



輝創工程有限公司

Sun Creation Engineering Limited

Calibration & Testing Laboratory

# Certificate of Calibration

## 校正證書

Certificate No. : C231907

證書編號

ITEM TESTED / 送檢項目 ( Job No. / 序引編號 : IC23-0587 )

Date of Receipt / 收件日期 : 20 March 2023

Description / 儀器名稱 : Integrating Sound Level Meter

Manufacturer / 製造商 : Brüel & Kjær

Model No. / 型號 : 2238

Serial No. / 編號 : 2684503

Supplied By / 委託者 : Atkins China Limited

13/F., Wharf T&T Centre, Harbour City,  
Tsim Sha Tsui, Kowloon, Hong Kong

### TEST CONDITIONS / 測試條件

Temperature / 溫度 : (23 ± 2)°C

Relative Humidity / 相對濕度 : (50 ± 25)%

Line Voltage / 電壓 : ---

### TEST SPECIFICATIONS / 測試規範

Calibration check

DATE OF TEST / 測試日期 : 1 April 2023

### TEST RESULTS / 測試結果

The results apply to the particular unit-under-test only.

The results do not exceed specified limits.

These limits refer to manufacturer's published tolerances as requested by the customer.

The results are detailed in the subsequent page(s).

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

- The Government of The Hong Kong Special Administrative Region Standard & Calibration Laboratory
- Agilent Technologies / Keysight Technologies
- Fluke Everett Service Center, USA


Tested By

測試

  
K C Lee  
Engineer

Certified By

核證

  
K K Wong  
Engineer

Date of Issue

簽發日期

6 April 2023

The test equipment used for calibration is traceable to the National Standards as specified in this certificate. This certificate shall not be reproduced except in full, without the prior written approval of this laboratory.

本證書所載校正用之測試器材均可溯源至國際標準。局部複印本證書需先獲本實驗所書面批准。

Sun Creation Engineering Limited – Calibration & Testing Laboratory

c/o 4/F, 1 Hing On Lane, Tuen Mun, New Territories, Hong Kong

輝創工程有限公司 - 校正及檢測實驗室

c/o 香港新界屯門興安里一號四樓

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# Certificate of Calibration

## 校正證書

Certificate No. : C231907

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- The unit-under-test (UUT) was allowed to stabilize in the laboratory for over 12 hours, and switched on to warm up for over 10 minutes before the commencement of the test.
- Self-calibration using the B & K Sound Calibrator 4231, S/N : 3004068 was performed before the test.
- The results presented are the mean of 3 measurements at each calibration point.
- Test equipment :

Equipment ID	Description	Certificate No.
CL280	40 MHz Arbitrary Waveform Generator	C230306
CL281	Multifunction Acoustic Calibrator	AV210017

- Test procedure : MA101N.

- Results :

- 6.1 Sound Pressure Level :

- 6.1.1 Reference Sound Pressure Level

UUT Setting				Applied Value		UUT Reading (dB)	IEC 61672 Class 1 Limit (dB)
Range (dB)	Parameter	Frequency Weighting	Time Weighting	Level (dB)	Freq. (kHz)		
50 - 130	L <sub>AFP</sub>	A	F	94.00	1	94.1	± 1.1

- 6.1.2 Linearity

UUT Setting				Applied Value		UUT Reading (dB)
Range (dB)	Parameter	Frequency Weighting	Time Weighting	Level (dB)	Freq. (kHz)	
50 - 130	L <sub>AFP</sub>	A	F	94.00	1	94.1 (Ref.)
				104.00		104.1
				114.00		114.1

IEC 61672 Class 1 Limit : ± 0.6 dB per 10 dB step and ± 1.1 dB for overall different.

- 6.2 Time Weighting

UUT Setting				Applied Value		UUT Reading (dB)	IEC 61672 Class 1 Limit (dB)
Range (dB)	Parameter	Frequency Weighting	Time Weighting	Level (dB)	Freq. (kHz)		
50 - 130	L <sub>AFP</sub>	A	F	94.00	1	94.1	Ref.
	L <sub>ASP</sub>		S				± 0.3

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# Certificate of Calibration

## 校正證書

Certificate No. : C231907

證書編號

### 6.3 Frequency Weighting

#### 6.3.1 A-Weighting

UUT Setting				Applied Value		UUT Reading (dB)	IEC 61672 Class 1 Limit (dB)
Range (dB)	Parameter	Frequency Weighting	Time Weighting	Level (dB)	Freq.		
50 - 130	L <sub>AFP</sub>	A	F	94.00	63 Hz	67.9	-26.2 ± 1.5
					125 Hz	77.9	-16.1 ± 1.5
					250 Hz	85.4	-8.6 ± 1.4
					500 Hz	90.8	-3.2 ± 1.4
					1 kHz	94.1	Ref.
					2 kHz	95.3	+1.2 ± 1.6
					4 kHz	95.1	+1.0 ± 1.6
					8 kHz	92.9	-1.1 (+2.1 ; -3.1)
					12.5 kHz	89.8	-4.3 (+3.0 ; -6.0)

#### 6.3.2 C-Weighting

UUT Setting				Applied Value		UUT Reading (dB)	IEC 61672 Class 1 Limit (dB)
Range (dB)	Parameter	Frequency Weighting	Time Weighting	Level (dB)	Freq.		
50 - 130	L <sub>CFP</sub>	C	F	94.00	63 Hz	93.3	-0.8 ± 1.5
					125 Hz	93.9	-0.2 ± 1.5
					250 Hz	94.1	0.0 ± 1.4
					500 Hz	94.1	0.0 ± 1.4
					1 kHz	94.1	Ref.
					2 kHz	93.9	-0.2 ± 1.6
					4 kHz	93.2	-0.8 ± 1.6
					8 kHz	91.0	-3.0 (+2.1 ; -3.1)
					12.5 kHz	87.9	-6.2 (+3.0 ; -6.0)

The test equipment used for calibration is traceable to the National Standards as specified in this certificate. This certificate shall not be reproduced except in full, without the prior written approval of this laboratory.

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# Certificate of Calibration

## 校正證書

Certificate No. : C231907

證書編號

Remarks : - UUT Microphone Model No. : 4188 & S/N : 2682524

- Mfr's Limit : IEC 61672 Class 1

- Uncertainties of Applied Value : 94 dB : 63 Hz - 125 Hz : ± 0.35 dB  
250 Hz - 500 Hz : ± 0.30 dB  
1 kHz : ± 0.20 dB  
2 kHz - 4 kHz : ± 0.35 dB  
8 kHz : ± 0.45 dB  
12.5 kHz : ± 0.70 dB  
104 dB : 1 kHz : ± 0.10 dB (Ref. 94 dB)  
114 dB : 1 kHz : ± 0.10 dB (Ref. 94 dB)

- The uncertainties are for a confidence probability of not less than 95 %.

Note :

Only the original copy or the laboratory's certified true copy is valid.

The values given in this Certificate only relate to the values measured at the time of the test and any uncertainties quoted will not include allowance for the equipment long term drift, variations with environment changes, vibration and shock during transportation, overloading, mis-handling, or the capability of any other laboratory to repeat the measurement. Sun Creation Engineering Limited shall not be liable for any loss or damage resulting from the use of the equipment.

The test equipment used for calibration is traceable to the National Standards as specified in this certificate. This certificate shall not be reproduced except in full, without the prior written approval of this laboratory.

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# Certificate of Calibration

## 校正證書

Certificate No. : C231906

證書編號

ITEM TESTED / 送檢項目 (Job No. / 序引編號 : IC23-0587)

Date of Receipt / 收件日期 : 20 March 2023

Description / 儀器名稱 : Sound Calibrator  
Manufacturer / 製造商 : Brüel & Kjær  
Model No. / 型號 : 4231  
Serial No. / 編號 : 3004068  
Supplied By / 委託者 : Atkins China Limited  
13/F., Wharf T&T Centre, Harbour City,  
Tsim Sha Tsui, Kowloon, Hong Kong

### TEST CONDITIONS / 測試條件

Temperature / 溫度 :  $(23 \pm 2)^{\circ}\text{C}$   
Line Voltage / 電壓 : ---

Relative Humidity / 相對濕度 :  $(50 \pm 25)\%$

### TEST SPECIFICATIONS / 測試規範

Calibration check

DATE OF TEST / 測試日期 : 1 April 2023

### TEST RESULTS / 測試結果

The results apply to the particular unit-under-test only.  
The results do not exceed specified limits.  
These limits refer to manufacturer's published tolerances as requested by the customer.  
The results are detailed in the subsequent page(s).

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

- The Government of The Hong Kong Special Administrative Region Standard & Calibration Laboratory
- Agilent Technologies / Keysight Technologies
- Fluke Everett Service Center, USA

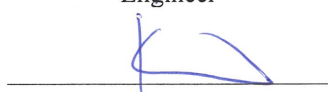
Tested By  
測試

:

  
K C Lee  
Engineer

Certified By  
核證

:

  
K K Wong  
Engineer

Date of Issue  
簽發日期

:

6 April 2023

The test equipment used for calibration is traceable to the National Standards as specified in this certificate. This certificate shall not be reproduced except in full, without the prior written approval of this laboratory.

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# Certificate of Calibration

## 校正證書

Certificate No. : C231906

證書編號

- The unit-under-test (UUT) was allowed to stabilize in the laboratory for over 12 hours before the commencement of the test.
- The results presented are the mean of 3 measurements at each calibration point.
- Test equipment :

<u>Equipment ID</u>	<u>Description</u>	<u>Certificate No.</u>
CL130	Universal Counter	C223647
CL281	Multifunction Acoustic Calibrator	AV210017
TST150A	Measuring Amplifier	C221750

- Test procedure : MA100N.

- Results :

### 5.1 Sound Level Accuracy

UUT Nominal Value	Measured Value (dB)	Mfr's Limit (dB)	Uncertainty of Measured Value (dB)
94 dB, 1 kHz	94.1	± 0.2	± 0.2
114 dB, 1 kHz	114.1		

### 5.2 Frequency Accuracy

UUT Nominal Value (kHz)	Measured Value (kHz)	Mfr's Limit	Uncertainty of Measured Value (Hz)
1	1.000 0	1 kHz ± 0.1 %	± 0.1

Remark : The uncertainties are for a confidence probability of not less than 95 %.

Note :

Only the original copy or the laboratory's certified true copy is valid.

The values given in this Certificate only relate to the values measured at the time of the test and any uncertainties quoted will not include allowance for the equipment long term drift, variations with environment changes, vibration and shock during transportation, overloading, mis-handling, or the capability of any other laboratory to repeat the measurement. Sun Creation Engineering Limited shall not be liable for any loss or damage resulting from the use of the equipment.

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**ENVIROTECH SERVICES CO.**

High-Volume TSP Sampler  
5-Point Calibration Record

Location : AMS5(Ma Wan Chung Village)  
Calibrated by : P.F.Yeung  
Date : 28/06/2023

Sampler

Model : TE-5170  
Serial Number : S/N3640

Calibration Orifice and Standard Calibration Relationship

Serial Number : 2454  
Service Date : 15 December 2022  
Slope (m) : 2.06918  
Intercept (b) : -0.04220  
Correlation Coefficient(r) : 0.99997

Standard Condition

Pstd (hpa) : 1013  
Tstd (K) : 298.18

Calibration Condition

Pa (hpa) : 1010  
Ta(K) : 303

Resistance Plate	dH [green liquid] (inch water)	Z	X=Qstd (cubic meter/min)	IC	Y
1   18 holes	12.2	3.459	1.692	54	53.48
2   13 holes	9.5	3.053	1.496	49	48.53
3   10 holes	7.2	2.657	1.305	42	41.60
4   7 holes	4.6	2.124	1.047	35	34.66
5   5 holes	2.5	1.566	0.777	28	27.73

Notes:  $Z = \sqrt{dH(Pa/Pstd)(Tstd/Ta)}$ ,  $X = Z/m - b$ ,  $Y(\text{Corrected Flow}) = IC * \{\sqrt{Pa/Pstd}(Tstd/Ta)\}$

Sampler Calibration Relationship

Slope(m): 28.594                      Intercept(b): 5.076                      Correlation Coefficient(r): 0.9984

Checked by: Magnum Fan

Date: 04/07/2023

ENVIROTECH SERVICES CO.

**High-Volume TSP Sampler**  
**5-Point Calibration Record**

Location : AMS5(Ma Wan Chung Village)  
Calibrated by : P.F.Yeung  
Date : 23/08/2023

Sampler

Model : TE-5170  
Serial Number : S/N3640

Calibration Orifice and Standard Calibration Relationship

Serial Number : 2454  
Service Date : 15 December 2022  
Slope (m) : 2.06918  
Intercept (b) : -0.04220  
Correlation Coefficient(r) : 0.99997

Standard Condition

Pstd (hpa) : 1013  
Tstd (K) : 298.18

Calibration Condition

Pa (hpa) : 1021  
Ta(K) : 295

Resistance Plate		dH [green liquid] (inch water)	Z	X=Qstd (cubic meter/min)	IC	Y
1	18 holes	12.0	3.422	1.674	53	52.36
2	13 holes	9.2	2.997	1.469	48	47.42
3	10 holes	6.7	2.557	1.256	43	42.48
4	7 holes	4.4	2.072	1.022	35	34.58
5	5 holes	2.5	1.562	0.775	28	27.66

Notes:  $Z = \sqrt{dH(Pa/Pstd)(Tstd/Ta)}$ ,  $X = Z/m - b$ ,  $Y(\text{Corrected Flow}) = IC * \{\sqrt{Pa/Pstd}(Tstd/Ta)\}$

Sampler Calibration Relationship

Slope(m): 27.790                      Intercept(b): 6.461                      Correlation Coefficient(r): 0.9977

Checked by: Magnum Fan

Date: 24/08/2023





# Certificate of Calibration

Calibration Certification Information			
Cal. Date: December 15, 2022	Rootsmeter S/N: 438320	Ta: 295	°K
Operator: Jim Tisch		Pa: 742.4	mm Hg
Calibration Model #: TE-5025A	Calibrator S/N: <b>2454</b>		

Run	Vol. Init (m3)	Vol. Final (m3)	ΔVol. (m3)	ΔTime (min)	ΔP (mm Hg)	ΔH (in H2O)
1	1	2	1	1.4060	3.2	2.00
2	3	4	1	0.9980	6.4	4.00
3	5	6	1	0.8900	7.9	5.00
4	7	8	1	0.8520	8.8	5.50
5	9	10	1	0.7040	12.7	8.00

Data Tabulation					
Vstd (m3)	Qstd (x-axis)	$\sqrt{\Delta H \left( \frac{Pa}{Pstd} \right) \left( \frac{Tstd}{Ta} \right)}$ (y-axis)	Va	Qa (x-axis)	$\sqrt{\Delta H \left( \frac{Ta}{Pa} \right)}$ (y-axis)
0.9826	0.6988	1.4049	0.9957	0.7082	0.8914
0.9783	0.9803	1.9868	0.9914	0.9934	1.2607
0.9763	1.0970	2.2213	0.9894	1.1116	1.4095
0.9751	1.1445	2.3297	0.9881	1.1598	1.4783
0.9700	1.3778	2.8097	0.9829	1.3962	1.7829
<b>QSTD</b>	m=	<b>2.06918</b>	<b>QA</b>	m=	<b>1.29568</b>
	b=	<b>-0.04220</b>		b=	<b>-0.02677</b>
	r=	<b>0.99997</b>		r=	<b>0.99997</b>

Calculations			
Vstd=	$\Delta Vol \left( \frac{Pa - \Delta P}{Pstd} \right) \left( \frac{Tstd}{Ta} \right)$	Va=	$\Delta Vol \left( \frac{Pa - \Delta P}{Pa} \right)$
Qstd=	Vstd/ΔTime	Qa=	Va/ΔTime
For subsequent flow rate calculations:			
Qstd=	$1/m \left( \left( \sqrt{\Delta H \left( \frac{Pa}{Pstd} \right) \left( \frac{Tstd}{Ta} \right)} \right) - b \right)$	Qa=	$1/m \left( \left( \sqrt{\Delta H \left( \frac{Ta}{Pa} \right)} \right) - b \right)$

Standard Conditions	
Tstd:	298.15 °K
Pstd:	760 mm Hg
Key	
ΔH: calibrator manometer reading (in H2O)	
ΔP: rootsmeter manometer reading (mm Hg)	
Ta: actual absolute temperature (°K)	
Pa: actual barometric pressure (mm Hg)	
b: intercept	
m: slope	

RECALIBRATION
US EPA recommends annual recalibration per 1998 40 Code of Federal Regulations Part 50 to 51, Appendix B to Part 50, Reference Method for the Determination of Suspended Particulate Matter in the Atmosphere, 9.2.17, page 30

## EQUIPMENT CALIBRATION RECORD

Type :	Laser Dust Monitor
Manufacturer / Brand :	SIBATA
Model No.:	LD-5R
Equipment No.:	LD-5R-002
Serial No.:	861988
Sensitivity Adjustment Scale Setting :	621 CPM

### Standard Equipment

Equipment :	MFC High Volume Air Sampler
Venue :	Tung Chung Pier
Model No.:	TE-5170 Total Suspended Particulate
Serial No.:	S/N3641
Previous Calibration Date:	24-Apr-2023

### Calibration Result

Sensitivity Adjustment Scale Setting (Before Calibration) :	621 CPM
Sensitivity Adjustment Scale Setting (After Calibration) :	621 CPM

Date (dd-mmm-yy)	Time		Ambient Condition		Concentration (ug/m <sup>3</sup> ) Y-axis	Total Count	Count/Minute X-axis
			Temp (°C)	R.H. (%)			
10-May-23	9:25	11:25	31.4	68%	72.8	2427	40.5
16-May-23	9:00	11:00	25.2	87%	29.4	668	11.1
16-May-23	14:30	15:30	25.2	87%	30.1	469	7.8
16-May-23	15:35	16:35	25.2	87%	18.7	151	2.5

Be Linear Regression of Y or X

Slope (K-factor):	1.4003	Intercept,b:	16.0750
Correlation coefficient (R):	0.99550		

Remark: Strong Correlation (R>0.8)

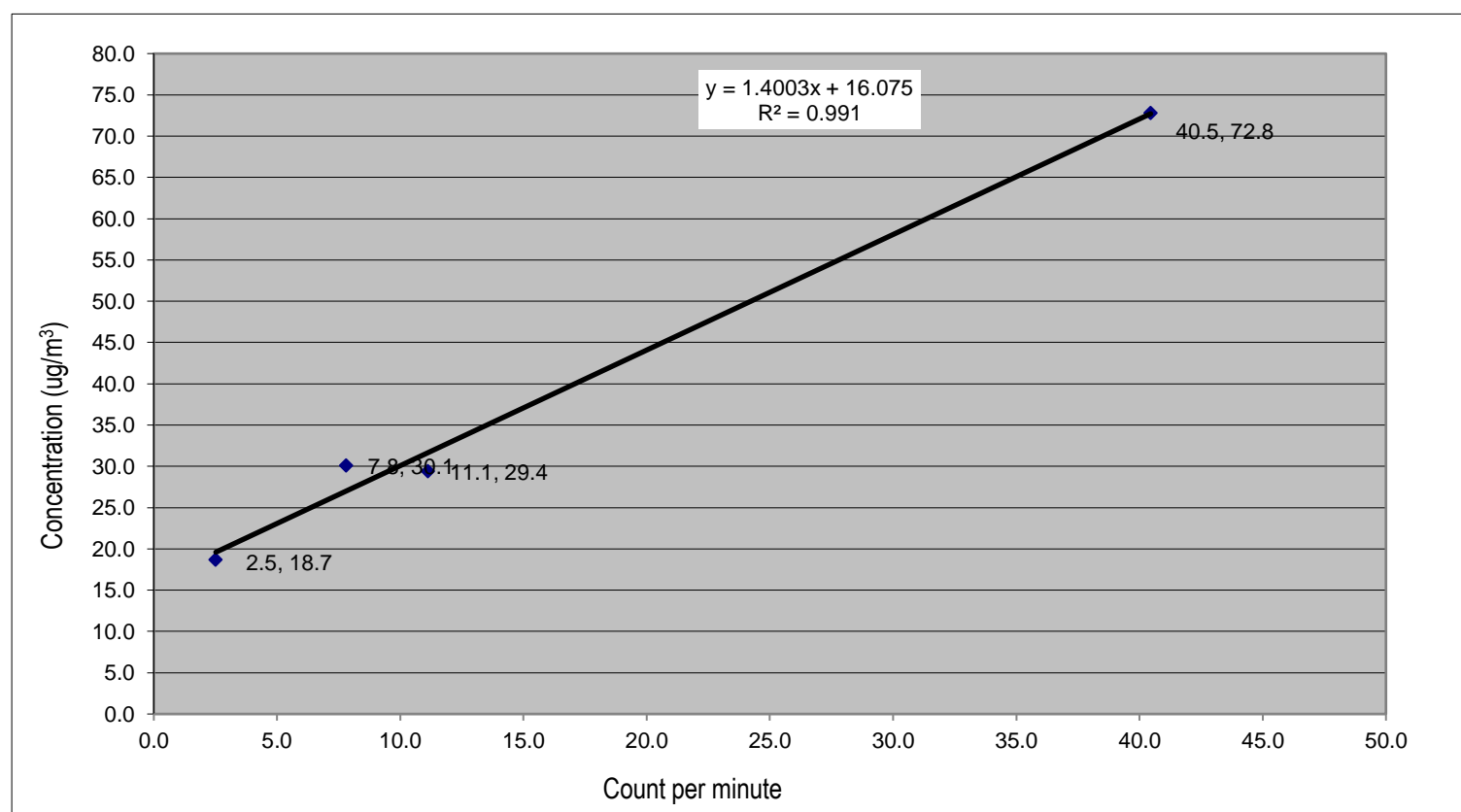
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Recorded by: <u>Irene Tsang</u>	Signature: <u></u>	Date: <u>01-Jun-23</u>
Checked by: <u>Ruby Law</u>	Signature: <u></u>	Date: <u>01-Jun-23</u>



## REPORT OF EQUIPMENT PERFORMANCE CHECK/CALIBRATION

**CONTACT:** MR W S CHAN  
**CLIENT:** AECOM ASIA COMPANY LIMITED  
**ADDRESS:** 13/F, TOWER 2,  
GRAND CENTRAL PLAZA,  
138 SHATIN RURAL COMMITTEE ROAD,  
SHATIN, HONG KONG

**WORK ORDER:** HK2330272  
**SUB-BATCH:** 0  
**LABORATORY:** HONG KONG  
**DATE RECEIVED:** 01-Aug-2023  
**DATE OF ISSUE:** 07-Aug-2023

### SPECIFIC COMMENTS

Equipment information (Brand name, Model No., Serial No. and Equipment No.) is provided by client. The performance of the equipment stated in this report is checked with independent reference material and results compared against a calibrated secondary source.

The "Tolerance Limit" quoted is the acceptance criteria applicable for similar equipment used by the laboratory or quoted from relevant international standards.

The "Next Calibration Date" is recommended according to best practice principle as practised by the laboratory or quoted from relevant international standards.

The validity of equipment/ meter performance only applies to the result(s) stated in the report.

Equipment Type: Multifunctional Meter

Service Nature: Performance Check

Scope: Conductivity, Dissolved Oxygen, pH Value, Turbidity, Salinity and Temperature

Brand Name/ Model No.: [YSI]/ [6820 V2]

Serial No./ Equipment No.: [00H1019]/ [W.026.09]

Date of Calibration: 01-August-2023

### GENERAL COMMENTS

This report superseded any previous report(s) with same work order number.

Ms. Lin Wai Yu, Iris  
Assistant Manager - Inorganics

# REPORT OF EQUIPMENT PERFORMANCE CHECK/CALIBRATION



**WORK ORDER:** HK2330272  
**SUB-BATCH:** 0  
**DATE OF ISSUE:** 07-Aug-2023  
**CLIENT:** AECOM ASIA COMPANY LIMITED

Equipment Type: Multifunctional Meter  
Brand Name/ Model No.: [YSI]/ [6820 V2]  
Serial No./ Equipment No.: [00H1019]/ [W.026.09]  
Date of Calibration: 01-August-2023 Date of Next Calibration: 01-November-2023

## PARAMETERS:

### Conductivity

Method Ref: APHA (23rd edition), 2510B

Expected Reading ( $\mu\text{S}/\text{cm}$ )	Displayed Reading ( $\mu\text{S}/\text{cm}$ )	Tolerance (%)
146.9	146	-0.6
6667	6815	+2.2
12890	12907	+0.1
58670	58116	-0.9
	Tolerance Limit (%)	$\pm 10.0$

### Dissolved Oxygen

Method Ref: APHA (23rd edition), 4500O: G

Expected Reading (mg/L)	Displayed Reading (mg/L)	Tolerance (mg/L)
2.89	2.94	+0.05
5.96	6.02	+0.06
7.61	7.56	-0.05
	Tolerance Limit (mg/L)	$\pm 0.20$

### pH Value

Method Ref: APHA (23rd edition), 4500H: B

Expected Reading (pH unit)	Displayed Reading (pH unit)	Tolerance (pH unit)
4.0	4.00	+0.00
7.0	6.98	-0.02
10.0	9.99	-0.01
	Tolerance Limit (pH unit)	$\pm 0.20$

Remark: "Displayed Reading" presents the figures shown on item under calibration / checking regardless of equipment precision or significant figures.

Ms. Lin Wai Yu, Iris  
Assistant Manager - Inorganics

# REPORT OF EQUIPMENT PERFORMANCE CHECK/CALIBRATION



**WORK ORDER:** HK2330272  
**SUB-BATCH:** 0  
**DATE OF ISSUE:** 07-Aug-2023  
**CLIENT:** AECOM ASIA COMPANY LIMITED

Equipment Type: Multifunctional Meter  
Brand Name/ Model No.: [YSI]/ [6820 V2]  
Serial No./ Equipment No.: [00H1019]/ [W.026.09]  
Date of Calibration: 01-August-2023 Date of Next Calibration: 01-November-2023

## PARAMETERS:

### Turbidity

Method Ref: APHA (23rd edition), 2130B

Expected Reading (NTU)	Displayed Reading (NTU)	Tolerance (%)
0	0.1	--
4	3.9	-2.5
10	9.4	-6.0
20	19.8	-1.0
50	48.2	-3.6
100	95.1	-4.9
	Tolerance Limit (%)	±10.0

### Salinity

Method Ref: APHA (23rd edition), 2520B

Expected Reading (ppt)	Displayed Reading (ppt)	Tolerance (%)
0	0.02	--
10	10.63	+6.3
20	19.38	-3.1
30	30.46	+1.5
	Tolerance Limit (%)	±10.0

Remark: "Displayed Reading" presents the figures shown on item under calibration / checking regardless of equipment precision or significant figures.

Ms. Lin Wai Yu, Iris  
Assistant Manager - Inorganics

# REPORT OF EQUIPMENT PERFORMANCE CHECK/CALIBRATION



**WORK ORDER:** HK2330272  
**SUB-BATCH:** 0  
**DATE OF ISSUE:** 07-Aug-2023  
**CLIENT:** AECOM ASIA COMPANY LIMITED

Equipment Type: Multifunctional Meter  
Brand Name/ Model No.: [YSI]/ [6820 V2]  
Serial No./ Equipment No.: [00H1019]/ [W.026.09]  
Date of Calibration: 01-August-2023 Date of Next Calibration: 01-November-2023

## PARAMETERS:

### Temperature

**Method Ref: Section 6 of International Accreditation New Zealand Technical Guide No. 3 Second edition March 2008: Working Thermometer Calibration Procedure.**

Expected Reading (°C)	Displayed Reading (°C)	Tolerance (°C)
10.5	10.33	-0.2
20.5	20.10	-0.4
39.0	38.49	-0.5
	Tolerance Limit (°C)	±2.0

Remark: "Displayed Reading" presents the figures shown on item under calibration / checking regardless of equipment precision or significant figures.

Ms. Lin Wai Yu, Iris  
Assistant Manager - Inorganics



ALS Technichem (HK) Pty Ltd

11/F., Chung Shun Knitting Centre,

1 - 3 Wing Yip Street,

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## **REPORT OF EQUIPMENT PERFORMANCE CHECK/CALIBRATION**

**CONTACT:** MR W S CHAN  
**CLIENT:** AECOM ASIA COMPANY LIMITED  
**ADDRESS:** 13/F, TOWER 2, GRAND CENTRAL PLAZA,  
138 SHATIN RURAL COMMITTEE ROAD,  
SHATIN, HONG KONG

**WORK ORDER:** HK2321714  
**SUB-BATCH:** 0  
**LABORATORY:** HONG KONG  
**DATE RECEIVED:** 06-Jun-2023  
**DATE OF ISSUE:** 12-Jun-2023

### SPECIFIC COMMENTS

Equipment information (Brand name, Model No., Serial No. and Equipment No.) is provided by client. The performance of the equipment stated in this report is checked with independent reference material and results compared against a calibrated secondary source.

The "Tolerance Limit" quoted is the acceptance criteria applicable for similar equipment used by the laboratory or quoted from relevant international standards.

The "Next Calibration Date" is recommended according to best practice principle as practised by the laboratory or quoted from relevant international standards.

The validity of equipment/ meter performance only applies to the result(s) stated in the report.

Equipment Type: Multifunctional Meter

Service Nature: Performance Check

Scope: Conductivity, Dissolved Oxygen, pH Value, Turbidity, Salinity and Temperature

Brand Name/ Model No.: [YSI]/ [ProDSS]

Serial No./ Equipment No.: [22J104777/22H104506]/ [W.026.37]

Date of Calibration: 06-June-2023

### GENERAL COMMENTS

This report superseded any previous report(s) with same work order number.

Ms. Lin Wai Yu, Iris

Assistant Manager - Inorganics

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# REPORT OF EQUIPMENT PERFORMANCE CHECK/CALIBRATION



**WORK ORDER:** HK2321714  
**SUB-BATCH:** 0  
**DATE OF ISSUE:** 12-Jun-2023  
**CLIENT:** AECOM ASIA COMPANY LIMITED

Equipment Type: Multifunctional Meter  
Brand Name/ Model No.: [YSI]/ [ProDSS]  
Serial No./ Equipment No.: [22J104777/22H104506]/ [W.026.37]  
Date of Calibration: 06-June-2023 Date of Next Calibration: 06-September-2023

## PARAMETERS:

### Conductivity

Method Ref: APHA (23rd edition), 2510B

Expected Reading ( $\mu\text{S}/\text{cm}$ )	Displayed Reading ( $\mu\text{S}/\text{cm}$ )	Tolerance (%)
146.9	139.5	-5.0
6667	6327	-5.1
12890	12443	-3.5
58670	58115	-0.9
	Tolerance Limit (%)	$\pm 10.0$

### Dissolved Oxygen

Method Ref: APHA (23rd edition), 4500O: G

Expected Reading (mg/L)	Displayed Reading (mg/L)	Tolerance (mg/L)
2.85	2.86	+0.01
5.35	5.39	+0.04
7.90	7.87	-0.03
	Tolerance Limit (mg/L)	$\pm 0.20$

### pH Value

Method Ref: APHA (23rd edition), 4500H: B

Expected Reading (pH unit)	Displayed Reading (pH unit)	Tolerance (pH unit)
4.0	3.94	-0.06
7.0	7.05	+0.05
10.0	9.83	-0.17
	Tolerance Limit (pH unit)	$\pm 0.20$

Remark: "Displayed Reading" presents the figures shown on item under calibration / checking regardless of equipment precision or significant figures.

Ms. Lin Wai Yu, Iris  
Assistant Manager - Inorganics



# REPORT OF EQUIPMENT PERFORMANCE CHECK/CALIBRATION



**WORK ORDER:** HK2321714  
**SUB-BATCH:** 0  
**DATE OF ISSUE:** 12-Jun-2023  
**CLIENT:** AECOM ASIA COMPANY LIMITED

Equipment Type: Multifunctional Meter  
Brand Name/ Model No.: [YSI]/ [ProDSS]  
Serial No./ Equipment No.: [22J104777/22H104506]/ [W.026.37]  
Date of Calibration: 06-June-2023 Date of Next Calibration: 06-September-2023

## PARAMETERS:

### Turbidity

Method Ref: APHA (23rd edition), 2130B

Expected Reading (NTU)	Displayed Reading (NTU)	Tolerance (%)
0	0.16	--
4	4.05	+1.3
10	10.63	+6.3
20	20.82	+4.1
50	50.56	+1.1
100	100.96	+1.0
	Tolerance Limit (%)	±10.0

### Salinity

Method Ref: APHA (23rd edition), 2520B

Expected Reading (ppt)	Displayed Reading (ppt)	Tolerance (%)
0	0.00	--
10	9.82	-1.8
20	19.62	-1.9
30	29.59	-1.4
	Tolerance Limit (%)	±10.0

Remark: "Displayed Reading" presents the figures shown on item under calibration / checking regardless of equipment precision or significant figures.

Ms. Lin Wai Yu, Iris  
Assistant Manager - Inorganics

# REPORT OF EQUIPMENT PERFORMANCE CHECK/CALIBRATION



**WORK ORDER:** HK2321714  
**SUB-BATCH:** 0  
**DATE OF ISSUE:** 12-Jun-2023  
**CLIENT:** AECOM ASIA COMPANY LIMITED

Equipment Type: Multifunctional Meter  
Brand Name/ Model No.: [YSI]/ [ProDSS]  
Serial No./ Equipment No.: [22J104777/22H104506]/ [W.026.37]  
Date of Calibration: 06-June-2023 Date of Next Calibration: 06-September-2023

## PARAMETERS:

### Temperature

**Method Ref: Section 6 of International Accreditation New Zealand Technical Guide No. 3 Second edition March 2008: Working Thermometer Calibration Procedure.**

Expected Reading (°C)	Displayed Reading (°C)	Tolerance (°C)
10.0	9.7	-0.3
20.0	19.5	-0.5
39.0	39.2	+0.2
	Tolerance Limit (°C)	±2.0

Remark: "Displayed Reading" presents the figures shown on item under calibration / checking regardless of equipment precision or significant figures.

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Assistant Manager - Inorganics



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## **REPORT OF EQUIPMENT PERFORMANCE CHECK/CALIBRATION**

**CONTACT:** MR W S CHAN  
**CLIENT:** AECOM ASIA COMPANY LIMITED  
**ADDRESS:** 1501-10, 15/F, TOWER 1,  
GRAND CENTRAL PLAZA,  
138 SHATIN RURAL COMMITTEE ROAD,  
SHATIN, NEW TERRITORIES, HONG KONG

**WORK ORDER:** HK2335176  
**SUB-BATCH:** 0  
**LABORATORY:** HONG KONG  
**DATE RECEIVED:** 05-Sep-2023  
**DATE OF ISSUE:** 11-Sep-2023

### SPECIFIC COMMENTS

Equipment information (Brand name, Model No., Serial No. and Equipment No.) is provided by client. The performance of the equipment stated in this report is checked with independent reference material and results compared against a calibrated secondary source.

The "Tolerance Limit" quoted is the acceptance criteria applicable for similar equipment used by the laboratory or quoted from relevant international standards.

The "Next Calibration Date" is recommended according to best practice principle as practised by the laboratory or quoted from relevant international standards.

The validity of equipment/ meter performance only applies to the result(s) stated in the report.

Equipment Type: Multifunctional Meter

Service Nature: Performance Check

Scope: Conductivity, Dissolved Oxygen, pH Value, Turbidity, Salinity and Temperature

Brand Name/ Model No.: [YSI]/ [ProDSS]

Serial No./ Equipment No.: [22J104777/22H104506]/ [W.026.37]

Date of Calibration: 05-September-2023

### GENERAL COMMENTS

This report superseded any previous report(s) with same work order number.

Mr Chan Siu Ming, Vico  
Assistant Laboratory Manager  
Environmental

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# REPORT OF EQUIPMENT PERFORMANCE CHECK/CALIBRATION



**WORK ORDER:** HK2335176  
**SUB-BATCH:** 0  
**DATE OF ISSUE:** 11-Sep-2023  
**CLIENT:** AECOM ASIA COMPANY LIMITED

Equipment Type: Multifunctional Meter  
Brand Name/ Model No.: [YSI]/ [ProDSS]  
Serial No./ Equipment No.: [22J104777/22H104506]/ [W.026.37]  
Date of Calibration: 05-September-2023 Date of Next Calibration: 05-December-2023

## PARAMETERS:

### Conductivity

Method Ref: APHA (23rd edition), 2510B

Expected Reading ( $\mu\text{S}/\text{cm}$ )	Displayed Reading ( $\mu\text{S}/\text{cm}$ )	Tolerance (%)
146.9	152.9	+4.1
6667	6524	-2.1
12890	12626	-2.0
58670	54061	-7.9
	Tolerance Limit (%)	$\pm 10.0$

### Dissolved Oxygen

Method Ref: APHA (23rd edition), 4500O: G

Expected Reading (mg/L)	Displayed Reading (mg/L)	Tolerance (mg/L)
1.95	1.89	-0.06
3.95	4.02	+0.07
6.84	6.80	-0.04
	Tolerance Limit (mg/L)	$\pm 0.20$

### pH Value

Method Ref: APHA (23rd edition), 4500H: B

Expected Reading (pH unit)	Displayed Reading (pH unit)	Tolerance (pH unit)
4.0	4.06	+0.06
7.0	7.10	+0.10
10.0	10.01	+0.01
	Tolerance Limit (pH unit)	$\pm 0.20$

Remark: "Displayed Reading" presents the figures shown on item under calibration / checking regardless of equipment precision or significant figures.

Mr Chan Siu Ming, Vico  
Assistant Laboratory Manager  
Environmental

# REPORT OF EQUIPMENT PERFORMANCE CHECK/CALIBRATION



**WORK ORDER:** HK2335176  
**SUB-BATCH:** 0  
**DATE OF ISSUE:** 11-Sep-2023  
**CLIENT:** AECOM ASIA COMPANY LIMITED

Equipment Type: Multifunctional Meter  
Brand Name/ Model No.: [YSI]/ [ProDSS]  
Serial No./ Equipment No.: [22J104777/22H104506]/ [W.026.37]  
Date of Calibration: 05-September-2023 Date of Next Calibration: 05-December-2023

## PARAMETERS:

### Turbidity

Method Ref: APHA (23rd edition), 2130B

Expected Reading (NTU)	Displayed Reading (NTU)	Tolerance (%)
0	-0.07	--
4	4.08	+2.0
10	9.91	-0.9
20	19.02	-4.9
50	48.20	-3.6
100	96.31	-3.7
	Tolerance Limit (%)	±10.0

### Salinity

Method Ref: APHA (23rd edition), 2520B

Expected Reading (ppt)	Displayed Reading (ppt)	Tolerance (%)
0	0.00	--
10	9.78	-2.2
20	19.65	-1.8
30	29.39	-2.0
	Tolerance Limit (%)	±10.0

Remark: "Displayed Reading" presents the figures shown on item under calibration / checking regardless of equipment precision or significant figures.

Mr Chan Siu Ming, Vico  
Assistant Laboratory Manager  
Environmental

# REPORT OF EQUIPMENT PERFORMANCE CHECK/CALIBRATION



**WORK ORDER:** HK2335176  
**SUB-BATCH:** 0  
**DATE OF ISSUE:** 11-Sep-2023  
**CLIENT:** AECOM ASIA COMPANY LIMITED

Equipment Type: Multifunctional Meter  
Brand Name/ Model No.: [YSI]/ [ProDSS]  
Serial No./ Equipment No.: [22J104777/22H104506]/ [W.026.37]  
Date of Calibration: 05-September-2023 Date of Next Calibration: 05-December-2023

## PARAMETERS:

### Temperature

**Method Ref: Section 6 of International Accreditation New Zealand Technical Guide No. 3 Second edition March 2008: Working Thermometer Calibration Procedure.**

Expected Reading (°C)	Displayed Reading (°C)	Tolerance (°C)
10.0	9.9	-0.1
20.5	19.8	-0.7
40.0	40.3	+0.3
	Tolerance Limit (°C)	±2.0

Remark: "Displayed Reading" presents the figures shown on item under calibration / checking regardless of equipment precision or significant figures.

Mr Chan Siu Ming, Vico  
Assistant Laboratory Manager  
Environmental