

## 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. : AI080157  
Date of Issue : 06 Sep, 2019  
Page No. : 1 of 2

### PART A – CUSTOMER INFORMATION

Acuity Sustainability Consulting Limited  
Unit 1908, Nos. 301-305  
Castle Peak Road, Kwai Chung  
N.T., HK  
Attn: Mr. Nelson TSUI

### PART B – DESCRIPTION

Name of Equipment : Multi Water Quality Checker U-53  
Manufacturer : Horiba  
Serial Number : BGY9CKD  
Date of Received : Aug 30, 2019  
Date of Calibration : Aug 30, 2019 – Sep 05, 2019  
Date of Next Calibration<sup>(a)</sup> : Nov 29, 2019

### PART C – REFERENCE METHODS/ DOCUMENTS FOR THE CALIBRATION

<u>Parameter</u>	<u>Reference Method</u>
pH at 25°C	APHA 21e 4500-H <sup>+</sup> 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<sup>(b,c)</sup>

#### (1) pH at 25°C

Target (pH unit)	Displayed Reading <sup>(d)</sup> (pH Unit)	Tolerance <sup>(e)</sup> (pH Unit)	Results
4.00	3.98	-0.02	Satisfactory
7.42	7.42	0.00	Satisfactory
10.01	10.11	0.10	Satisfactory

Tolerance of pH should be less than  $\pm 0.20$  (pH unit)

#### (2) Temperature

Reading of Ref. thermometer (°C)	Displayed Reading (°C)	Tolerance (°C)	Results
9.8	9.99	0.19	Satisfactory
27.4	27.3	-0.10	Satisfactory
43.0	42.78	-0.22	Satisfactory

Tolerance limit of temperature should be less than  $\pm 2.0$  (°C)

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#### Remark(s): -

- <sup>(a)</sup> The "Date of Next Calibration" is recommended according to best practice principals as practiced by QPT or quoted form relevant international standards.  
<sup>(b)</sup> The results relate only to the calibrated equipment as received  
<sup>(c)</sup> The performance of the equipment stated in this report is checked with independent reference material and results compared against a calibrated secondary source.  
<sup>(d)</sup> "Displayed Reading" denotes the figure shown on item under calibration/ checking regardless of equipment precision or significant figures.  
<sup>(e)</sup> The "Tolerance Limit" mentioned is the acceptance criteria applicable for similar equipment used by Quality Pro Test-Consult Ltd. or quoted form relevant international standards.

  
LEE Chun-ning, Desmond  
Senior Chemist



## REPORT OF EQUIPMENT PERFORMANCE CHECK/ CALIBRATION

Report No. : AI080157  
Date of Issue : 06 Sep, 2019  
Page No. : 2 of 2

### PART D – CALIBRATION RESULTS (Cont'd)

#### (3) Dissolved Oxygen

Expected Reading (mg/L)	Displayed Reading (mg/L)	Tolerance (mg/L)	Results
8.18	8.23	0.05	Satisfactory
6.48	6.67	0.19	Satisfactory
3.5	3.68	0.18	Satisfactory
0.19	0.66	0.47	Satisfactory

Tolerance limit of dissolved oxygen should be less than  $\pm 0.50$  (mg/L)

#### (4) Salinity

Expected Reading (g/L)	Displayed Reading (g/L)	Tolerance (%)	Results
10	9.72	-2.80	Satisfactory
20	19.7	-1.50	Satisfactory
30	29.2	-2.67	Satisfactory

Tolerance limit of salinity should be less than  $\pm 10.0$  (%)

#### (5) Turbidity

Expected Reading (NTU)	Displayed Reading <sup>(f)</sup> (NTU)	Tolerance <sup>(g)</sup> (%)	Results
0	0.02	--	Satisfactory
10	9.72	-2.8	Satisfactory
20	19.8	-1.0	Satisfactory
100	100	0.0	Satisfactory
800	819	2.4	Satisfactory

Tolerance limit of turbidity should be less than  $\pm 10.0$  (%)

~ END OF REPORT ~

**Remark(s): -**

<sup>(f)</sup> "Displayed Reading" presents the figures shown on item under calibration/ checking regardless of equipment precision or significant figures.

<sup>(g)</sup> 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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## AMENDMENT CALIBRATION REPORT

Amendment Test Report No. : AI100146A  
Amendment Test Report Date of Issue : 13 November 2019

*Superseded Test Report No.* : AI100146  
*Superseded Test Report Date of Issue* : 23 October 2019

Page No. : 1 of 3

### PART A – CUSTOMER INFORMATION

Acuity Sustainability Consulting Limited  
Unit 1908, Nos. 301-305  
Castle Peak Road, Kwai Chung  
N.T., HK  
Attn: Mr. Nelson TSUI

### PART B – CHANGE OF INFORMATION

This amendment report supersedes any previous report number AI100146 dated 23 October 2019 with this reference, the details as indicated below in the selected checkbox:

Supersede relevant page(s) of previous report by the attached:

\_\_\_\_\_ (page no)


Supersede whole previous report by the attached amendment test report.

The superseded pages or the superseded report become invalid. Please destroy them immediately or return to our office for cancellation

Amendment detail(s):

No.	Description of the amendment	Reason of the amendment
1	Name of Equipment	Typo
2	Serial Number	Typo

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FUNG Yuen-ching Aries  
Laboratory Manager



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*Superseded Test Report No.* : AI100146  
*Superseded Test Report Date of Issue* : 23 October 2019

Page No. : 2 of 3

### PART C – DESCRIPTION

Name of Equipment : Multi Water Quality Checker U-53  
Manufacturer : Horiba  
Serial Number : UHB5F2BB  
Date of Received : Oct 15, 2019  
Date of Calibration : Oct 23, 2019  
Date of Next Calibration<sup>(a)</sup> : Jan 22, 2020

### PART D – REFERENCE METHODS/ DOCUMENTS FOR THE CALIBRATION

<u>Parameter</u>	<u>Reference Method</u>
pH at 25°C	APHA 21e 4500-H <sup>+</sup> 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 E – CALIBRATION RESULTS<sup>(b,c)</sup>

#### (1) pH at 25°C

Target (pH unit)	Displayed Reading <sup>(d)</sup> (pH Unit)	Tolerance <sup>(e)</sup> (pH Unit)	Results
4.00	4.08	0.08	Satisfactory
7.42	7.50	0.08	Satisfactory
10.01	10.02	0.01	Satisfactory

Tolerance of pH should be less than  $\pm 0.20$  (pH unit)

#### (2) Temperature

Reading of Ref. thermometer (°C)	Displayed Reading (°C)	Tolerance (°C)	Results
10.0	10.06	0.06	Satisfactory
27.1	27.23	0.13	Satisfactory
45.1	45.05	0.05	Satisfactory

Tolerance limit of temperature should be less than  $\pm 2.0$  (°C)

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#### Remark(s): -

- The "Date of Next Calibration" is recommended according to best practice principals as practiced by QPT or quoted from relevant international standards.
- The results relate only to the calibrated equipment as received
- The performance of the equipment stated in this report is checked with independent reference material and results compared against a calibrated secondary source.
- "Displayed Reading" denotes the figure shown on item under calibration/ checking regardless of equipment precision or significant figures.
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*Superseded Test Report No.* : AI100146  
*Superseded Test Report Date of Issue* : 23 October 2019

Page No. : 3 of 3

### PART D – CALIBRATION RESULTS (Cont'd)

#### (3) Dissolved Oxygen

Expected Reading (mg/L)	Displayed Reading (mg/L)	Tolerance (mg/L)	Results
7.43	7.40	-0.03	Satisfactory
5.00	5.11	+0.11	Satisfactory
2.00	1.67	-0.33	Satisfactory
0.11	0.34	+0.23	Satisfactory

Tolerance limit of dissolved oxygen should be less than  $\pm 0.50$  (mg/L)

#### (4) Salinity

Expected Reading (g/L)	Displayed Reading (g/L)	Tolerance (%)	Results
10	9.68	-3.2	Satisfactory
20	19.84	0.8	Satisfactory
30	30.48	1.6	Satisfactory

Tolerance limit of salinity should be less than  $\pm 10.0$  (%)

#### (5) Turbidity

Expected Reading (NTU)	Displayed Reading <sup>(f)</sup> (NTU)	Tolerance <sup>(g)</sup> (%)	Results
0	0.53	--	Satisfactory
10	9.40	-6.0	Satisfactory
20	18.96	-5.2	Satisfactory
100	93.9	-6.1	Satisfactory
800	751	-6.1	Satisfactory

Tolerance limit of turbidity should be less than  $\pm 10.0$  (%)

#### (6) Oxidation-Reduction Potential

Expected Reading (mV)	Displayed Reading (mV)	Tolerance (mV)	Results
228	236	8	Satisfactory

Tolerance limit of Oxidation-Reduction Potential should be less than  $\pm 10$  (mV)

~ END OF REPORT ~

Remark(s): -

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## REPORT OF EQUIPMENT PERFORMANCE CHECK/ CALIBRATION

Report No. : AI100180  
Date of Issue : 04 November, 2019  
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 : YSI ProDSS Multi Parameters  
Manufacturer : YSI (a xylem brand)  
Serial Number : 15M101091  
Date of Received : Oct 28, 2019  
Date of Calibration : Nov 01, 2019  
Date of Next Calibration<sup>(a)</sup> : Feb 01, 2020

### PART C – REFERENCE METHODS/ DOCUMENTS FOR THE CALIBRATION

<u>Parameter</u>	<u>Reference Method</u>
pH at 25°C	APHA 21e 4500-H <sup>+</sup> 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<sup>(b,c)</sup>

#### (1) pH at 25°C

Target (pH unit)	Displayed Reading <sup>(d)</sup> (pH Unit)	Tolerance <sup>(e)</sup> (pH Unit)	Results
4.00	4.05	0.05	Satisfactory
7.42	7.43	0.01	Satisfactory
10.01	10.10	0.09	Satisfactory

Tolerance of pH should be less than  $\pm 0.20$  (pH unit)

#### (2) Temperature

Reading of Ref. thermometer (°C)	Displayed Reading (°C)	Tolerance (°C)	Results
4.0	3.9	-0.1	Satisfactory
25.1	25.1	0.0	Satisfactory
46.0	46.1	0.1	Satisfactory

Tolerance limit of temperature should be less than  $\pm 2.0$  (°C)

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#### Remark(s): -

- <sup>(a)</sup> The "Date of Next Calibration" is recommended according to best practice principals as practiced by QPT or quoted from relevant international standards.  
<sup>(b)</sup> The results relate only to the calibrated equipment as received  
<sup>(c)</sup> The performance of the equipment stated in this report is checked with independent reference material and results compared against a calibrated secondary source.  
<sup>(d)</sup> "Displayed Reading" denotes the figure shown on item under calibration/ checking regardless of equipment precision or significant figures.  
<sup>(e)</sup> 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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Senior Chemist



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## REPORT OF EQUIPMENT PERFORMANCE CHECK/ CALIBRATION

Report No. : AI100180  
Date of Issue : 04 November, 2019  
Page No. : 2 of 2

### PART D – CALIBRATION RESULTS (Cont'd)

#### (3) Dissolved Oxygen

Expected Reading (mg/L)	Displayed Reading (mg/L)	Tolerance (mg/L)	Results
0.10	0.22	0.12	Satisfactory
1.61	1.49	-0.12	Satisfactory
4.68	4.54	-0.14	Satisfactory
7.89	7.75	-0.14	Satisfactory

Tolerance limit of dissolved oxygen should be less than  $\pm 0.50$  (mg/L)

#### (4) Salinity

Expected Reading (g/L)	Displayed Reading (g/L)	Tolerance (%)	Results
10	9.98	-0.20	Satisfactory
20	20.46	2.30	Satisfactory
30	31.24	4.13	Satisfactory

Tolerance limit of salinity should be less than  $\pm 10.0$  (%)

#### (5) Turbidity

Expected Reading (NTU)	Displayed Reading <sup>(f)</sup> (NTU)	Tolerance <sup>(g)</sup> (%)	Results
0	-0.10	--	Satisfactory
10	9.81	-1.9	Satisfactory
20	19.23	-3.9	Satisfactory
100	97.16	-2.8	Satisfactory
800	791.46	-1.1	Satisfactory

Tolerance limit of turbidity should be less than  $\pm 10.0$  (%)

~ END OF REPORT ~

**Remark(s): -**

<sup>(f)</sup> "Displayed Reading" presents the figures shown on item under calibration/ checking regardless of equipment precision or significant figures.

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## REPORT OF EQUIPMENT PERFORMANCE CHECK/ CALIBRATION

Report No. : AI110046  
Date of Issue : 22 November, 2019  
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 : L20550GA  
Date of Received : Nov 08, 2019  
Date of Calibration : Nov 22, 2019  
Date of Next Calibration<sup>(a)</sup> : Feb 21, 2020

### PART C – REFERENCE METHODS/ DOCUMENTS FOR THE CALIBRATION

Parameter	Reference Method
pH at 25°C	APHA 21e 4500-H <sup>+</sup> 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<sup>(b,c)</sup>

#### (1) pH at 25°C

Target (pH unit)	Displayed Reading <sup>(d)</sup> (pH Unit)	Tolerance <sup>(e)</sup> (pH Unit)	Results
4.00	3.92	-0.08	Satisfactory
7.42	7.34	-0.08	Satisfactory
10.01	10.04	0.03	Satisfactory

Tolerance of pH should be less than  $\pm 0.20$  (pH unit)

#### (2) Temperature


Reading of Ref. thermometer (°C)	Displayed Reading (°C)	Tolerance (°C)	Results
15.0	14.68	-0.3	Satisfactory
26.0	25.41	-0.6	Satisfactory
44.0	44.11	0.1	Satisfactory

Tolerance limit of temperature should be less than  $\pm 2.0$  (°C)

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#### Remark(s): -

- <sup>(a)</sup> The "Date of Next Calibration" is recommended according to best practice principals as practiced by QPT or quoted from relevant international standards.  
<sup>(b)</sup> The results relate only to the calibrated equipment as received  
<sup>(c)</sup> The performance of the equipment stated in this report is checked with independent reference material and results compared against a calibrated secondary source.  
<sup>(d)</sup> "Displayed Reading" denotes the figure shown on item under calibration/ checking regardless of equipment precision or significant figures.  
<sup>(e)</sup> 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. : AI110046  
Date of Issue : 22 November, 2019  
Page No. : 2 of 2

### PART D – CALIBRATION RESULTS (Cont'd)

#### (3) Dissolved Oxygen

Expected Reading (mg/L)	Displayed Reading (mg/L)	Tolerance (mg/L)	Results
0.15	0.00	-0.15	Satisfactory
3.90	4.01	0.11	Satisfactory
6.80	6.70	-0.10	Satisfactory
8.15	8.05	-0.10	Satisfactory

Tolerance limit of dissolved oxygen should be less than  $\pm 0.50$  (mg/L)

#### (4) Salinity

Expected Reading (g/L)	Displayed Reading (g/L)	Tolerance (%)	Results
10	9.76	-2.40	Satisfactory
20	20.21	1.05	Satisfactory
30	30.57	1.90	Satisfactory

Tolerance limit of salinity should be less than  $\pm 10.0$  (%)

#### (5) Turbidity

Expected Reading (NTU)	Displayed Reading <sup>(f)</sup> (NTU)	Tolerance <sup>(g)</sup> (%)	Results
0	0.46	--	Satisfactory
10	9.69	-3.1	Satisfactory
20	21.10	5.5	Satisfactory
100	95.10	-4.9	Satisfactory
800	749.00	-6.4	Satisfactory

Tolerance limit of turbidity should be less than  $\pm 10.0$  (%)

~ END OF REPORT ~

**Remark(s): -**

<sup>(f)</sup> "Displayed Reading" presents the figures shown on item under calibration/ checking regardless of equipment precision or significant figures.

<sup>(g)</sup> 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.