

Appendix F Water Quality Equipment Calibration Certificate



REPORT OF EQUIPMENT PERFORMANCE CHECK/CALIBRATION

CONTACT:	MR. NELSON TSUI	WORK ORDER:	HK1849814
CLIENT:	ACUITY SUSTAINABILITY CONSULTING LIMITED		
ADDRESS:	11 TAM KONG SUN ROAD, TSING YI (N), N.T. HONG KONG	SUB-BATCH:	0
		LABORATORY:	HONG KONG
		DATE RECEIVED:	13-Sep-2018
		DATE OF ISSUE:	28-Sep-2018

COMMENTS

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 ALS Hong Kong laboratory or quoted from relevant international standards.

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

Scope of Test:	Dissolved Oxygen, pH Value, Turbidity, Salinity and Temperature
Equipment Type:	Multifunctional Meter
Brand Name:	YSI
Model No.:	Professional DSS
Serial No.:	--
Equipment No.:	15M101091
Date of Calibration:	27 September, 2018

NOTES

This is the Final Report and supersedes any preliminary report with this batch number.

Results apply to sample(s) as submitted. All pages of this report have been checked and approved for release.

Mr Chan Siu Ming, Vico
Manager - Inorganic

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REPORT OF EQUIPMENT PERFORMANCE CHECK/CALIBRATION



WORK ORDER: HK1849814
 SUB-BATCH: 0
 DATE OF ISSUE: 28-Sep-2018
 CLIENT: ACUITY SUSTAINABILITY CONSULTING LIMITED

Equipment Type: Multifunctional Meter
 Brand Name: YSI
 Model No.: Professional DSS
 Serial No.: --
 Equipment No.: 15M101091
 Date of Calibration: 27 September, 2018

Date of Next Calibration: 27 December, 2018

PARAMETERS:

Dissolved Oxygen Method Ref: APHA (21st edition), 4500-O: G

Expected Reading (mg/L)	Displayed Reading (mg/L)	Tolerance (mg/L)
2.66	2.48	-0.18
5.53	5.50	-0.03
7.75	7.70	-0.05
	Tolerance Limit (mg/L)	±0.20

pH Value

Method Ref: APHA (21st edition), 4500H:B

Expected Reading (pH unit)	Displayed Reading (pH unit)	Tolerance (pH unit)
4.0	3.99	-0.01
7.0	6.97	-0.03
10.0	9.95	-0.05
	Tolerance Limit (pH unit)	±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
 Manager - Inorganic

REPORT OF EQUIPMENT PERFORMANCE CHECK/CALIBRATION



WORK ORDER: HK1849814
 SUB-BATCH: 0
 DATE OF ISSUE: 28-Sep-2018
 CLIENT: ACUITY SUSTAINABILITY CONSULTING LIMITED

Equipment Type: Multifunctional Meter
 Brand Name: YSI
 Model No.: Professional DSS
 Serial No.: --
 Equipment No.: 15M101091
 Date of Calibration: 27 September, 2018 Date of Next Calibration: 27 December, 2018

PARAMETERS:

Turbidity Method Ref: APHA (21st edition), 2130B

Expected Reading (NTU)	Displayed Reading (NTU)	Tolerance (%)
0	0.60	--
4	3.81	-4.8
40	38.58	-3.6
80	76.48	-4.4
400	418.12	+4.5
800	797.52	-0.3
	Tolerance Limit (%)	±10.0

Salinity Method Ref: APHA (21st edition), 2520B

Expected Reading (ppt)	Displayed Reading (ppt)	Tolerance (%)
0	0.00	--
10	9.70	-3.0
20	18.58	-7.1
30	28.21	-6.0
	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
Manager - Inorganic

REPORT OF EQUIPMENT PERFORMANCE CHECK/CALIBRATION



WORK ORDER: HK1849814
SUB-BATCH: 0
DATE OF ISSUE: 28-Sep-2018
CLIENT: ACUITY SUSTAINABILITY CONSULTING LIMITED

Equipment Type: Multifunctional Meter
Brand Name: YSI
Model No.: Professional DSS
Serial No.: --
Equipment No.: 15M101091
Date of Calibration: 27 September, 2018

Date of Next Calibration: 27 December, 2018

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)
11.0	11.5	+0.5
21.5	21.1	-0.4
40.5	39.3	-1.2
	Tolerance Limit (°C)	±2.0

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

A handwritten signature in black ink, appearing to read 'Chan Siu Ming'.

Mr Chan Siu Ming, Vico
Manager - Inorganic



REPORT OF EQUIPMENT PERFORMANCE CHECK/CALIBRATION

CONTACT:	MR BEN TAM	WORK ORDER:	HK1860886
CLIENT:	ACTION UNITED ENVIRONMENT SERVICES AND CONSULTING		
ADDRESS:	RM A 20/F., GOLD KING IND BLDG, NO. 35-41 TAI LIN PAI ROAD, Kwai Chung, N.T., HONG KONG.	SUB-BATCH:	0
		LABORATORY:	HONG KONG
		DATE RECEIVED:	21-Nov-2018
		DATE OF ISSUE:	27-Dec-2018

COMMENTS

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 ALS Hong Kong laboratory or quoted from relevant international standards.

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

Scope of Test:	Conductivity, Dissolved Oxygen, pH Value, Turbidity, Salinity and Temperature
Equipment Type:	Multifunctional Meter
Brand Name:	YSI
Model No.:	Professional DSS
Serial No.:	15H102620/ 15H103928
Equipment No.:	EQW018
Date of Calibration:	28 November, 2018

NOTES

This is the Final Report and supersedes any preliminary report with this batch number.

Results apply to sample(s) as submitted. All pages of this report have been checked and approved for release.

Mr Chan Siu Ming, Vico
Manager - Inorganic

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REPORT OF EQUIPMENT PERFORMANCE CHECK/CALIBRATION



WORK ORDER: HK1860886
 SUB-BATCH: 0
 DATE OF ISSUE: 27-Dec-2018
 CLIENT: ACTION UNITED ENVIRONMENT SERVICES AND CONSULTING

Equipment Type: Multifunctional Meter
 Brand Name: YSI
 Model No.: Professional DSS
 Serial No.: 15H102620/ 15H103928
 Equipment No.: EQW018
 Date of Calibration: 28 November, 2018 Date of Next Calibration: 28 February, 2019

PARAMETERS:

Conductivity Method Ref: APHA (21st edition), 2510B

Expected Reading ($\mu\text{S/cm}$)	Displayed Reading ($\mu\text{S/cm}$)	Tolerance (%)
146.9	159.8	+8.8
6667	6492	-2.6
12890	12526	-2.8
58670	55801	-4.9
	Tolerance Limit (%)	± 10.0

Dissolved Oxygen Method Ref: APHA (21st edition), 4500-O: G

Expected Reading (mg/L)	Displayed Reading (mg/L)	Tolerance (mg/L)
3.17	3.05	-0.12
5.95	5.92	-0.03
8.19	8.29	+0.10
	Tolerance Limit (mg/L)	± 0.20

pH Value Method Ref: APHA (21st edition), 4500H:B

Expected Reading (pH unit)	Displayed Reading (pH unit)	Tolerance (pH unit)
4.0	4.10	+0.10
7.0	7.13	+0.13
10.0	9.99	-0.01
	Tolerance Limit (pH unit)	± 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
Manager - Inorganic

REPORT OF EQUIPMENT PERFORMANCE CHECK/CALIBRATION



WORK ORDER: HK1860886
 SUB-BATCH: 0
 DATE OF ISSUE: 27-Dec-2018
 CLIENT: ACTION UNITED ENVIRONMENT SERVICES AND CONSULTING

Equipment Type: Multifunctional Meter
 Brand Name: YSI
 Model No.: Professional DSS
 Serial No.: 15H102620/ 15H103928
 Equipment No.: EQW018
 Date of Calibration: 28 November, 2018 Date of Next Calibration: 28 February, 2019

PARAMETERS:

Salinity Method Ref: APHA (21st edition), 2520B

Expected Reading (ppt)	Displayed Reading (ppt)	Tolerance (%)
0	0.01	--
10	10.23	+2.3
20	21.02	+5.1
30	29.83	-0.6
Tolerance Limit (%)		±10.0

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	11.2	+1.2
22.0	21.7	-0.3
41.0	40.8	-0.2
Tolerance Limit (°C)		±2.0

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Mr Chan Siu Ming, Vico
 Manager - Inorganic

REPORT OF EQUIPMENT PERFORMANCE CHECK/CALIBRATION



WORK ORDER: HK1860886
SUB-BATCH: 0
DATE OF ISSUE: 27-Dec-2018
CLIENT: ACTION UNITED ENVIRONMENT SERVICES AND CONSULTING

Equipment Type: Multifunctional Meter
Brand Name: YSI
Model No.: Professional DSS
Serial No.: 15H102620/ 15H103928
Equipment No.: EQW018
Date of Calibration: 05 December, 2018 Date of Next Calibration: 05 March, 2019

PARAMETERS:

Turbidity Method Ref: APHA (21st edition), 2130B

Expected Reading (NTU)	Displayed Reading (NTU)	Tolerance (%)
0	0.14	--
4	3.60	-10.0
40	41.49	+3.7
80	74.42	-7.0
400	426.8	+6.7
800	803.89	+0.5
	Tolerance Limit (%)	±10.0

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

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