

Certificate of Calibration

for

Description: Sound Level Meter
Manufacturer: NTi Audio
Type No.: XL2 (Serial No.: A2A-17638-E0)
Microphone: ACO 7052 (Serial No.:73912)
Preamplifier: NTi Audio M2211 MA220 (Serial No.:10390)

Submitted by:

Customer: Aurecon Hong Kong Limited
Address: Unit 1608, 16/F, Tower B, Manulife Financial Centre,
223-231 Wai Yip Street, Kwun Tong,
Kowloon, Hong Kong

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

- ☒ Within (31.5Hz – 8kHz)
☐ Outside

the allowable tolerance.

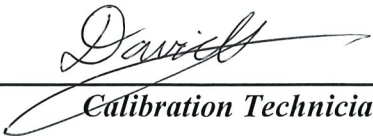
The test equipment used for calibration are traceable to National Standards via:

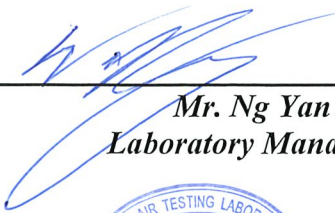
- The Government of The Hong Kong Special Administrative Region Standard & Calibration Laboratory

Date of receipt: 27 January 2025

Date of calibration: 3 February 2025

Date of NEXT calibration: 2 February 2026

Calibrated by: 
Calibration Technician

Certified by: 
Mr. Ng Yan Wa
Laboratory Manager

Date of issue: 3 February 2025

Certificate No.: APJ24-142-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: 68.5 %

3. Calibration Equipment:

	Type	Serial No.	Calibration Report Number	Traceable to
Multifunction Calibrator	B&K 4226	2288467	AV240081	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. Weighting	Time Weighting	Level, dB	Frequency, Hz	dB	Specification, dB
30-130	dBA SPL	Fast	94	1000	94.1	±0.4

Linearity

Setting of Unit-under-test (UUT)			Applied value		UUT Reading,	IEC 61672 Class 1
Range, dB	Freq. Weighting	Time Weighting	Level, dB	Frequency, Hz	dB	Specification, dB
30-130	dBA 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,	IEC 61672 Class 1
Range, dB	Freq. Weighting	Time Weighting	Level, dB	Frequency, Hz	dB	Specification, dB
30-130	dBA 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,	IEC 61672 Class 1
Range, dB	Freq. Weighting	Time Weighting	Level, dB	Frequency, Hz	dB	Specification, dB
30-130	dB	SPL	94	31.5	94.2	± 2.0
				63	94.2	± 1.5
				125	94.1	± 1.5
				250	94.1	± 1.4
				500	94.1	± 1.4
				1000	94.1	Ref
				2000	94.4	± 1.6
				4000	95.1	± 1.6
				8000	94.7	+2.1; -3.1

A-weighting

Setting of Unit-under-test (UUT)			Applied value		UUT Reading,	IEC 61672 Class 1
Range, dB	Freq. Weighting	Time Weighting	Level, dB	Frequency, Hz	dB	Specification, dB
30-130	dBA	SPL	94	31.5	54.8	-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	90.9	-3.2 ± 1.4
				1000	94.1	Ref
				2000	95.6	$+1.2 \pm 1.6$
				4000	96.1	$+1.0 \pm 1.6$
				8000	93.6	-1.1 ± 2.1 ; -3.1

C-weighting

Setting of Unit-under-test (UUT)			Applied value		UUT Reading,	IEC 61672 Class 1
Range, dB	Freq. Weighting	Time Weighting	Level, dB	Frequency, Hz	dB	Specification, dB
30-130	dBC	SPL	94	31.5	91.2	-3.0 ± 2.0
				63	93.4	-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	94.3	-0.2 ± 1.6
				4000	94.3	-0.8 ± 1.6
				8000	91.7	-3.0 ± 2.1 ; -3.1

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	± 0.10
	250 Hz	± 0.05
	500 Hz	± 0.10
	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.: C119577)*
Microphone: *ACO 7052E (Serial No.: 93026)*
Preamplifier: *SV 18 (Serial No.:103880)*

Submitted by:

Customer: *Aurecon Hong Kong Limited*
Address: *Unit 1608, 16/F, Tower B, Manulife Financial Centre,*
223-231 Wai Yip Street,
Kwun Tong, Kowloon, Hong Kong

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

- ☒ **Within (31.5Hz – 4kHz)**
☐ **Outside**

the allowable tolerance.

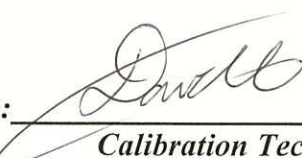
The test equipment used for calibration are traceable to National Standards via:

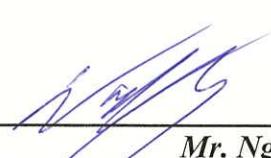
- The Government of The Hong Kong Special Administrative Region Standard & Calibration Laboratory

Date of receipt: 23 October 2024

Date of calibration: 24 October 2024

Date of NEXT calibration: 23 October 2025

Calibrated by: 
Calibration Technician

Certified by: 
Mr. Ng Yan Wa
Laboratory Manager

Date of issue: 24 October 2024

Certificate No.: APJ23-155-CC004



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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: 25.6 °C
Air Pressure: 1006 hPa
Relative Humidity: 51.8 %

3. Calibration Equipment:

	Type	Serial No.	Calibration Report Number	Traceable to
Multifunction Calibrator	B&K 4226	2288467	AV240081	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. Weighting	Time Weighting	Level, dB	Frequency, Hz	dB	Specification, dB
25-125.2	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. Weighting	Time Weighting	Level, dB	Frequency, Hz	dB	Specification, dB
25-125.2	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,	IEC 61672 Class 1
Range, dB	Freq. Weighting	Time Weighting	Level, dB	Frequency, Hz	dB	Specification, dB
25-125.2	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		
25-125.2	dB	SPL	94	31.5	94.3	±2.0
				63	94.2	±1.5
				125	94.1	±1.5
				250	94.1	±1.4
				500	94.1	±1.4
				1000	94.0	Ref
				2000	93.7	±1.6
				4000	93.2	±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		
25-125.2	dBA	SPL	94	31.5	55.0	-39.4±2.0
				63	68.1	-26.2±1.5
				125	78.1	-16.1±1.5
				250	85.5	-8.6±1.4
				500	90.8	-3.2±1.4
				1000	94.0	Ref
				2000	94.9	+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		
25-125.2	dBC	SPL	94	31.5	91.4	-3.0±2.0
				63	93.4	-0.8±1.5
				125	94.0	-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	± 0.10
	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
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.: APJ23-155-CC004



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Certificate of Calibration

for

Description: *Sound Level Meter*
Manufacturer: *RION*
Type No.: *NL-53 (Serial No.: 01130784)*
Microphone: *UC-59 (Serial No.: 24908)*
Preamplifier: *NH-25 (Serial No.:33675)*

Submitted by:

Customer: *Aurecon Hong Kong Limited*
Address: *Unit 1608, 16/F, Tower B, Manulife Financial Centre,*
223-231 Wai Yip Street, Kwun Tong,
Kowloon, Hong Kong

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

- ☒ **Within (31.5Hz – 4kHz)**
☐ **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: 26 February 2025

Date of calibration: 27 February 2025

Date of NEXT calibration: 26 February 2026

Calibrated by: *David*
Calibration Technician

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

Date of issue: 27 February 2025

Certificate No.: APJ24-154-CC003



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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: 25.8 °C
Air Pressure: 1006 hPa
Relative Humidity: 54.9 %

3. Calibration Equipment:

	Type	Serial No.	Calibration Report Number	Traceable to
Multifunction Calibrator	B&K 4226	2288467	AV240081	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. Weighting	Time Weighting	Level, dB	Frequency, Hz	dB	Specification, dB
30-130	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. Weighting	Time Weighting	Level, dB	Frequency, Hz	dB	Specification, dB
30-130	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,	IEC 61672 Class 1
Range, dB	Freq. Weighting	Time Weighting	Level, dB	Frequency, Hz	dB	Specification, dB
30-130	dBA SPL	Fast	94	1000	94.0	Ref
		Slow			94.0	±0.3

Certificate No.: APJ24-154-CC003



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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	94	31.5	94.2	±2.0
				63	94.2	±1.5
				125	94.2	±1.5
				250	94.1	±1.4
				500	94.1	±1.4
				1000	94.0	Ref
				2000	93.7	±1.6
				4000	92.5	±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		
30-130	dBA	SPL	94	31.5	54.9	-39.4 ±2.0
				63	68.0	-26.2 ±1.5
				125	78.0	-16.1 ±1.5
				250	85.5	-8.6 ±1.4
				500	90.8	-3.2 ±1.4
				1000	94.0	Ref
				2000	94.9	+1.2 ±1.6
				4000	93.5	+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		
30-130	dBC	SPL	94	31.5	91.2	-3.0 ±2.0
				63	93.4	-0.8 ±1.5
				125	94.0	-0.2 ±1.5
				250	94.1	-0.0 ±1.4
				500	94.1	-0.0 ±1.4
				1000	94.0	Ref
				2000	93.5	-0.2 ±1.6
				4000	91.7	-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	± 0.10
	63 Hz	± 0.05
	125 Hz	± 0.10
	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.: APJ24-154-CC003



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Certificate of Calibration

for

Description: *Sound Level Calibrator*
Manufacturer: *RION*
Type No.: *NC-74*
Serial No.: *34615222*

Submitted by:

Customer: *Aurecon Hong Kong Limited*
Address: *Unit 1608, 16/F, Tower B, Manulife Financial Centre,*
223-231 Wai Yip Street, Kwun Tong,
Kowloon, Hong Kong

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

☒ **Within**

☐ **Outside**

the allowable tolerance.

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

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

Date of receipt: 14 April 2025

Date of calibration: 15 April 2025

Date of NEXT calibration: 14 April 2026

Calibrated by: _____
Calibration Technician

Certified by: _____
Mr. Ng Yan Wa
Laboratory Manager

Date of issue: 15 April 2025

Certificate No.: APJ25-005-CC001



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**1. Calibration Precautions:**

- 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 Specifications:

Calibration check

3. Calibration Conditions:

Air Temperature: 24.5 °C
Air Pressure: 1006 hPa
Relative Humidity: 64.5 %

4. Calibration Equipment:

Test Equipment	Type	Serial No.	Calibration Report Number	Traceable to
Multifunction Calibrator	B&K 4226	2288467	AV240081	HOKLAS
Sound Level Meter	RION NA-28	30721812	AV240109	HOKLAS

5. Calibration Results**5.1 Sound Pressure Level**

Nominal value dB	Accept lower level dB	Accept upper level dB	Measured value dB
94.0	93.6	94.4	93.7

Note:

The values given in this certification only related to the values measured at the time of the calibration.

