

## Appendix H Noise Monitoring Equipment Calibration Certificate

# Certificate of Calibration

for

**Description:** *Sound Level Meter*  
**Manufacturer:** *NTi Audio*  
**Type No.:** *XL2 (Serial No.: A2A-17638-E0)*  
**Microphone:** *ACO 7052 (Serial No.:68746)*  
**Preamplifier:** *NTi Audio M2211 MA220 (Serial No.:7014)*

**Submitted by:**

**Customer:** *Acuity Sustainability Consulting Limited*  
**Address:** *Unit C, 11/F., Ford Glory Plaza, No. 37-39 Wing Hong Street,  
Cheung Sha Wan, Kowloon*

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

- Within  
 Outside

the allowable tolerance.

The test equipment used for calibration are traceable to National Standards via:

- The Government of The Hong Kong Special Administrative Region Standard & Calibration Laboratory

**Date of receipt:** 22 March 2021

**Date of calibration:** 24 March 2021

**Calibrated by:**   
Calibration Technician

**Certified by:**   
Mr. Ng Yan Wa  
Laboratory Manager

**Date of issue:** 24 March 2021

Certificate No.: APJ20-185-CC001



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**1. Calibration Precaution:**

- The unit-under-test (UUT) was allowed to stabilize in the laboratory for over 24 hours, and switched on to warm up for over 10 minutes before the commencement of the test.
- The results presented are the mean of 3 measurements at each calibration point.

**2. Calibration Conditions:**

Air Temperature: 23.2 °C  
 Air Pressure: 1006 hPa  
 Relative Humidity: 57.6 %

**3. Calibration Equipment:**

	Type	Serial No.	Calibration Report Number	Traceable to
Multifunction Calibrator	B&K 4226	2288467	AV200041	HOKLAS

**4. Calibration Results**

Sound Pressure Level

Reference Sound Pressure Level

Setting of Unit-under-test (UUT)			Applied value		UUT Reading, dB	IEC 61672 Class 1 Specification, dB
Range, dB	Freq. Weighting	Time Weighting	Level, dB	Frequency, Hz		
30-130	dB A SPL	Fast	94	1000	94.1	±0.4

Linearity

Setting of Unit-under-test (UUT)			Applied value		UUT Reading, dB	IEC 61672 Class 1 Specification, dB
Range, dB	Freq. Weighting	Time Weighting	Level, dB	Frequency, Hz		
30-130	dB A SPL	Fast	94	1000	94.1	Ref
			104		104.1	±0.3
			114		114.1	±0.3

Time Weighting

Setting of Unit-under-test (UUT)			Applied value		UUT Reading, dB	IEC 61672 Class 1 Specification, dB
Range, dB	Freq. Weighting	Time Weighting	Level, dB	Frequency, Hz		
30-130	dB A SPL	Fast	94	1000	94.1	Ref
		Slow			94.1	±0.3

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Frequency Response

Linear Response

Setting of Unit-under-test (UUT)			Applied value		UUT Reading, dB	IEC 61672 Class 1 Specification, dB	
Range, dB	Freq. Weighting	Time Weighting	Level, dB	Frequency, Hz			
30-130	dB	SPL	Fast	94	31.5	94.1	±2.0
					63	94.2	±1.5
					125	94.2	±1.5
					250	94.1	±1.4
					500	94.2	±1.4
					1000	94.1	Ref
					2000	94.3	±1.6
					4000	94.6	±1.6
				8000	92.8	+2.1; -3.1	

A-weighting

Setting of Unit-under-test (UUT)			Applied value		UUT Reading, dB	IEC 61672 Class 1 Specification, dB	
Range, dB	Freq. Weighting	Time Weighting	Level, dB	Frequency, Hz			
30-130	dBA	SPL	Fast	94	31.5	54.7	-39.4±2.0
					63	68.0	-26.2±1.5
					125	78.1	-16.1±1.5
					250	85.5	-8.6±1.4
					500	91.0	-3.2±1.4
					1000	94.1	Ref
					2000	95.5	+1.2±1.6
					4000	95.6	+1.0±1.6
				8000	91.8	-1.1+2.1; -3.1	

C-weighting

Setting of Unit-under-test (UUT)			Applied value		UUT Reading, dB	IEC 61672 Class 1 Specification, dB	
Range, dB	Freq. Weighting	Time Weighting	Level, dB	Frequency, Hz			
30-130	dBC	SPL	Fast	94	31.5	91.1	-3.0±2.0
					63	93.3	-0.8±1.5
					125	94.0	-0.2±1.5
					250	94.1	-0.0±1.4
					500	94.2	-0.0±1.4
					1000	94.1	Ref
					2000	94.1	-0.2±1.6
					4000	93.8	-0.8±1.6
				8000	89.8	-3.0+2.1; -3.1	

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## 5. Calibration Results Applied

The results apply to the particular unit-under-test only. All calibration points are within manufacture's specification as IEC 61672 Class 1.

Uncertainties of Applied Value:

94 dB	31.5 Hz	± 0.10
	63 Hz	± 0.05
	125 Hz	± 0.05
	250 Hz	± 0.05
	500 Hz	± 0.05
	1000 Hz	± 0.05
	2000 Hz	± 0.05
	4000 Hz	± 0.05
	8000 Hz	± 0.10
104 dB	1000 Hz	± 0.05
114 dB	1000 Hz	± 0.05

The uncertainties are evaluated for a 95% confidence level.

Note:

The values given in this certification only related to the values measured at the time of the calibration and any uncertainties quoted will not allow for the equipment long-term drift, variations with environmental changes, vibration and shock during transportation, overloading, mis-handling, or the capability of any other laboratory to repeat the calibration. (A+A)\*L shall not be liable for any loss or damage resulting from the use of the equipment.

# Certificate of Calibration

for

**Description:** *Sound Level Meter*  
**Manufacturer:** *SVANTEK*  
**Type No.:** *971 (Serial No.: 96063)*  
**Microphone:** *ACO 7052 E (Serial No.:78092)*  
**Preamplifier:** *SVANTEK SV 18 (Serial No.:97278)*

**Submitted by:**

**Customer:** *Acuity Sustainability Consulting Limited*  
**Address:** *Unit 1908, Nos. 301-305 Castle Peak Road,  
Kwai Chung, N.T.*

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

- Within**
- Outside**

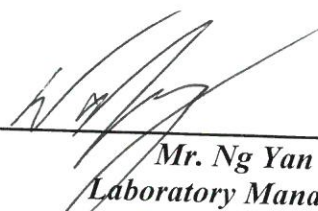
the allowable tolerance.

The test equipment used for calibration are traceable to National Standards via:  
- The Government of The Hong Kong Special Administrative Region Standard & Calibration Laboratory

**Date of receipt:** 28 June 2021

**Date of calibration:** 30 June 2021

**Calibrated by:**   
Calibration Technician

**Certified by:**   
Mr. Ng Yan Wa  
Laboratory Manager

**Date of issue:** 30 June 2021

Certificate No.: APJ21-030-CC001



**1. Calibration Precaution:**

- The unit-under-test (UUT) was allowed to stabilize in the laboratory for over 24 hours, and switched on to warm up for over 10 minutes before the commencement of the test.
- The results presented are the mean of 3 measurements at each calibration point.

**2. Calibration Conditions:**

Air Temperature: 24.2 °C  
 Air Pressure: 1004 hPa  
 Relative Humidity: 60.8 %

**3. Calibration Equipment:**

	Type	Serial No.	Calibration Report Number	Traceable to
Multifunction Calibrator	B&K 4226	2288467	AV200041	HOKLAS

**4. Calibration Results**

Sound Pressure Level

Reference Sound Pressure Level

Setting of Unit-under-test (UUT)			Applied value		UUT Reading, dB	IEC 61672 Class 1 Specification, dB
Range, dB	Freq. Weighting	Time Weighting	Level, dB	Frequency, Hz		
20-140	dBA SPL	Fast	94	1000	93.7	±0.4

Linearity

Setting of Unit-under-test (UUT)			Applied value		UUT Reading, dB	IEC 61672 Class 1 Specification, dB
Range, dB	Freq. Weighting	Time Weighting	Level, dB	Frequency, Hz		
20-140	dBA SPL	Fast	94	1000	93.7	Ref
			104		103.7	±0.3
			114		113.7	±0.3

Time Weighting

Setting of Unit-under-test (UUT)			Applied value		UUT Reading, dB	IEC 61672 Class 1 Specification, dB
Range, dB	Freq. Weighting	Time Weighting	Level, dB	Frequency, Hz		
20-140	dBA SPL	Fast	94	1000	93.7	Ref
		Slow			93.7	±0.3

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Frequency Response

Linear Response

Setting of Unit-under-test (UUT)				Applied value		UUT Reading, dB	IEC 61672 Class 1 Specification, dB
Range, dB	Freq. Weighting	Time Weighting	Level, dB	Frequency, Hz			
20-140	dB	SPL	Fast	94	31.5	94.0	±2.0
					63	93.9	±1.5
					125	94.0	±1.5
					250	94.0	±1.4
					500	93.9	±1.4
					1000	93.7	Ref
					2000	93.8	±1.6
					4000	95.6	±1.6
					8000	92.1	+2.1; -3.1

A-weighting

Setting of Unit-under-test (UUT)				Applied value		UUT Reading, dB	IEC 61672 Class 1 Specification, dB
Range, dB	Freq. Weighting	Time Weighting	Level, dB	Frequency, Hz			
20-140	dBA	SPL	Fast	94	31.5	54.7	-39.4±2.0
					63	67.8	-26.2±1.5
					125	77.9	-16.1±1.5
					250	85.3	-8.6±1.4
					500	90.7	-3.2±1.4
					1000	93.7	Ref
					2000	95.0	+1.2±1.6
					4000	96.3	+1.0±1.6
					8000	91.2	-1.1+2.1; -3.1

C-weighting

Setting of Unit-under-test (UUT)				Applied value		UUT Reading, dB	IEC 61672 Class 1 Specification, dB
Range, dB	Freq. Weighting	Time Weighting	Level, dB	Frequency, Hz			
20-140	dBC	SPL	Fast	94	31.5	90.9	-3.0±2.0
					63	93.1	-0.8±1.5
					125	93.8	-0.2±1.5
					250	94.0	-0.0±1.4
					500	93.9	-0.0±1.4
					1000	93.7	Ref
					2000	93.6	-0.2±1.6
					4000	94.5	-0.8±1.6
					8000	89.3	-3.0+2.1; -3.1

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## 5. Calibration Results Applied

The results apply to the particular unit-under-test only. All calibration points are within manufacture's specification as IEC 61672 Class 1.

Uncertainties of Applied Value:

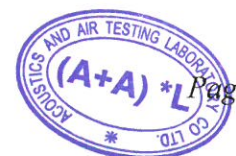
94 dB	31.5 Hz	± 0.05
	63 Hz	± 0.10
	125 Hz	± 0.05
	250 Hz	± 0.05
	500 Hz	± 0.05
	1000 Hz	± 0.05
	2000 Hz	± 0.05
	4000 Hz	± 0.05
	8000 Hz	± 0.10
104 dB	1000 Hz	± 0.05
114 dB	1000 Hz	± 0.05

The uncertainties are evaluated for a 95% confidence level.

### Note:

The values given in this certification only related to the values measured at the time of the calibration and any uncertainties quoted will not allow for the equipment long-term drift, variations with environmental changes, vibration and shock during transportation, overloading, mis-handling, or the capability of any other laboratory to repeat the calibration. (A+A)\*L shall not be liable for any loss or damage resulting from the use of the equipment.

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# Certificate of Calibration

for

**Description:** *Sound Level Meter*  
**Manufacturer:** *SVANTEK*  
**Type No.:** *971 (Serial No.: 96062)*  
**Microphone:** *ACO 7052 E (Serial No.:78090)*  
**Preamplifier:** *SVANTEK SV 18 (Serial No.:103808)*

**Submitted by:**

**Customer:** *Acuity Sustainability Consulting Limited*  
**Address:** *Unit 1908, Nos. 301-305 Castle Peak Road,  
Kwai Chung, N.T.*

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

- Within (31.5 Hz to 4k Hz)**  
 **Outside**

the allowable tolerance.

The test equipment used for calibration are traceable to National Standards via:

- The Government of The Hong Kong Special Administrative Region Standard & Calibration Laboratory

**Date of receipt:** 2 July 2021

**Date of calibration:** 5 July 2021

**Calibrated by:** \_\_\_\_\_  
*Calibration Technician*

**Certified by:** \_\_\_\_\_  
*Mr. Ng Yan Wa  
Laboratory Manager*

**Date of issue:** 5 July 2021

Certificate No.: APJ21-029-CC001



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### 1. Calibration Precaution:

- The unit-under-test (UUT) was allowed to stabilize in the laboratory for over 24 hours, and switched on to warm up for over 10 minutes before the commencement of the test.
- The results presented are the mean of 3 measurements at each calibration point.

### 2. Calibration Conditions:

Air Temperature: 24.2 °C  
 Air Pressure: 1004 hPa  
 Relative Humidity: 60.8 %

### 3. Calibration Equipment:

	Type	Serial No.	Calibration Report Number	Traceable to
Multifunction Calibrator	B&K 4226	2288467	AV200041	HOKLAS

### 4. Calibration Results

Sound Pressure Level

Reference Sound Pressure Level

Setting of Unit-under-test (UUT)				Applied value		UUT Reading, dB	IEC 61672 Class 1 Specification, dB
Range, dB	Freq. Weighting	Time Weighting	Level, dB	Frequency, Hz			
20-140	dBA SPL	Fast	94	1000	94.0	±0.4	

Linearity

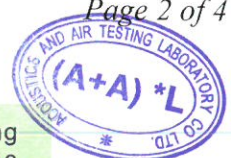
Setting of Unit-under-test (UUT)				Applied value		UUT Reading, dB	IEC 61672 Class 1 Specification, dB
Range, dB	Freq. Weighting	Time Weighting	Level, dB	Frequency, Hz			
20-140	dBA SPL	Fast	94	1000	94.0	Ref	
			104		104.0	±0.3	
			114		114.0	±0.3	

Time Weighting

Setting of Unit-under-test (UUT)				Applied value		UUT Reading, dB	IEC 61672 Class 1 Specification, dB
Range, dB	Freq. Weighting	Time Weighting	Level, dB	Frequency, Hz			
20-140	dBA SPL	Fast	94	1000	94.0	Ref	
		Slow			94.0	±0.3	

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Frequency Response

Linear Response

Setting of Unit-under-test (UUT)			Applied value		UUT Reading, dB	IEC 61672 Class 1 Specification, dB	
Range, dB	Freq. Weighting	Time Weighting	Level, dB	Frequency, Hz			
20-140	dB	SPL	94	Fast	31.5	94.1	±2.0
					63	94.1	±1.5
					125	94.1	±1.5
					250	94.1	±1.4
					500	94.1	±1.4
					1000	94.0	Ref
					2000	93.8	±1.6
4000	93.3	±1.6					

A-weighting

Setting of Unit-under-test (UUT)			Applied value		UUT Reading, dB	IEC 61672 Class 1 Specification, dB	
Range, dB	Freq. Weighting	Time Weighting	Level, dB	Frequency, Hz			
20-140	dBA	SPL	94	Fast	31.5	54.9	-39.4±2.0
					63	68.0	-26.2±1.5
					125	78.0	-16.1±1.5
					250	85.4	-8.6±1.4
					500	90.8	-3.2±1.4
					1000	94.0	Ref
					2000	95.0	+1.2±1.6
4000	94.3	+1.0±1.6					

C-weighting

Setting of Unit-under-test (UUT)			Applied value		UUT Reading, dB	IEC 61672 Class 1 Specification, dB	
Range, dB	Freq. Weighting	Time Weighting	Level, dB	Frequency, Hz			
20-140	dBC	SPL	94	Fast	31.5	91.1	-3.0±2.0
					63	93.3	-0.8±1.5
					125	93.9	-0.2±1.5
					250	94.1	-0.0±1.4
					500	94.1	-0.0±1.4
					1000	94.0	Ref
					2000	93.6	-0.2±1.6
4000	92.5	-0.8±1.6					

## 5. Calibration Results Applied

The results apply to the particular unit-under-test only. All calibration points are within manufacture's specification as IEC 61672 Class 1.

Uncertainties of Applied Value:

94 dB	31.5 Hz	± 0.15
	63 Hz	± 0.10
	125 Hz	± 0.05
	250 Hz	± 0.05
	500 Hz	± 0.05
	1000 Hz	± 0.05
	2000 Hz	± 0.05
	4000 Hz	± 0.05
104 dB	1000 Hz	± 0.05
114 dB	1000 Hz	± 0.05

The uncertainties are evaluated for a 95% confidence level.


Note:

The values given in this certification only related to the values measured at the time of the calibration and any uncertainties quoted will not allow for the equipment long-term drift, variations with environmental changes, vibration and shock during transportation, overloading, mis-handling, or the capability of any other laboratory to repeat the calibration. (A+A)\*L shall not be liable for any loss or damage resulting from the use of the equipment.



# MAXLAB

## CALIBRATION CERTIFICATE

<i>Certificate Information</i>												
<b>Date of Issue</b>	20-Mar-2021	<b>Certificate Number</b> MLCN210569S										
<i>Customer Information</i>												
<b>Company Name</b>	Acuity Sustainability Consulting Limited											
<b>Address</b>	Unit C, 11/F., Ford Glory Plaza, Nos. 37-39 Wing Hing Street, Cheung Sha Wan, Kowloon, HK											
<i>Equipment-under-Test (EUT)</i>												
<b>Description</b>	Sound Calibrator											
<b>Manufacturer</b>	Svantek											
<b>Model Number</b>	SV 33B											
<b>Serial Number</b>	83042											
<b>Equipment Number</b>	--											
<i>Calibration Particular</i>												
<b>Date of Calibration</b>	20-Mar-2021											
<b>Calibration Equipment</b>	4231(MLTE008) / AV200063 / 23-Jun-23 1357(MLTE190) / MLEC20/05/02 / 26-May-21											
<b>Calibration Procedure</b>	MLCG00, MLCG15											
<b>Calibration Conditions</b>	Laboratory	<table border="1"> <tr> <td>Temperature</td> <td>23 °C ± 5 °C</td> </tr> <tr> <td>Relative Humidity</td> <td>55% ± 25%</td> </tr> <tr> <td>Stabilizing Time</td> <td>Over 3 hours</td> </tr> <tr> <td>Warm-up Time</td> <td>Not applicable</td> </tr> <tr> <td>Power Supply</td> <td>Internal battery</td> </tr> </table>	Temperature	23 °C ± 5 °C	Relative Humidity	55% ± 25%	Stabilizing Time	Over 3 hours	Warm-up Time	Not applicable	Power Supply	Internal battery
Temperature	23 °C ± 5 °C											
Relative Humidity	55% ± 25%											
Stabilizing Time	Over 3 hours											
Warm-up Time	Not applicable											
Power Supply	Internal battery											
	EUT											
<b>Calibration Results</b>	Calibration data were detailed in the continuation pages. All calibration results were within EUT specification.											
<i>Approved By &amp; Date</i>												
		K.O. Lo 20-Mar-2021										
<i>Statements</i>												
<ul style="list-style-type: none"> <li>* Calibration equipment used for this calibration are traceable to national / international standards.</li> <li>* The results on this Calibration Certificate only relate to the values measured at the time of the calibration and the uncertainties quoted will not include allowance for the EUT long term drift, variation with environmental changes, vibration and shock during transportation, overloading, mishandling, misuse, and the capacity of any other laboratory to repeat the measurement.</li> <li>* MaxLab Calibration Centre Limited shall not be liable for any loss or damage resulting from the use of the EUT.</li> <li>* The copy of this Certificate is owned by MaxLab Calibration Centre Limited. No part of this Certificate may be reproduced without the prior written approval of MaxLab Calibration Centre Limited.</li> </ul>												



# MAXLAB

Certificate No. MLCN210569S

<i>Calibration Data</i>				
EUT Setting	Standard Reading	EUT Error	Calibration Uncertainty	EUT Specification
114 dB	114.0 dB	0.0 dB	0.15 dB	± 0.3 dB

- END -

Calibrated By : Dan  
Date : 20-Mar-21

Checked : K.O. Lo  
Date : 20-Mar-21

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