# Appendix E

# Noise Monitoring Equipment Calibration Certificate

(A+A)*L Acoustics and Air Testing Laboratory Co. Ltd.
聲學及空氣測試實驗室有限公司

# *Certificate of Calibration*

*for*

| | |
|---|---|
| ***Description:*** | ***Sound Level Calibrator*** |
| ***Manufacturer:*** | ***RION*** |
| ***Type No.:*** | ***NC-75*** |
| ***Serial No.:*** | ***35124527*** |

***Submitted by:***

| | |
|---|---|
| *Customer:* | *Acuity Sustainability Consulting Limited* |
| *Address:* | *Unit E, 12/F, Ford Glory Plaza,* |
| | *Nos. 37-39 Wing Hong Street,* |
| | *Cheung Sha Wan, 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: 19 October 2023**

**Date of calibration: 27 October 2023**

**Date of NEXT calibration: 26 October 2024**

***Calibrated by:*** _____
***Calibration Technician***

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

***Date of issue:*** *27* **October 2023**

ACOUSTICS AND AIR TESTING LABORATORY CO. LTD. (A+A)*L



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

## 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:** | 24.4 °C |
| **Air Pressure:** | 1013 hPa |
| **Relative Humidity:** | 65.4 % |

## 4. *Calibration Equipment:*

| Test Equipment | Type | Serial No. | Calibration Report Number | Traceable to |
|---|---|---|---|---|
| **Multifunction Calibrator** | B&K 4226 | 2288467 | AV220061 | HOKLAS |
| **Sound Level Meter** | RION NA-28 | 30721812 | AV220120 | 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 | 94.0 |

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

ACOUSTICS AND AIR TESTING LABORATORY CO. LTD. (A+A)*L



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

# *Certificate of Calibration*

*for*

| | |
|---|---|
| ***Description:*** | ***Sound Level Meter*** |
| ***Manufacturer:*** | ***SVANTEK*** |
| ***Type No.:*** | ***Svan 971 (Serial No.: 77731)*** |
| ***Microphone:*** | ***BA3871 (Serial No.: 13905)*** |
| ***Preamplifier:*** | ***SV18 (Serial No.: 121481)*** |

***Submitted by:***

| | |
|---|---|
| *Customer:* | *Acuity Sustainability Consulting Limited* |
| *Address:* | *Unit E, 12/F, Ford Glory Plaza,* |
| | *Nos. 37-39 Wing Hong Street,* |
| | *Cheung Sha Wan, 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: 16 March 2023**

**Date of calibration: 21 March 2023**

**Date of NEXT calibration: 20 March 2024**

***Calibrated by:*** _____
***Calibration Technician***

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

***Date of issue:*** **21 March 2023**

*Certificate No.: APJ22-157-CC001*

ACOUSTICS AND AIR TESTING LABORATORY CO. LTD. (A+A)*L



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

## 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:** | 22.1 °C |
| **Air Pressure:** | 1003 hPa |
| **Relative Humidity:** | 62.2 % |

## 3. *Calibration Equipment:*

| | Type | Serial No. | Calibration Report Number | Traceable to |
|---|---|---|---|---|
| **Multifunction Calibrator** | B&K 4226 | 2288467 | AV220061 | 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 | | |
| 20-120 | dBA 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 | | |
| 20-120 | 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, dB | IEC 61672 Class 1 Specification, dB |
|---|---|---|---|---|---|---|
| Range, dB | Freq. Weighting | Time Weighting | Level, dB | Frequency, Hz | | |
| 20-120 | dBA SPL | Fast | 94 | 1000 | 94.1 | Ref |
| | | Slow | | | 94.1 | ±0.3 |



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

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 | | |
| 20-120 | dB SPL | Fast | 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 | 94.1 | Ref |
| | | | | 2000 | 93.8 | ±1.6 |
| | | | | 4000 | 92.9 | ±1.6 |
| | | | | 8000 | 91.4 | +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 | | |
| 20-120 | dBA SPL | Fast | 94 | 31.5 | 54.9 | -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 | 90.9 | -3.2 ±1.4 |
| | | | | 1000 | 94.1 | Ref |
| | | | | 2000 | 95.0 | +1.2 ±1.6 |
| | | | | 4000 | 93.9 | +1.0 ±1.6 |
| | | | | 8000 | 90.5 | -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 | | |
| 20-120 | dBC SPL | Fast | 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 | 93.6 | -0.2 ±1.6 |
| | | | | 4000 | 92.1 | -0.8 ±1.6 |
| | | | | 8000 | 88.6 | −3.0 +2.1: −3.1 |



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 | ± 0.10 |
| | 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.



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