

Appendix F Water Quality Equipment Calibration Certificate



專業化驗有限公司
QUALITY PRO TEST-CONSULT LIMITED

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REPORT OF EQUIPMENT PERFORMANCE CHECK/ CALIBRATION

Report No. : AJ080016
Date of Issue : 21 August 2020
Page No. : 1 of 2

PART A – CUSTOMER INFORMATION

Acuity Sustainability Consulting Limited
Unit C, 11/F, Ford Glory Plaza
37-39 Wing Hong Street
Cheung Sha Wan, Kowloon, Hong Kong
Attn: Mr. Nelson TSUI

PART B – DESCRIPTION

Name of Equipment : Multi Water Quality Checker U-53
Manufacturer : Horiba
Serial Number : A55XB7UP
Date of Received : Aug 06, 2020
Date of Calibration : Aug 21, 2020
Date of Next Calibration^(a) : Nov 20, 2020

PART C – REFERENCE METHODS/ DOCUMENTS FOR THE CALIBRATION

<u>Parameter</u>	<u>Reference Method</u>
pH at 25°C	APHA 21e 4500-H ⁺ B
Turbidity	APHA 21e 2130 B
Temperature	Section 6 of international Accreditation New Zealand Technical Guide no. 3 Second edition March 2008: Working Thermometer Calibration Procedure.

PART D – CALIBRATION RESULTS^(b,c)

(1) Temperature

Reading of Ref. thermometer (°C)	Displayed Reading (°C)	Tolerance (°C)	Results
18	18.05	+0.05	Satisfactory
30	29.79	-0.21	Satisfactory
41	40.12	+0.88	Satisfactory

Tolerance limit of temperature should be less than ± 2.0 (°C)

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Remark(s): -

- ^(a) The "Date of Next Calibration" is recommended according to best practice principals as practiced by QPT or quoted from relevant international standards.
^(b) The results relate only to the calibrated equipment as received
^(c) The performance of the equipment stated in this report is checked with independent reference material and results compared against a calibrated secondary source.


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PART D – CALIBRATION RESULTS (Cont'd)

(2) Salinity

Expected Reading (g/L)	Displayed Reading (g/L)	Tolerance (%)	Results
10	9.59	-4.10	Satisfactory
20	19.30	-3.50	Satisfactory
30	30.11	0.37	Satisfactory

Tolerance limit of salinity should be less than ± 10.0 (%)

(3) Turbidity

Expected Reading (NTU)	Displayed Reading ^(d) (NTU)	Tolerance ^(e) (%)	Results
0	0.54	--	Satisfactory
10	10.30	3.0	Satisfactory
20	19.3	-3.5	Satisfactory
100	101.0	1.0	Satisfactory
800	834	4.3	Satisfactory

Tolerance limit of turbidity should be less than ± 10.0 (%)

~ END OF REPORT ~

Remark(s): -

^(d) "Displayed Reading" presents the figures shown on item under calibration/ checking regardless of equipment precision or significant figures.

^(e) The "Tolerance Limit" mentioned is the acceptance criteria applicable for similar equipment used by Quality Pro Test-Consult Ltd. or quoted from relevant international standards.



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REPORT OF EQUIPMENT PERFORMANCE CHECK/ CALIBRATION

Report No. : AJ110068
Date of Issue : 27 November 2020
Page No. : 1 of 2

PART A – CUSTOMER INFORMATION

Acuity Sustainability Consulting Limited
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Cheung Sha Wan, Kowloon, Hong Kong
Attn: Mr. Nelson TSUI

PART B – DESCRIPTION

Name of Equipment : Multi Water Quality Checker U-53
Manufacturer : Horiba
Serial Number : A55XB7UP
Date of Received : Nov 16, 2020
Date of Calibration : Nov 27, 2020
Date of Next Calibration^(a) : Feb 26, 2021

PART C – REFERENCE METHODS/ DOCUMENTS FOR THE CALIBRATION

Parameter	Reference Method
pH at 25°C	APHA 21e 4500-H ⁺ B
Dissolved Oxygen	APHA 21e 4500-O G
Salinity	APHA 21e 2520 B
Turbidity	APHA 21e 2130 B
Temperature	Section 6 of international Accreditation New Zealand Technical Guide no. 3 Second edition March 2008: Working Thermometer Calibration Procedure.

PART D – CALIBRATION RESULTS^(b,c)

(1) pH at 25°C

Target (pH unit)	Displayed Reading ^(d) (pH Unit)	Tolerance ^(e) (pH Unit)	Results
4.00	4.18	0.18	Satisfactory
7.42	7.27	-0.15	Satisfactory
10.01	9.88	-0.13	Satisfactory

Tolerance of pH should be less than ±0.20 (pH unit)

(2) Temperature


Reading of Ref. thermometer (°C)	Displayed Reading (°C)	Tolerance (°C)	Results
15	15.4	0.40	Satisfactory
23	23.8	0.80	Satisfactory
35	34.6	-0.40	Satisfactory

Tolerance limit of temperature should be less than ±2.0 (°C)

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Date of Issue : 27 November 2020
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PART D – CALIBRATION RESULTS (Cont'd)

(3) Dissolved Oxygen

Expected Reading (mg/L)	Displayed Reading (mg/L)	Tolerance (mg/L)	Results
0.10	0.00	-0.10	Satisfactory
3.59	3.84	0.25	Satisfactory
5.01	4.99	-0.02	Satisfactory
7.83	7.57	-0.26	Satisfactory

Tolerance limit of dissolved oxygen should be less than ± 0.50 (mg/L)

(4) Salinity

Expected Reading (g/L)	Displayed Reading (g/L)	Tolerance (%)	Results
10	9.95	-0.50	Satisfactory
20	19.02	-4.90	Satisfactory
30	29.03	-3.23	Satisfactory

Tolerance limit of salinity should be less than ± 10.0 (%)

(5) Turbidity

Expected Reading (NTU)	Displayed Reading ^(f) (NTU)	Tolerance ^(g) (%)	Results
0	0.61	--	Satisfactory
10	10.08	0.8	Satisfactory
20	19.50	-2.5	Satisfactory
100	99.10	-0.9	Satisfactory
800	777.00	-2.9	Satisfactory

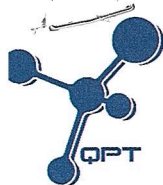
Tolerance limit of turbidity should be less than ± 10.0 (%)

~ END OF REPORT ~

Remark(s): -

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REPORT OF EQUIPMENT PERFORMANCE CHECK/ CALIBRATION

Report No. : AJ090064
Date of Issue : 25 September 2020
Page No. : 1 of 2

PART A – CUSTOMER INFORMATION

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Unit C, 11/F, Ford Glory Plaza
37-39 Wing Hong Street
Cheung Sha Wan, Kowloon, Hong Kong
Attn: Mr. Nelson TSUI

PART B – DESCRIPTION

Name of Equipment : Multi Water Quality Checker U-53
Manufacturer : Horiba
Serial Number : L20550GA
Date of Received : Sep 17, 2020
Date of Calibration : Sep 25, 2020
Date of Next Calibration^(a) : Dec 24, 2020

PART C – REFERENCE METHODS/ DOCUMENTS FOR THE CALIBRATION

Parameter	Reference Method
pH at 25°C	APHA 21e 4500-H ⁺ B
Dissolved Oxygen	APHA 21e 4500-O G
Salinity	APHA 21e 2520 B
Turbidity	APHA 21e 2130 B
Temperature	Section 6 of international Accreditation New Zealand Technical Guide no. 3 Second edition March 2008: Working Thermometer Calibration Procedure.

PART D – CALIBRATION RESULTS^(b,c)

(1) pH at 25°C

Target (pH unit)	Displayed Reading ^(d) (pH Unit)	Tolerance ^(e) (pH Unit)	Results
4.00	4.08	0.08	Satisfactory
7.42	7.46	0.04	Satisfactory
10.01	10.02	0.01	Satisfactory

Tolerance of pH should be less than ± 0.20 (pH unit)

(2) Temperature

Reading of Ref. thermometer (°C)	Displayed Reading (°C)	Tolerance (°C)	Results
14.5	14.42	-0.08	Satisfactory
26.0	25.45	-0.55	Satisfactory
40.0	39.77	-0.23	Satisfactory

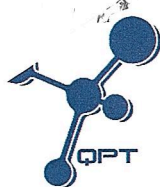
Tolerance limit of temperature should be less than ± 2.0 (°C)

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^(e) The "Tolerance Limit" mentioned is the acceptance criteria applicable for similar equipment used by Quality Pro Test-Consult Ltd. or quoted from relevant international standards.

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REPORT OF EQUIPMENT PERFORMANCE CHECK/ CALIBRATION

Report No. : AJ090064
Date of Issue : 25 September 2020
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PART D – CALIBRATION RESULTS (Cont'd)

(3) Dissolved Oxygen

Expected Reading (mg/L)	Displayed Reading (mg/L)	Tolerance (mg/L)	Results
0.05	0.00	-0.05	Satisfactory
2.58	2.11	-0.37	Satisfactory
5.08	5.08	0.00	Satisfactory
7.82	7.63	-0.19	Satisfactory

Tolerance limit of dissolved oxygen should be less than ± 0.50 (mg/L)

(4) Salinity

Expected Reading (g/L)	Displayed Reading (g/L)	Tolerance (%)	Results
10	9.92	-0.08	Satisfactory
20	20.12	0.06	Satisfactory
30	31.03	3.43	Satisfactory

Tolerance limit of salinity should be less than ± 10.0 (%)

(5) Turbidity

Expected Reading (NTU)	Displayed Reading ^(f) (NTU)	Tolerance ^(g) (%)	Results
0	0.33	--	Satisfactory
10	9.65	-3.5	Satisfactory
20	18.9	-5.5	Satisfactory
100	100	0.0	Satisfactory
800	781	-2.4	Satisfactory

Tolerance limit of turbidity should be less than ± 10.0 (%)

~ END OF REPORT ~

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REPORT OF EQUIPMENT PERFORMANCE CHECK/ CALIBRATION

Report No. : AJ110022
Date of Issue : 11 November 2020
Page No. : 1 of 2

PART A – CUSTOMER INFORMATION

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Attn: Mr. Nelson TSUI

PART B – DESCRIPTION

Name of Equipment : Multi Water Quality Checker U-53
Manufacturer : Horiba
Serial Number : UHB5F2BB
Date of Received : Nov 04, 2020
Date of Calibration : Nov 11, 2020
Date of Next Calibration^(a) : Feb 10, 2021

PART C – REFERENCE METHODS/ DOCUMENTS FOR THE CALIBRATION

Parameter	Reference Method
pH at 25°C	APHA 21e 4500-H ⁺ B
Dissolved Oxygen	APHA 21e 4500-O G
Salinity	APHA 21e 2520 B
Turbidity	APHA 21e 2130 B
Temperature	Section 6 of international Accreditation New Zealand Technical Guide no. 3 Second edition March 2008: Working Thermometer Calibration Procedure.
Oxidation-Reduction Potential	APHA 22e 2580 B

PART D – CALIBRATION RESULTS^(b,c)

(1) pH at 25°C

Target (pH unit)	Displayed Reading ^(d) (pH Unit)	Tolerance ^(e) (pH Unit)	Results
4.00	4.10	0.10	Satisfactory
7.42	7.46	0.04	Satisfactory
10.01	10.02	0.01	Satisfactory

Tolerance of pH should be less than ±0.20 (pH unit)

(2) Temperature

Reading of Ref. thermometer (°C)	Displayed Reading (°C)	Tolerance (°C)	Results
12	12.38	0.38	Satisfactory
25	25.01	0.01	Satisfactory
35	35.75	0.75	Satisfactory

Tolerance limit of temperature should be less than ±2.0 (°C)

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^(e) The "Tolerance Limit" mentioned is the acceptance criteria applicable for similar equipment used by Quality Pro Test-Consult Ltd. or quoted from relevant international standards.


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REPORT OF EQUIPMENT PERFORMANCE CHECK/ CALIBRATION

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PART D – CALIBRATION RESULTS (Cont'd)

(3) Dissolved Oxygen

Expected Reading (mg/L)	Displayed Reading (mg/L)	Tolerance (mg/L)	Results
0.07	0.00	-0.07	Satisfactory
4.60	4.27	-0.33	Satisfactory
6.32	6.11	-0.21	Satisfactory
7.98	8.00	0.02	Satisfactory

Tolerance limit of dissolved oxygen should be less than ± 0.50 (mg/L)

(4) Salinity

Expected Reading (g/L)	Displayed Reading (g/L)	Tolerance (%)	Results
10	9.88	-1.20	Satisfactory
20	19.60	-2.00	Satisfactory
30	28.55	-4.83	Satisfactory

Tolerance limit of salinity should be less than ± 10.0 (%)

(5) Turbidity

Expected Reading (NTU)	Displayed Reading ^(f) (NTU)	Tolerance ^(g) (%)	Results
0	0.46	--	Satisfactory
10	10.01	0.1	Satisfactory
20	20.11	0.5	Satisfactory
100	96.80	-3.2	Satisfactory
800	797.00	-0.4	Satisfactory

Tolerance limit of turbidity should be less than ± 10.0 (%)

(6) Oxidation-Reduction Potential

Expected Reading (mV)	Displayed Reading (mV)	Tolerance (mV) ^(g)	Results
222	225	3	Satisfactory

Tolerance limit of Oxidation-Reduction Potential should be less than ± 10 (mV)

~ END OF REPORT ~

Remark(s): -

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