
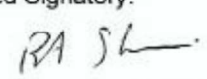




## Appendix 12.4

### Calibration Certificates of Noise Instruments

#### Keerglen Wind Farm

		<b>MTS Calibration Ltd,</b> <b>The Grange Business Centre,</b> <b>Belasis Avenue,</b> <b>Billingham TS23 1LG,</b> <b>England</b> <b>Telephone: 01642 876 410</b>		
<b>CERTIFICATE OF CALIBRATION</b>		<b>Page 1 of 11 pages</b>		
<b>Issued by: MTS Calibration Ltd</b>		<b>Approved Signatory:</b>  <b>Tony Sherris</b>		
<b>Date of Issue: 02 February 2022</b>		<b>Certificate Number: 36616</b>		
<b>Sound Level Meter</b>				
<b>Sound Level Meter Periodic Tests to EN 61672-3: 2013 Class 1</b>				
<b>Client:</b> Environmental Measurements Unit 12, Tallaght Business Centre Whitestown Business Park Co.Dublin 24, Ireland		<b>Instrument Make:</b> Larson Davis <b>Instrument Model:</b> LxT1L <b>Serial Number:</b> 0004726		
<b>Associated Equipment</b>		<b>Make</b>		
Pre-amplifier		Larson Davis		
Microphone		PCB		
Calibrator		Larson Davis		
Calibrator supplied by		MTS for this calibration		
<b>Model</b>		<b>Serial number</b>		
PRMLxT		055748		
377B02		314001		
CAL200		9175		
The measurements were performed at The Grange Business Centre, Belasis Avenue, TS23 1LG. The results only apply to the items tested.				
<b>Periodic tests were performed in accordance with procedures from IEC 61672-3:2013 Class 1</b>				
<b>Test results summary, detailed results are shown on subsequent pages.</b>				
<b>Tests performed</b>	<b>Section</b>	<b>Results of test</b>	<b>Page</b>	<b>Comments</b>
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				
<b>Additional tests performed</b>		<b>Reference</b>		
Microphone full frequency response		36616		
Filter calibration, third octave or octave		36616F		
		See additional certificate		
		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.				

RECEIVED: 29/08/2024

# Calibration Certificate

**Certificate Number** 2022001439

**Customer:**

Noise & Vibration Consultants Ltd

Navan, County Meath Ireland

**Model Number** LxT SE

**Serial Number** 0006990

**Test Results** **Pass**

**Initial Condition** As Manufactured

**Description** Sound Expert LxT  
Class 1 Sound Level Meter  
Firmware Revision: 2.404

**Procedure Number** D0001.8378

**Technician** Jacob Cannon

**Calibration Date** 3 Feb 2022

**Calibration Due**

**Temperature** 23.59 °C ± 0.25 °C

**Humidity** 51.3 %RH ± 2.0 %RH

**Static Pressure** 86.94 kPa ± 0.13 kPa

**Evaluation Method** Tested electrically using Larson Davis PRMLxT1L S/N 077587 and a 12.0 pF capacitor to simulate microphone capacitance. Data reported in dB re 20 µPa assuming a microphone sensitivity of 23.6 mV/Pa.

**Compliance Standards** Compliant to Manufacturer Specifications and the following standards when combined with Calibration Certificate from procedure D0001.8384:

IEC 60651:2001 Type 1	ANSI S1.4-2014 Class 1
IEC 60804:2000 Type 1	ANSI S1.4 (R2006) Type 1
IEC 61252:2002	ANSI S1.25 (R2007)
IEC 61672:2013 Class 1	ANSI S1.43 (R2007) Type 1
IEC 61260:2001 Class 1	ANSI S1.11 (R2009) Class 1

Issuing lab certifies that the instrument described above meets or exceeds all specifications as stated in the referenced procedure (unless otherwise noted). It has been calibrated using measurement standards traceable to the International System of Units (SI) through the National Institute of Standards and Technology (NIST), or other national measurement institutes, and meets the requirements of ISO/IEC 17025:2017. Test points marked with a ‡ in the uncertainties column do not fall within this laboratory's scope of accreditation.

The quality system is registered to ISO 9001:2015.

This calibration is a direct comparison of the unit under test to the listed reference standards and did not involve any sampling plans to complete. No allowance has been made for the instability of the test device due to use, time, etc. Such allowances would be made by the customer as needed.

The uncertainties were computed in accordance with the ISO Guide to the Expression of Uncertainty in Measurement (GUM). A coverage factor of approximately 2 sigma (k=2) has been applied to the standard uncertainty to express the expanded uncertainty at approximately 95% confidence level.

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Correction data from Larson Davis LxT Manual for SoundTrack LxT & SoundExpert LxT, [770,01 Rev O Supporting Firmware Version 4,0,5, 2019-09-10

Calibration Check Frequency: 1000 Hz; Reference Sound Pressure Level: 114 dB re 20 µPa

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1681 West 820 North  
Provo, UT 84601, United States  
716-684-0001



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A PCB DIVISION

# Calibration Certificate

Certificate Number 2022001448

**Customer:**

Noise & Vibration Consultants Ltd  
Navan, County Meath Ireland

**Model Number** LxT SE

**Serial Number** 0006991

**Test Results** Pass

**Initial Condition** As Manufactured

**Description** Sound Expert LxT  
Class 1 Sound Level Meter  
Firmware Revision: 2.404

**Procedure Number** D0001.8378

**Technician** Jacob Cannon

**Calibration Date** 3 Feb 2022

**Calibration Due**

**Temperature** 23.63 °C ± 0.25 °C

**Humidity** 52.5 %RH ± 2.0 %RH

**Static Pressure** 86.96 kPa ± 0.13 kPa

**Evaluation Method** Tested electrically using Larson Davis PRMLxT 1L S/N 077588 and a 12.0 pF capacitor to simulate microphone capacitance. Data reported in dB re 20 µPa assuming a microphone sensitivity of 23.6 mV/Pa.

**Compliance Standards** Compliant to Manufacturer Specifications and the following standards when combined with Calibration Certificate from procedure D0001.8384:

IEC 60651:2001 Type 1	ANSI S1.4-2014 Class 1
IEC 60804:2000 Type 1	ANSI S1.4 (R2006) Type 1
IEC 61252:2002	ANSI S1.25 (R2007)
IEC 61672:2013 Class 1	ANSI S1.43 (R2007) Type 1
IEC 61260:2001 Class 1	ANSI S1.11 (R2009) Class 1

Issuing lab certifies that the instrument described above meets or exceeds all specifications as stated in the referenced procedure (unless otherwise noted). It has been calibrated using measurement standards traceable to the International System of Units (SI) through the National Institute of Standards and Technology (NIST), or other national measurement institutes, and meets the requirements of ISO/IEC 17025:2017. Test points marked with a ‡ in the uncertainties column do not fall within this laboratory's scope of accreditation.

The quality system is registered to ISO 9001:2015.

This calibration is a direct comparison of the unit under test to the listed reference standards and did not involve any sampling plans to complete. No allowance has been made for the instability of the test device due to use, time, etc. Such allowances would be made by the customer as needed.

The uncertainties were computed in accordance with the ISO Guide to the Expression of Uncertainty in Measurement (GUM). A coverage factor of approximately 2 sigma (k=2) has been applied to the standard uncertainty to express the expanded uncertainty at approximately 95% confidence level.

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Correction data from Larson Davis LxT Manual for SoundTrack LxT & SoundExpert LxT, I770.01 Rev O Supporting Firmware Version 4.0.5, 2019-09-10

Calibration Check Frequency: 1000 Hz; Reference Sound Pressure Level: 114 dB re 20 µPa

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D0001.8407 Rev F



# Calibration Certificate

Certificate Number 2022001449

**Customer:**

Noise & Vibration Consultants Ltd  
Navan, County Meath Ireland

**Model Number** LxT SE  
**Serial Number** 0007005  
**Test Results** Pass  
**Initial Condition** As Manufactured  
**Description** Sound Expert LxT  
Class 1 Sound Level Meter  
Firmware Revision: 2.404

**Procedure Number** D0001.8378  
**Technician** Jacob Cannon  
**Calibration Date** 3 Feb 2022  
**Calibration Due**  
**Temperature** 23.61 °C ± 0.25 °C  
**Humidity** 51.2 %RH ± 2.0 %RH  
**Static Pressure** 86.96 kPa ± 0.13 kPa

**Evaluation Method** Tested electrically using Larson Davis PRMLxT1L S/N 077589 and a 12.0 pF capacitor to simulate microphone capacitance. Data reported in dB re 20 µPa assuming a microphone sensitivity of 23.6 mV/Pa.

**Compliance Standards** Compliant to Manufacturer Specifications and the following standards when combined with Calibration Certificate from procedure D0001.8384:

IEC 60651:2001 Type 1	ANSI S1.4-2014 Class 1
IEC 60804:2000 Type 1	ANSI S1.4 (R2006) Type 1
IEC 61252:2002	ANSI S1.25 (R2007)
IEC 61672:2013 Class 1	ANSI S1.43 (R2007) Type 1
IEC 61260:2001 Class 1	ANSI S1.11 (R2009) Class 1

Issuing lab certifies that the instrument described above meets or exceeds all specifications as stated in the referenced procedure (unless otherwise noted). It has been calibrated using measurement standards traceable to the International System of Units (SI) through the National Institute of Standards and Technology (NIST), or other national measurement institutes, and meets the requirements of ISO/IEC 17025:2017. Test points marked with a ‡ in the uncertainties column do not fall within this laboratory's scope of accreditation.

The quality system is registered to ISO 9001:2015.

This calibration is a direct comparison of the unit under test to the listed reference standards and did not involve any sampling plans to complete. No allowance has been made for the instability of the test device due to use, time, etc. Such allowances would be made by the customer as needed.

The uncertainties were computed in accordance with the ISO Guide to the Expression of Uncertainty in Measurement (GUM). A coverage factor of approximately 2 sigma (k=2) has been applied to the standard uncertainty to express the expanded uncertainty at approximately 95% confidence level.

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Correction data from Larson Davis LxT Manual for SoundTrack LxT & SoundExpert LxT, [770.01 Rev O Supporting Firmware Version 4.0.5, 2019-09-10]

Calibration Check Frequency: 1000 Hz; Reference Sound Pressure Level: 114 dB re 20 µPa

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