



Cush Wind Farm

Environmental Impact Assessment Report

Annex 11.5: Calibration Certificates

Cush Wind Farm Limited

Galetech Energy Services

Clondargan, Stradone, Co. Cavan Ireland

Telephone +353 49 555 5050

www.galetechenergy.com





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.: 92548
 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



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



Noise, Vibration & Air Quality

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 **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 $k = 2$.


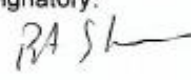
NOTES

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*
3. *This calibration certificate shall not be reproduced except in full, without written permission from AcSoft Ltd.*

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

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>MTS Calibration Ltd, The Grange Business Centre, Belasis Avenue, Billingham TS23 1LG, England Telephone: 01642 876 410</p>
CERTIFICATE OF CALIBRATION	<p>Page 1 of 11 pages</p> <p>Approved Signatory:  Tony Sherris</p>
<p>Issued by: MTS Calibration Ltd</p> <p>Date of Issue: 09 March 2021 Certificate Number: 35594</p>	
Sound Level Meter	
Sound Level Meter Periodic Tests to EN 61672-3: 2013 Class 1	
<p>Client: Environmental Measurements Unit 12, Tallaght Business Centre Whitestown Business Park Co.Dublin 24, Ireland</p>	<p>Instrument Make: Larson Davis Instrument Model: LxT1 Serial Number: 0005837</p>
Associated Equipment	Make
Model	Serial number
<p>Preamplifier Larson Davis PRMLxT1 071315</p> <p>Microphone PCB 377B02 309169</p> <p>Calibrator Larson Davis CAL200 9175</p> <p>Calibrator supplied by the Client, with the SLM</p>	
Test results summary, detailed results are shown on subsequent pages.	
<p>Periodic tests were performed in accordance with procedures from IEC 61672-3:2013 Class 1</p>	
Tests performed	Section
Results of test	Page
Comments	
<p>Calibration Certificate 22 1</p> <p>Additional Information 2</p> <p>Indication with Calibrator Supplied 10 No Limit 3</p> <p>Self-Generated Noise 11 No Limit 3</p> <p>Frequency and Time-weightings at 1kHz 14 Complies 3</p> <p> Long term stability 15 Complies 3</p> <p> High stability 21 Complies 3</p> <p>Acoustic Tests 12 Complies 4</p> <p> Frequency Weighting A 13 Complies 5</p> <p> Frequency Weighting C 13 Complies 6</p> <p> Frequency Weighting Z 13 Complies 7</p> <p> Level Linearity 16 Complies 8</p> <p>Level Linearity Range Control 17 n/a SLM only has one range</p> <p>Tone-burst Response 18 Complies 9</p> <p>Peak C sound level 19 Complies 10</p> <p>Overload indication 20 Complies 11</p>	
<p>The instrument was within the above specification as received - no modifications were made</p>	
<p>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 61672-3: 2013, the sound level meter submitted for testing conforms to the Class 1 specifications of IEC 61672-3: 2013</p>	
Additional tests performed	Reference
<p>Microphone full frequency response 35596 See additional certificate</p> <p>Filter calibration, third octave or octave 35584F See additional certificate</p> <p>Calibrator calibration See additional certificate</p> <p>A Wtg with Outdoor Microphone See additional certificate</p>	
<p>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.</p>	



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



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

**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 **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*
3. *This calibration certificate shall not be reproduced except in full, without written permission from AcSoft Ltd.*

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

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



CALIBRATION CERTIFICATE

Date of issue: 08-11-2022

Certificate No: 1503700-2

Page: 1/8

OBJECT OF CALIBRATION

Manufacturer: SVANTEK
Model: SVAN 977
Serial No.: 46009
Description: Sound Level Meter

SENSOR

Manufacturer:	ACO	Svantek
Model:	7052E	SV12L
Serial No.:	75097	77933
Description:	Microphone	Preamplifier

APPLICANT

Galetech Energy Services
 Tullyco, Co Cavan, Ireland

ENVIRONMENTAL CONDITIONS

Temperature:	22.5 – 23.5	°C
Humidity:	49 – 50	%
Pressure:	99.3 – 99.3	kPa

DATE OF CALIBRATION

08-11-2022

APPROVED BY

A. Pullinger




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

 Noise, Vibration & Air Quality		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	<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. <i>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.</i> 2. <i>The measurements in this document are traceable to GUM (Central Office of Measures), Poland</i> 3. <i>This calibration certificate shall not be reproduced except in full, without written permission from AcSoft Ltd.</i> 																													
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>83782</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	83782	19.08.2022
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																									
<p>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>																													

