Location

Co-ordinates (ITM)	
Easting	Easting
607233	710703

2.6.1 Wind Shear

Wind speed collected at 64.7 m and 80 m were used to correct the wind speed up to an assessment hub height (HH) at 114 m, as per the methodology outlined in the IOA GPG.

The calculated HH wind speeds were then corrected to the 'standardised' 10 m height wind speed in accordance with the IOA GPG. The 'standardised' wind speed is the industry standard for referencing wind speeds with respect to wind turbines.

The calculated hub height wind speeds have been corrected standardised to 10 m height using a fixed correction. The standardised is a wind speed measured at a height different than 10 m (generally measured at the turbine hub height) which is expressed to a reference height of 10 m using a roughness length of 0.05 for standardisation purpose in accordance with the IEC 61400-11 standard:

Roughness Length Shear Profile: $U_1 = U_2 \times [(\ln(H_1/z)) / (\ln(H_2/z))]$

Where:

H_1	The height of the wind speed to be calculated (10m)
H_2	The height of the measured or calculated HH wind speed.
U_1	The wind speed to be calculated.

U_2	The measured or calculated HH wind speed.
Z	The roughness length.

Note: A roughness length of 0.05m is used to standardise hub height wind speeds to 10m height in the IEC 61400-11:2003 standard, regardless of what the actual roughness length seen on a site may have been. This 'normalisation' procedure was adopted for comparability between test results for different turbines.

Any reference to wind speed in this chapter should be understood to be the standardised 10 m height wind speed unless otherwise stated.

Figure 2-2 presents the distributions of the measured wind speed and wind direction over the survey period.

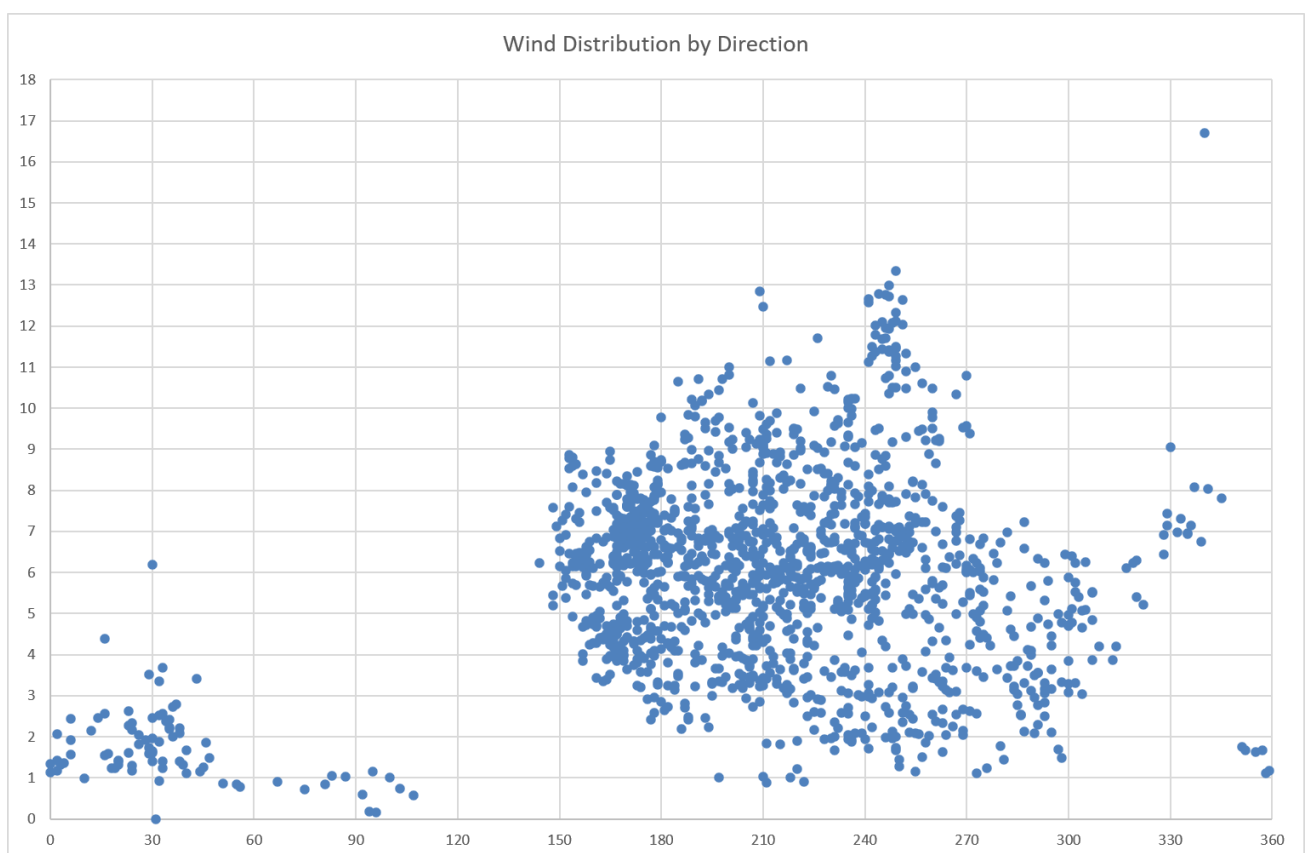


Figure 2-2. Distributions of Wind Speeds and Directions Over the Survey Period

2.7 Selection of Measurement Locations and Methodology

The purpose of the noise survey is to determine the background noise at representative noise sensitive locations (NSLs) within the receiving environment surrounding the proposed development.

The survey locations were identified with consideration of the potential turbine noise contribution from the proposed Cush Wind Farm Phase II wind farm assessed using noise prediction modelling and supported by reviewing aerial images and street side images where available on website e.g., Google Earth and Bing Maps.

The assessment methodology in the EIAR is in accordance with the Institute of Acoustics document A Good Practice Guide to the Application of ETSU-R-97 for the Assessment and Rating of Wind Turbine Noise (2013) hereafter referred to as the IOA GPG.

2.8 Data Analysis

The following sections present a summary of the statistical analysis carried out on the noise monitoring data to derive the background noise curves at each NML. Background noise data sets can be re-analysed for various scenarios should this be required, for instance, if the proposed HH changes or alternative hub heights are considered.

2.8.1 Assessment Periods

The results presented in the following sections refer to the noise data collated during 'quiet periods' of the day and night as defined in the IOA GPG. These periods are defined in Table 2-5.

Table 2-5. Daytime and Night Periods

Period Description	Period Definition
Daytime (Amenity Hours)	ETSU-R-97 defines the amenity hours as: <ul style="list-style-type: none">▶ 18.00 to 23.00 Monday to Friday.▶ 13.00 to 23.00 on Saturdays; and,▶ 07.00 to 23.00 on Sundays.
Night	ETSU-R-97 defines the night-time hours as 23.00 to 07.00 every day

The data sets have been assessed separately for both daytime and night-time periods as outlined in Table 2-5 and analysed with respect to the methods outlined in the IOA GPG.

2.8.2 Atypical Noise Data

The data sets have been filtered to remove issues such as the dawn chorus and the influence of other atypical noise sources. An example of atypical sources would be short, isolated periods of raised noise levels attributable to local sources, vehicles, agricultural activity, boiler flues, operation of gardening equipment etc. In addition, sample periods affected by rainfall or when rainfall resulted in prolonged periods of atypical noise levels have also been removed from the data sets. This approach is in line with the guidance contained in the IOA GPG.

2.9 Derived Background Noise Levels

The derived background noise levels dB $L_{A90,10min}$ for daytime and nighttime are presented in Table 2-6 and Table 2-7 respectively. These levels have been derived using regression analysis carried out on the data sets measured in line with best practice guidance contained in the IOA GPG and its SGN No. 2 Data Collection; Appendix C presents the regression analysis charts for daytime and night-time periods from each NML.

These background noise levels are used to determine the appropriate turbine noise limits in accordance with the adopted turbine noise criteria as set out in the Noise and Vibration Chapter for the proposed development.

Table 2-6. Derived Background Noise Levels at Assessment Hub Height - Daytime

Locations	Period	Background Noise Levels dB LA90 at standardised 10m height wind speed m/s for 114 m Hub Height							
		3	4	5	6	7	8	9	10
A (H057)	Day	32.7	33.0	33.7	34.7	36.1	37.8	39.9	42.3
B (H032)	Day	32.4	33.0	33.9	35.2	36.9	38.9	41.2	43.8
C (H014)	Day	27.2	28.1	29.3	30.8	32.5	34.4	36.6	39.0
D (H084)	Day	30.8	32.3	33.9	35.7	37.7	39.7	41.9	44.3

Table 2-7. Derived Background Noise Levels at Assessment Hub Height – Night-time

Locations	Period	Background Noise Levels dB LA90 at standardised 10m height wind speed m/s for 114 m Hub Height							
		3	4	5	6	7	8	9	10
A (H057)	Night	24.9	25.9	27.7	30.1	33.0	36.2	39.6	42.9
B (H032)	Night	21.4	23.2	25.7	28.8	32.3	36.1	39.9	43.6
C (H014)	Night	21.9	22.6	24.1	26.3	29.0	32.1	35.4	38.7
D (H084)	Night	21.9	23.4	25.8	28.9	32.5	36.5	40.6	44.7

APPENDIX A. GLOSSARY OF ACOUSTIC TERMS

Background noise	The noise level rarely fallen below in any given location over any given time period, often classed according to daytime, evening or night-time periods.
dB	Abbreviation for 'decibel'.
dB(A)	Abbreviation for the decibel level of a sound that has been A-weighted.
Dawn Chorus	Noise due to birds which can occur at sunrise.
Decibel	The unit normally employed to measure the magnitude of sound.
Directivity	The property of a sound source that causes more sound to be radiated in one direction than another.
LA90	The noise level exceeded 90% of the time during a measurement period, often used for the measurement of background noise.
Level	The general term used to describe a sound once it has been converted into decibels.
Sound level meter	An instrument for measuring sound pressure level.

APPENDIX B. INSTALLATION PHOTOGRAPHS

Appendix Figure B-1. Location A (H057) Installation



Appendix Figure B-2. Location B (H032) Installation



Appendix Figure B-3. Location C (H014) Installation

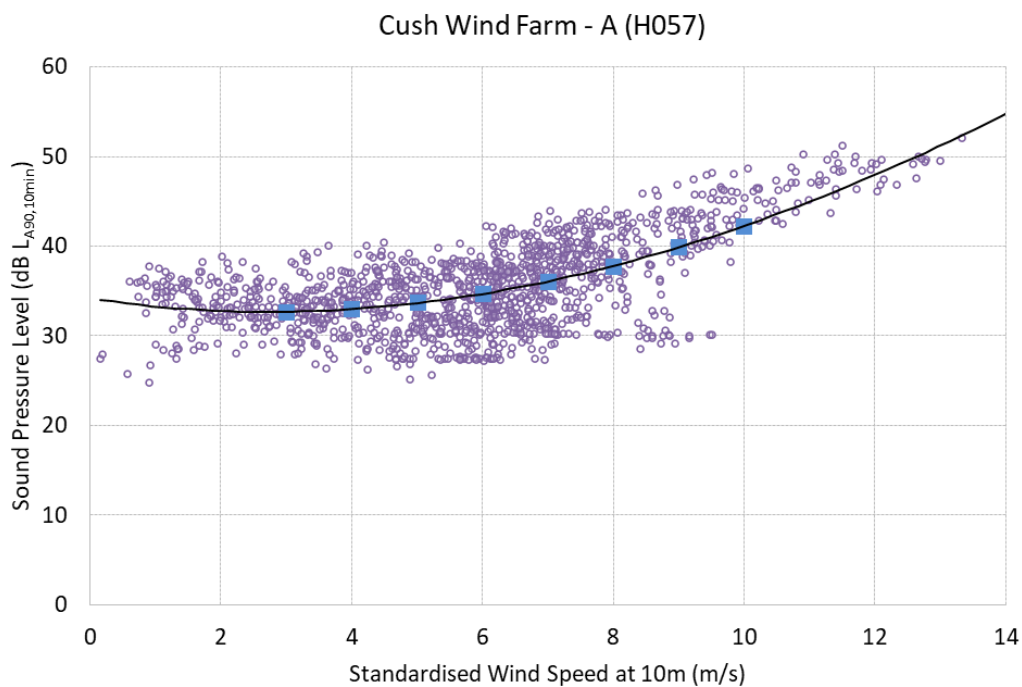


Appendix Figure B-4. Location D (H084) Installation

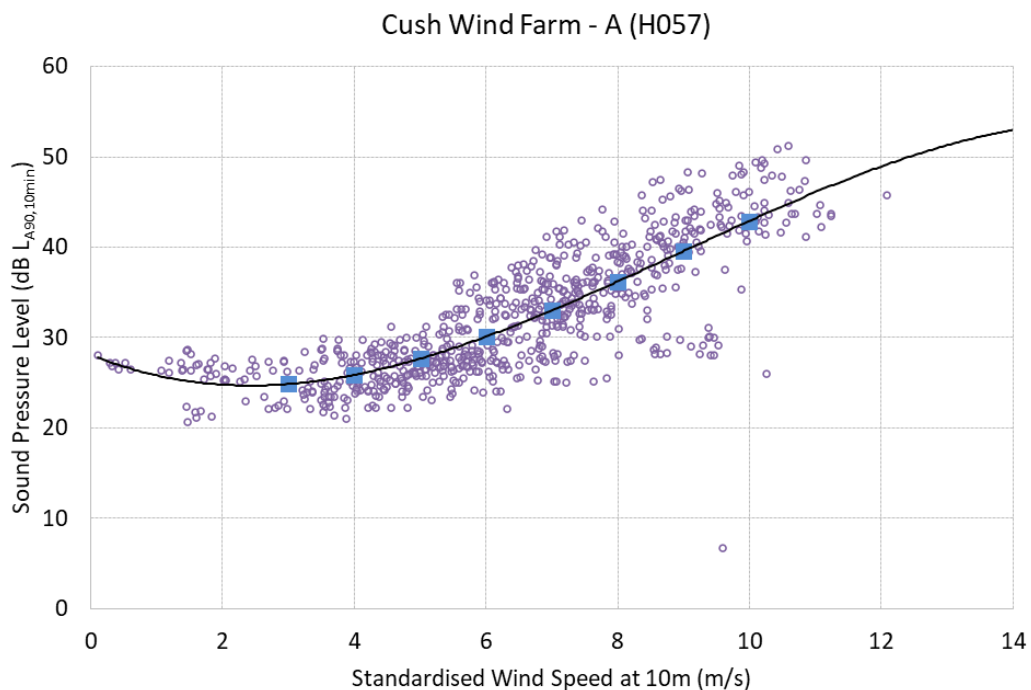


APPENDIX C. REGRESSION ANALYSIS ON DATA SETS

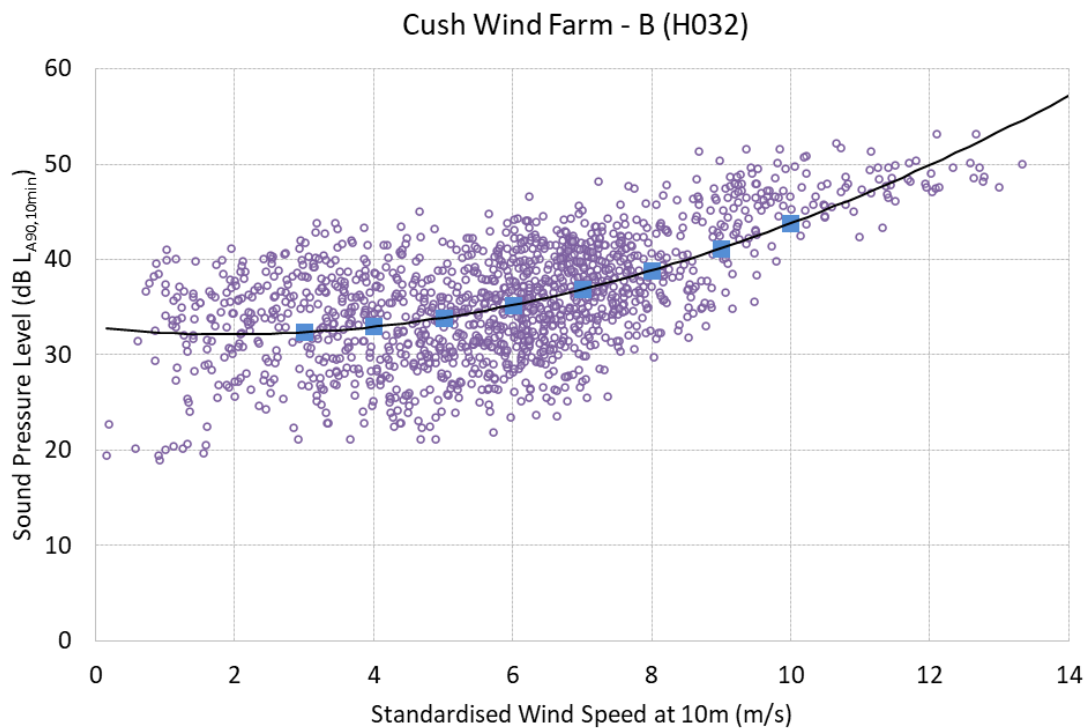
Appendix Figure C-1. Location A (H057) Daytime noise levels



Appendix Figure C-2. Location A (H057) Night-time noise levels

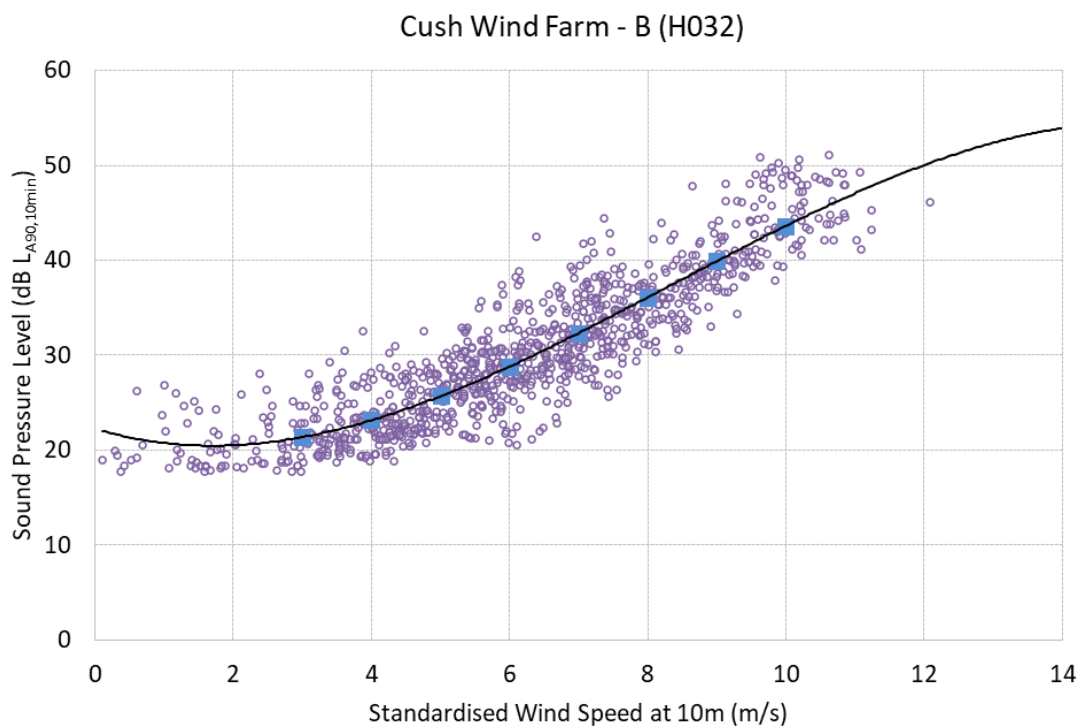


Appendix Figure C-3. Location B (H032) Daytime noise levels



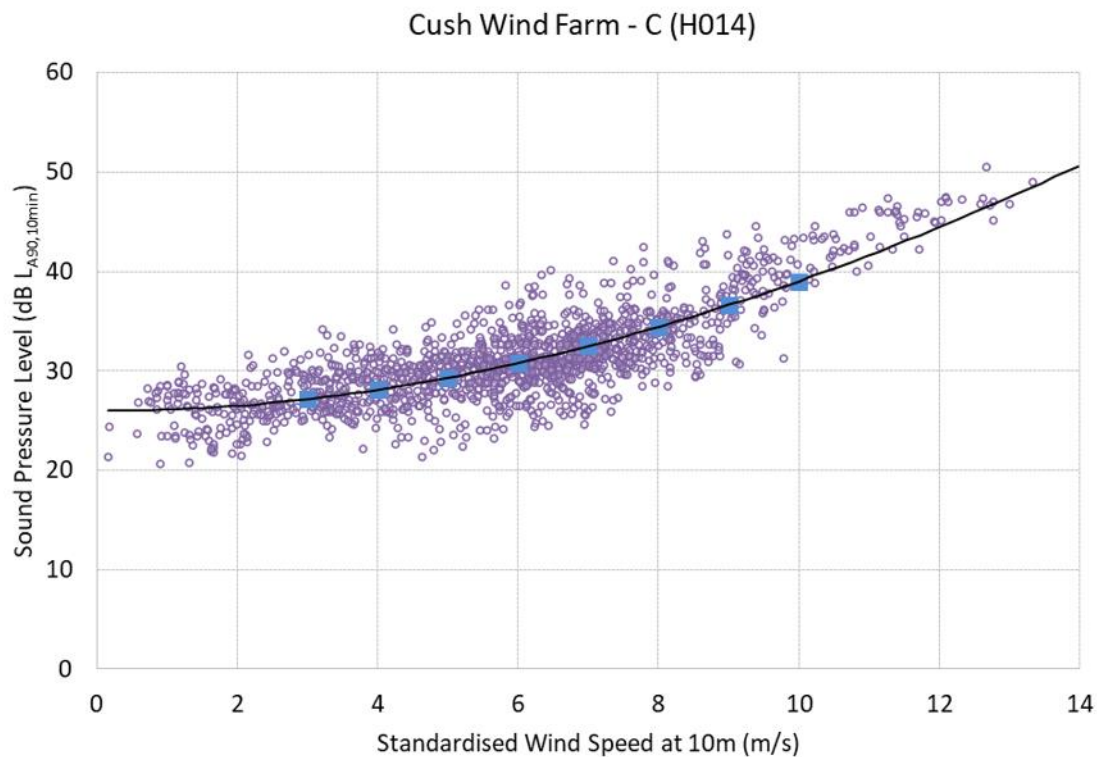
- a. Noise contribution from Meenwaun at this location is below 25 dB and has negligible effect on measured background noise levels.

Appendix Figure C-4. Location B (H032) Night-time noise levels



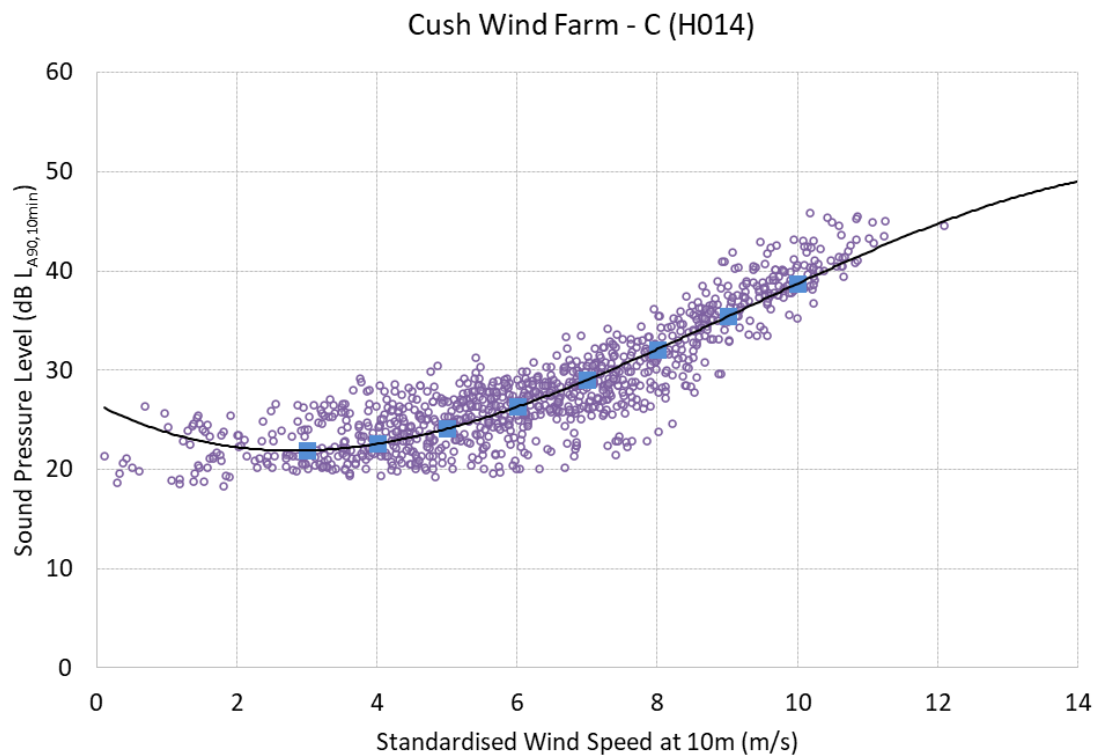
- a. Noise contribution from Meenwaun at this location is below 25 dB(A) and has negligible effect on measured background noise levels.

Appendix Figure C-5. Location C (H014) Daytime noise levels



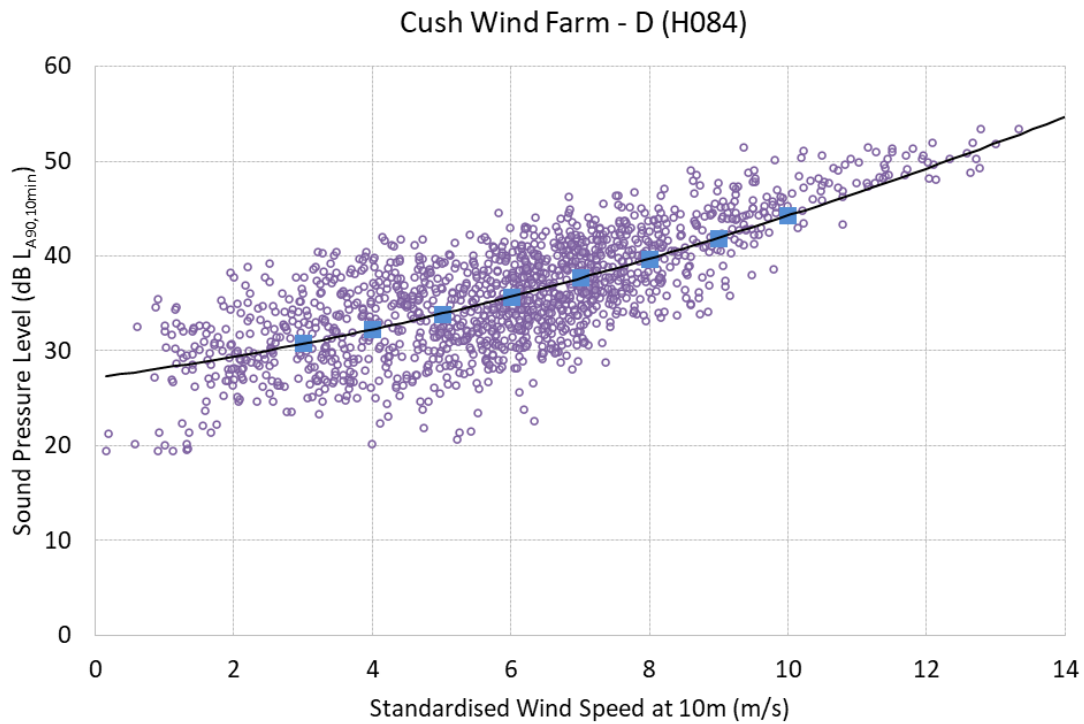
- a. Noise contribution from Meenwaun was addressed by filtering out samples for North and Northwest wind direction sectors.

Appendix Figure C-6. Location C (H014) Night-time noise levels

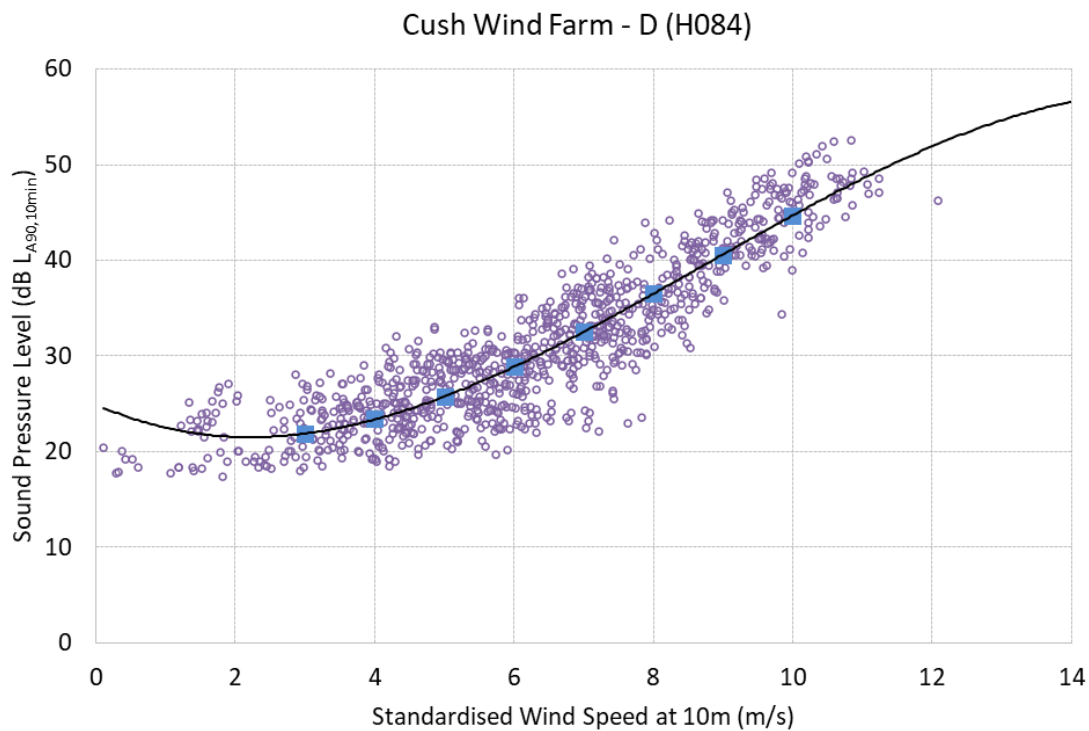


- a. Noise contribution from Meenwaun was addressed by filtering out samples for North and Northwest wind direction sectors.

Appendix Figure C-7. Location D (H084) Daytime noise levels



Appendix Figure C-8. Location D (H084) Night-time noise levels



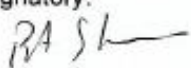
APPENDIX D. CALIBRATION CERTIFICATES

A (H057) page 1 of 2

 Noise, Vibration & Air Quality			
CALIBRATION CERTIFICATE			
Date of issue: 07-11-2022		Certificate No: 1503700-1	
Page: 1/8			
OBJECT OF CALIBRATION	Manufacturer:	SVANTEK	
	Model:	SVAN 977	
	Serial No.:	92648	
	Description:	Sound Level Meter	
SENSOR	Manufacturer:	MTG	Svantek
	Model:	MK255	SV12L
	Serial No.:	18924	18930
	Description:	Microphone	Preamplifier
APPLICANT	Galetech Energy Services Tullyco, Co Cavan, Ireland		
ENVIRONMENTAL CONDITIONS	Temperature:	23.0 – 23.5	°C
	Humidity:	49 – 50	%
	Pressure:	100.0 – 100.0	kPa
DATE OF CALIBRATION	07-11-2022		
APPROVED BY	A. Pullinger		
 Noise, Vibration & Air Quality			
AcSoft Calibration 11 Abbey Court Fraser Road Priory Business Park MK44 3WH Bedford			
+44 (0) 1234 639550			
www.acsoft.co.uk			
This calibration was performed by AcSoft Calibration. AcSoft Calibration is a trading name of AcSoft Ltd, 11 Abbey Court, Fraser Road, Priory Business Park, MK44 3WH, Bedford			

 AcSoft <small>Noise, Vibration & Air Quality</small>		CALIBRATION CERTIFICATE Issued by AcSoft Calibration																											
Date of issue: 07-11-2022		Certificate No: 1503700-1		Page: 2/8																									
CALIBRATION METHOD	Method described in instruction IN-02 "Calibration of the sound level meter", issue number 11 date 27.01.2016, written on the basis of international standard EN IEC 61672-3:2013 Electroacoustics. Part 3: Periodic tests.																												
CALIBRATION RESULTS	<p>The sound level meter submitted for testing has successfully completed the Class 1 periodic tests of IEC 61672-3:2013 (BS EN 61672-3:2013), for the environmental conditions under which the tests were performed.</p> <p>The results are presented on pages 3 to 8 of this certificate (including measurement uncertainty).</p>																												
CONFORMITY WITH REQUIREMENTS	On the basis of the calibration results, it has been found that, the sound level meter meets metrological requirements specified in the standard IEC 61672-1:2013 Electroacoustics – Sound level meters. Part 1: Specifications, for class 1.																												
UNCERTAINTY OF MEASUREMENTS	Uncertainty of measurement has been evaluated in compliance with EA-4/02:2013. The expanded uncertainty assigned corresponds to a coverage probability of 95 % and the coverage factor $k = 2$.																												
NOTES																													
<ol style="list-style-type: none"> 1. The information appearing on this certificate has been compiled specifically for this instrument. This calibration certificate is produced with traceable and advanced equipment which permit comprehensive quality assurance verification of all data supplied herein. 2. The measurements in this document are traceable to GUM (Central Office of Measures), Poland 3. This calibration certificate shall not be reproduced except in full, without written permission from AcSoft Ltd. 																													
REFERENCE EQUIPMENT																													
<table border="1"> <thead> <tr> <th>Description</th> <th>Manufacturer</th> <th>Model</th> <th>Serial Number</th> <th>Last Calibrated</th> </tr> </thead> <tbody> <tr> <td>Signal Generator</td> <td>Svantek</td> <td>SV401</td> <td>124</td> <td>18.08.2022</td> </tr> <tr> <td>Sound & Vibration Analyser</td> <td>Svantek</td> <td>SV912AE</td> <td>15909</td> <td>01.09.2022</td> </tr> <tr> <td>Thermo-Barometer</td> <td>LAB-EL</td> <td>LB-706B</td> <td>912</td> <td>23.08.2022</td> </tr> <tr> <td>Acoustical Calibrator</td> <td>Svantek</td> <td>SV30A</td> <td>83762</td> <td>19.08.2022</td> </tr> </tbody> </table>					Description	Manufacturer	Model	Serial Number	Last Calibrated	Signal Generator	Svantek	SV401	124	18.08.2022	Sound & Vibration Analyser	Svantek	SV912AE	15909	01.09.2022	Thermo-Barometer	LAB-EL	LB-706B	912	23.08.2022	Acoustical Calibrator	Svantek	SV30A	83762	19.08.2022
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Signal Generator	Svantek	SV401	124	18.08.2022																									
Sound & Vibration Analyser	Svantek	SV912AE	15909	01.09.2022																									
Thermo-Barometer	LAB-EL	LB-706B	912	23.08.2022																									
Acoustical Calibrator	Svantek	SV30A	83762	19.08.2022																									
<p style="text-align: center;">This calibration was performed by AcSoft Calibration. AcSoft Calibration is a trading name of AcSoft Ltd, 11 Abbey Court, Fraser Road, Priory Business Park, MK44 3WH, Bedford</p>																													

B (H032)

	MTS Calibration Ltd, The Grange Business Centre, Belasis Avenue, Billingham TS23 1LG, England Telephone: 01642 876 410															
CERTIFICATE OF CALIBRATION																
Issued by: MTS Calibration Ltd	Page 1 of 11 pages Approved Signatory:  Tony Sherris															
Date of Issue: 09 March 2021 Certificate Number: 35594																
Sound Level Meter																
Sound Level Meter Periodic Tests to EN 61672-3: 2013 Class 1																
Client: Environmental Measurements Unit 12, Tallaght Business Centre Whitestown Business Park Co.Dublin 24, Ireland	Instrument Make: Larson Davis Instrument Model: LxT1 Serial Number: 0005837															
Associated Equipment Preamplifier Microphone Calibrator Calibrator supplied by	<table border="0"> <tr> <td>Make</td> <td>Model</td> <td>Serial number</td> </tr> <tr> <td>Larson Davis</td> <td>PRMLxT1</td> <td>071315</td> </tr> <tr> <td>PCB</td> <td>377B02</td> <td>309169</td> </tr> <tr> <td>Larson Davis</td> <td>CAL200</td> <td>9175</td> </tr> <tr> <td colspan="3">the Client, with the SLM</td> </tr> </table>	Make	Model	Serial number	Larson Davis	PRMLxT1	071315	PCB	377B02	309169	Larson Davis	CAL200	9175	the Client, with the SLM		
Make	Model	Serial number														
Larson Davis	PRMLxT1	071315														
PCB	377B02	309169														
Larson Davis	CAL200	9175														
the Client, with the SLM																
Test results summary, detailed results are shown on subsequent pages.																
Periodic tests were performed in accordance with procedures from IEC 61672-3:2013 Class 1																
Tests performed	Section Results of test Page Comments															
Calibration Certificate	22 1															
Additional Information	2															
Indication with Calibrator Supplied	10 No Limit 3															
Self-Generated Noise	11 No Limit 3															
Frequency and Time-weightings at 1kHz	14 Complies 3															
Long term stability	15 Complies 3															
High stability	21 Complies 3															
Acoustic Tests	12 Complies 4															
Frequency Weighting A	13 Complies 5															
Frequency Weighting C	13 Complies 6															
Frequency Weighting Z	13 Complies 7															
Level Linearity	16 Complies 8															
Level Linearity Range Control	17 n/a SLM only has one range															
Tone-burst Response	18 Complies 9															
Peak C sound level	19 Complies 10															
Overload indication	20 Complies 11															
The instrument was within the above specification as received - no modifications were made																
The sound level meter submitted for testing has successfully completed the periodic tests of IEC 61672-3: 2013 for the environmental conditions under which the tests were performed. As evidence was publicly available, from an independent testing organisation responsible for approving the results of pattern evaluation tests performed in accordance with IEC 61672-2: 2013, to demonstrate that the model of sound level meter fully conformed to the Class 1 specifications in IEC 61672-1: 2013, the sound level meter submitted for testing conforms to the Class 1 specifications of IEC 61672-1: 2013																
Additional tests performed	Reference															
Microphone full frequency response	35596 See additional certificate															
Filter calibration, third octave or octave	35584F See additional certificate															
Calibrator calibration	- See additional certificate															
A Wg with Outdoor Microphone	- See additional certificate															
This certificate is issued in accordance with the laboratory accreditation requirements of the United Kingdom Accreditation Service. It provides traceability of measurement to the SI system of units and/or to units of measurement realised at the National Physical Laboratory or other recognised national metrology institutes. This certificate may not be reproduced other than in full, except with the prior written approval of the issuing laboratory.																


Noise, Vibration & Air Quality

CALIBRATION CERTIFICATE

Date of issue: 08-11-2022

Certificate No: 1503700-3

Page: 1/8

OBJECT OF CALIBRATION	Manufacturer:	SVANTEK	
	Model:	SVAN 977	
	Serial No.:	92647	
	Description:	Sound Level Meter	
SENSOR	Manufacturer:	MTG	Svantek
	Model:	MK255	SV12L
	Serial No.:	19006	18955
	Description:	Microphone	Preamplifier
APPLICANT	Galetech Energy Services Tullyco, Co Cavan, Ireland		
ENVIRONMENTAL CONDITIONS	Temperature:	23.1 – 23.3	°C
	Humidity:	49 – 51	%
	Pressure:	99.2 – 99.3	kPa
DATE OF CALIBRATION	08-11-2022		
APPROVED BY	A. Pullinger		


Noise, Vibration & Air Quality
AcSoft Calibration | 11 Abbey Court
Fraser Road | Priory Business Park
MK44 3WH | Bedford
+44 (0) 1234 639550
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 AcSoft <small>Noise, Vibration & Air Quality</small>		CALIBRATION CERTIFICATE Issued by AcSoft Calibration																										
Date of issue: 08-11-2022		Certificate No: 1503700-3																										
		Page: 2/8																										
CALIBRATION METHOD	Method described in instruction IN-02 "Calibration of the sound level meter", issue number 11 date 27.01.2016, written on the basis of international standard EN IEC 61672-3:2013 Electroacoustics. Part 3: Periodic tests.																											
CALIBRATION RESULTS	<p>The sound level meter submitted for testing has successfully completed the Class 1 periodic tests of IEC 61672-3:2013 (BS EN 61672-3:2013), for the environmental conditions under which the tests were performed.</p> <p>The results are presented on pages 3 to 8 of this certificate (including measurement uncertainty).</p>																											
CONFORMITY WITH REQUIREMENTS	On the basis of the calibration results, it has been found that, the sound level meter meets metrological requirements specified in the standard IEC 61672-1:2013 Electroacoustics – Sound level meters. Part 1: Specifications, for class 1.																											
UNCERTAINTY OF MEASUREMENTS	Uncertainty of measurement has been evaluated in compliance with EA-4/02:2013. The expanded uncertainty assigned corresponds to a coverage probability of 95 % and the coverage factor $k = 2$.																											
NOTES																												
<ol style="list-style-type: none"> 1. The information appearing on this certificate has been compiled specifically for this instrument. This calibration certificate is produced with traceable and advanced equipment which permit comprehensive quality assurance verification of all data supplied herein. 2. The measurements in this document are traceable to GUM (Central Office of Measures), Poland 3. This calibration certificate shall not be reproduced except in full, without written permission from AcSoft Ltd. 																												
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<p style="text-align: center;">This calibration was performed by AcSoft Calibration. AcSoft Calibration is a trading name of AcSoft Ltd, 11 Abbey Court, Fraser Road, Priory Business Park, MK44 3WH, Bedford</p>																												



Noise, Vibration & Air Quality

CALIBRATION CERTIFICATE

Date of issue: 08-11-2022	Certificate No: 1503700-2	Page: 1/8
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OBJECT OF CALIBRATION	Manufacturer: SVANTEK Model: SVAN 977 Serial No.: 46009 Description: Sound Level Meter
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SENSOR	Manufacturer: ACO Model: 7052E Serial No.: 75097 Description: Microphone	Svantek SV12L 77933 Preamplifier
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APPLICANT	Galetch Energy Services Tullyco, Co Cavan, Ireland
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ENVIRONMENTAL CONDITIONS	<table border="0" style="width: 100%;"> <tr> <td style="width: 40%;">Temperature:</td> <td style="width: 20%;">22.5 – 23.5</td> <td style="width: 40%;">°C</td> </tr> <tr> <td>Humidity:</td> <td>49 – 50</td> <td>%</td> </tr> <tr> <td>Pressure:</td> <td>99.3 – 99.3</td> <td>kPa</td> </tr> </table>	Temperature:	22.5 – 23.5	°C	Humidity:	49 – 50	%	Pressure:	99.3 – 99.3	kPa
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DATE OF CALIBRATION	08-11-2022
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APPROVED BY	A. Pullinger
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Noise, Vibration & Air Quality

AcSoft Calibration | 11 Abbey Court
 Fraser Road | Priory Business Park
 MK44 3WH | Bedford

+44 (0) 1234 639550
www.acsoft.co.uk

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CALIBRATION CERTIFICATE

Issued by AcSoft Calibration

Date of issue: 08-11-2022**Certificate No:** 1503700-2**Page:** 2/8

CALIBRATION METHOD Method described in instruction IN-02 "Calibration of the sound level meter", issue number 11 date 27.01.2016, written on the basis of international standard EN IEC 61672-3:2013 Electroacoustics. Part 3: Periodic tests.

CALIBRATION RESULTS **The sound level meter submitted for testing has successfully completed the Class 1 periodic tests of IEC 61672-3:2013 (BS EN 61672-3:2013), for the environmental conditions under which the tests were performed.**

The results are presented on pages 3 to 8 of this certificate (including measurement uncertainty).

CONFORMITY WITH REQUIREMENTS On the basis of the calibration results, it has been found that, the sound level meter meets metrological requirements specified in the standard IEC 61672-1:2013 Electroacoustics – Sound level meters. Part 1: Specifications, for class 1.

UNCERTAINTY OF MEASUREMENTS Uncertainty of measurement has been evaluated in compliance with EA-4/02:2013. The expanded uncertainty assigned corresponds to a coverage probability of 95 % and the coverage factor $k = 2$.

NOTES

1. The information appearing on this certificate has been compiled specifically for this instrument. This calibration certificate is produced with traceable and advanced equipment which permit comprehensive quality assurance verification of all data supplied herein.
2. The measurements in this document are traceable to GUM (Central Office of Measures), Poland
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REFERENCE EQUIPMENT

Description	Manufacturer	Model	Serial Number	Last Calibrated
Signal Generator	Svantek	SV401	124	18.08.2022
Sound & Vibration Analyser	Svantek	SV912AE	15909	01.09.2022
Thermo-Barometer	LAB-EL	LB-706B	912	23.08.2022
Acoustical Calibrator	Svantek	SV30A	83782	19.08.2022

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