Contract No. EP/SP/66. Integrated Waste Mana	/12 gement Facilities, Phase 1	Keppel Seghers – Zhen Hua Joint Venture
Appendix H	Noise Monitoring Equipmer Certificate	nt Calibration

Certificate of Calibration

for

Description:

Sound Level Meter

Manufacturer:

NTi Audic

Type No.:

XL2 (Serial No.: Az.4-13548-E0)

Microphone:

ACO 7352 (Serial No.:73780)

Preamplifier:

NT. Audio M2211 MA220 (Serial No.:5235)

Submitted by:

Customer:

Acu ty 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 colloration are traceable to National Standards via:

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

Date of receipt: 10 December 2020

Date of calibration: 12 December 2020

Celibrated by:

Certified by:

Mr. Ng Yan Wa Aboratory Manager

Date of issue: 12 December 2020

Cal brain: Technici in

Page 1 of 4

Certificate No.: APJ20-1.4 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:

23.7°**C**

Air Pressure:

1006 **hPa**

Relative Humidity:

61.8 %

3. Calibration Equipment:

Type

Serial No.

Calibration Report Number

Traceal le to

Multifunction Calibrator

B&K 42.16

2288467

AV200041

HOKI A 3

4. Calibration Results

Sound Pressure Level

Reference Sound Pressure Level

Set	Setting of Unit-under-test (UUT)			ied value	UUT Reading,	IEC 61672 Class 1
Range, dB	Fi eq. Weighting	Tirae Weighting	Level, 1B	Frequency, Hz	dB	Specification, dB
30-130	dBA. SPL	Fast	94	1000	94.0	±0.4

Linearity

Setting of Unit-under-test (UUT)			Appl	ied value	UUT Reading,	IEC 61672 Class 1	
Range, dB	Freq. W	eighting	Time Weighting	Le el 1B	Frequency, Hz	dB	Specification, dB
				94		94.0	Ref
30-130	dBA	SPL	Fast	104	1000	104.0	±0.3
				114		114.0	±0.3

Time Weighting

Setti	ng r i Ui	nit-under-t	est (UJT)	Appl	ied value	UUT Reading,	IEC 61672 Class 1
Range, d's	Freq. V	Weighting	C.me Weighting	Level, dB	Frequency, Hz	dB	Specification, dB
30-130	dBA	SPL	Fast	94	1000	94.0	Ref
30-130	UDA	SPL	Slow	94	1000	94.0	±0.3

Certificate No.: APJ20-1,4-CC001

(A+A) *L

Page 2 of 4

Room 422,Leader In Justrial Centre,57-59 Au Pui Wan Street ,Fo Tan, Shatin,N.T.,Hong Kong Tel: (852) 2668 3423 Fax:(852) 2668 6946

Homepage: http://www.aa-lab.com



Frequency Response

Linear Response

Sett	ing of Unit	-under-t	est (UUT)	Appl	i d value	UUT Reading,	IEC 61672 Class 1
Range, dB	Freq. We	eighting	Time Weighting	Level, dP	Frequency, Hz	dB	Specification, dB
					31.5	94.1	±2.0
					63	94.1	±1.5
					125	94.1	±1.5
					250	94.1	+1.4
30-130	dB	SPL	Fast	94	J00	94.1	±1.4
					1000	94.0	Ref
					2000	93.8	±1.6
					4000	93.4	±1/3
					8000	92.7	+2/1; -3.1

A-weighting

Sett	ing of Unit-under-t	est (UU1)	Appl	lied value UUT Reading, II		IEC 61672 Class 1
Range, dB	Freq. Weighting	Time Weighting	Level, dB	Frequency, Hz	dB	Specification, dB
				31.5	54.7	-39.4 ±2.0
				63	68.0	-26.2 ±1.5
				125	75.0	-16.1 ±1.5
				250	85.4	-8.6 ±1.4
30-130	d'3A SPL	Fast	94	500	90.8	-3.2 ±1.4
				1000	94.0	Ref
	/ /			2000	95.0	+1.2 ±1.6
				4000	94.4	+1.0 ±1.6
				8000	91.6	-1.1+2.1; -3.1

C-weighting

	Setting of Unit-under-test (UUT)				ied value	UUT Reading,	IEC 61672 Class 1	
Rang	e, dB Freq. V	Veighting	Time Weighting	Level, dB	Frequency, Hz	dB	Specification, dB	
					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	
30	130 dBC	SPL	Tast	94	500	94.1	-0.0 ± 1.4	
V					1000	94.0	Ref	
					2000	93.7	-0.2 ±1.6	
)/		4000	92.6	-0.8 ±1.6	
			1/		8000	89.7	-3.0 +2.1: -3.1	

Certificate No.: 1PJ20-1,4-CC001



Page 3 of 4

Homepage: http://www.aa-lab.com



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	± 0.15
	125 Hz	0.10
	250 Hz	+ 5.10
	500 Hz	± 0.10
	1000 Hz	± 0.05
	2000 Hz	± 0.05
	4000 Hz	± 0.05
	8000 Hz	± 0.10
104 dB	1000 H:	± 0.05
114 dB	1000 Hz	± 0.05

The uncertainties are evaluated for a 95% confidence level.

Note:

The values given in his certification only related to the values measured at the time of the calibration and any ancertainties 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 colibration. (A+A)*L shall not be liable for any loss or damage resulting from the use of the equipment.



Certificate No.: 1PJ20-1+4-CC001

Page 4 of 4

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 aboratory Manager

Date of issue: 30 June 2021

Certificate No.: APJ21-030-CC001

A+A) *LPage 1 of 4

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)				Арр	lied value	UUT Reading.	IEC 61672 Class 1
Range, dB	Freq. W	eighting/	Time Weighting	Level, dB	Frequency, Hz		Specification, dB
20-140	dBA	SPL	Fast	94	1000	93.7	±0.4

Linearity

Setting of Unit-under-test (UUT)			App	lied value	IIIIT Pending	IEC 61672 Class 1	
Range, dB	Freq. W	eighting	Time Weighting			li i	Specification, dB
20-140	dBA	CDI		94		93.7	Ref
20-140	uвА	SPL	Fast	104	1000	103.7	±0.3
				114		113.7	±0.3

Time Weighting

Setting of Unit-under-test (UUT)			App	ied value	IIIIT Reading	IEC 61672 Class 1	
Range, dB	Freq. W	eighting	Time Weighting	Level, dB	Frequency, Hz		Specification, dB
20-140	dBA	SPL	Fast	20 10		93.7	
20 110		JIL SIL	Slow	94 1000	1000	93.7	Ref ±0.3

Certificate No.: APJ21-030-CC001

AT TESTING LAGOR Page 2 of 4

Frequency Response

Linear Response

Setting of Unit-under-test (UUT)			Applied value		UUT Reading,	IEC 61672 Class 1	
Range, dB	Freq. W	eighting	Time Weighting	Level, dB	Frequency, Hz	1	Specification, dB
			31.5	94.0	±2.0		
				63	93.9	±1.5	
				125	94.0	±1.5	
		100000	Fast	94	250	94.0	±1.4
20-140	dB	SPL			500	93.9	±1.4
					1000	93.7	Ref ±1.6 ±1.6
					2000	93.8	
					4000	95.6	
					8000	92.1	+2.1; -3.1

A-weighting

Sett	Setting of Unit-under-test (UUT)			Appl	ied value	UUT Reading,	IEC 61672 Class 1
Range, dB	Freq. W	eighting	Time Weighting	Level, dB	Frequency, Hz		Specification, dB
					31.5	54.7	-39.4 ±2.0
		2			63	67.8	-26.2 ±1.5
					125	77.9	-16.1 ±1.5
					250	85.3	-8.6 ± 1.4
20-140	dBA	SPL	Fast	94	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

Sett	Setting of Unit-under-test (UUT)			Appl	Applied value		IEC 61672 Class 1
Range, dB	Freq. W	eighting	Time Weighting	Level, dB	Frequency, Hz		Specification, dB
					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
20-140	dBC	SPL	Fast	94	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

Certificate No.: APJ21-030-CC001



Homepage: http://www.aa-lab.com

Fax:(852) 2668 6946



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.

Certificate No.: APJ21-030-CC001



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 receip	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

Date of issue: 5 July 2021

Certified by:

Mr. Ng Yan Wa

age 1 of 4

Laboratory Manager

Certificate No.: APJ21-029-CC001

Room 422, Leader Industrial Centre, 57-59 Au Pui Wan Street, Fo Tan, Shatin, N.T., Hong Kong Tel: (852) 2668 3423 Fax: (852) 2668 6946 Homepage: http://www.aa-lab.com

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,	IEC 61672 Class 1		
Range, dB	Freq. W	eighting	Time Weighting	Level, dB	Frequency, Hz	dB	Specification, dB
20-140	dBA	SPL	Fast	94	1000	94.0	±0.4

Linearity

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

Time Weighting

Sett	ing of U	g of Unit-under-test (UUT) Appl		ied value	UUT Reading,	IEC 61672 Class 1	
Range, dB	Freq.	Weighting	Time Weighting	Level, dB	Frequency, Hz	dB	Specification, dB
20-140	dBA	SPL	Fast	94	1000	94.0	Ref
	ub/ t		Slow	94	1000	94.0	±0.3

Certificate No.: APJ21-029-CC001

Room 422, Leader Industrial Centre, 57-59 Au Pui Wan Street, Fo Tan, Shatin, N.T., Hong Kong Tel: (852) 2668 3423 Fax:(852) 2668 6946



Frequency Response

Linear Response

Sett	Setting of Unit-under-test (UUT)			Applied value		UUT Reading,	IEC 61672 Class 1
Range, dB	Freq. W	eighting	Time Weighting	Level, dB			Specification, dB
					31.5	94.1	±2.0
				63	94.1	±1.5	
			Fast		125	94.1 94.1	±1.5
20-140	dB	SPL		94	250		±1.4
20 7 10	ub	SiL	1 ust	24	500 94.1	94.1	±1.4
				1000 94.0	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,	IEC 61672 Class 1	
Range, dB	Freq. V	Veighting	Time Weighting	Level, dB			Specification, dB
					31.5	54.9	-39.4 ±2.0
				63	68.0	-26.2 ±1.5	
		125 78.0	78.0	-16.1 ±1.5			
20-140	dBA	SPL	Fast	94 250 85.4	85.4	-8.6 ± 1.4	
20110	GD11	OI L	1 431	24	500	90.8	-3.2 ±1.4
				1000 94.0	94.0	Ref	
				2000	95.0	+1.2 ±1.6	
					4000	94.3	$+1.0\pm1.6$

C-weighting

Sett	Setting of Unit-under-test (UUT)			Appl	ied value	UUT Reading,	IEC 61672 Class 1
Range, dB	Freq. W	eighting	Time Weighting	Level, dB	Frequency, Hz	dB	Specification, dB
				300	31.5	91.1	-3.0 ±2.0
					63	93.3	-0.8 ±1.5
					125	93.9	-0.2 ±1.5
20-140	dBC	SPL	Fast	94	250	94.1	-0.0 ± 1.4
20 110	ubc	SIL	rast	94	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

Certificate No.: APJ21-029-CC001

Page 3 of 4

AIR TESTING LAGO

(A+A) *L

R

OIL OF

Room 422,Leader Industrial Centre,57-59 Au Pui Wan Street ,Fo Tan, Shatin,N.T.,Hong Kong
Tel: (852) 2668 3423 Fax:(852) 2668 6946
Homepage: http://www.aa-lab.com E-mail: inquiry@aa-lab.com



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.

Certificate No.: APJ21-029-CC001





CALIBRATION CERTIFICATE

Certificate Information

Date of Issue 20-Mar-2021 Certificate Number MLCN210569S

Customer Information

Company Name Acuity Sustainability Consulting Limited

Address Unit C, 11/F., Ford Glory Plaza, Nos. 37-39 Wing Hing Street,

Cheung Sha Wan, Kowloon, HK

Equipment-under-Test (EUT)

Description Sound Calibrator

Manufacturer Svantek

Model Number SV 33B Serial Number 83042

Equipment Number

Calibration Particular

Date of Calibration 20-Mar-2021

Calibration Equipment | 4231(MLTE008) / AV200063 / 23-Jun-23

1357(MLTE190) / MLEC20/05/02 / 26-May-21

Calibration Procedure MLCG00, MLCG15

Calibration Conditions Laboratory Temperature $23 \,^{\circ}\text{C} \pm 5 \,^{\circ}\text{C}$

Relative Humidity $55\% \pm 25\%$

EUT Stabilizing Time Over 3 hours

Warm-up Time Not applicable Power Supply Internal battery

Calibration Results Calibration data were detailed in the continuation pages.

All calibration results were within EUT specification.

Approved By & Date

/ K.O. Lo 20-Mar-2021

Statements

- * Calibration equipment used for this calibration are traceable to national / international standards.
- * 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.
- * MaxLab Calibration Centre Limited shall not be liable for any loss or damage resulting from the use of the EUT.
- * 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.

Page 1 of 2



Certificate No. MLCN210569S

Calibration Data	THE PARTY.	PASTER E	扩张 等数数数	NAME OF THE PERSON OF THE PERS
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

Checked

K.O. Lo

Date:

20-Mar-21

Date:

20-Mar-21

Page 2 of 2