Contract No. EP/SP/66. Integrated Waste Mana	gement Facilities, Phase 1	Keppel Seghers – Zhen Hua Joint Venture
Appendix F	Water Quality Equipment	Calibration Certificate



Unit 10, 14/F, Wah Wai Centre, 38-40 Au Pui Wan St., Fotan, Hong Kong Email: info@qualityprotest.com; Website: www.qualityprotest.com Tel: (852) 3956 8717; Fax: (852) 3956 3928

REPORT OF EQUIPMENT PERFORMANCE CHECK/ CALIBRATION

Report No.

BA100064

Date of Issue

02 November 2021

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

HORIBA U-53 Multi Parameters

Manufacturer

HORIBA

Serial Number

S2A98W8H Oct 26, 2021

Date of Received Date of Calibration

Oct 26, 2021

Date of Next Calibration(a)

Jan 25, 2022

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 APHA 21e 2520 B

Salinity **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	4.03	0.03	Satisfactory
7.42	7.46	0.04	Satisfactory
10.01	10.19	0.18	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
16	16.24	0.24	Satisfactory
25	25.10	0.10	Satisfactory
33	32.95	-0.05	Satisfactory

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

~ CONTINUED ON NEXT PAGE ~

Remark(s): -

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- 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.
- 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 Senior Chemist



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REPORT OF EQUIPMENT PERFORMANCE CHECK/ CALIBRATION

Report No.

: BA100064

Date of Issue

02 November 2021

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
2.96	3.30	0.34	Satisfactory
3.41	3.76	0.35	Satisfactory
4.87	5.12	0.25	Satisfactory
7.92	8.00	0.08	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	10.47	4.70	Satisfactory
20	21.32	6.60	Satisfactory
30	32.20	7.33	Satisfactory

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

(5) Turbidity

Expected Reading (NTU)	Displayed Reading ^(f) (NTU)	Tolerance ^(g) (%)	Results
0	0.30		Satisfactory
10	10.8	8.0	Satisfactory
20	21.8	9.0	Satisfactory
100	109	9.0	Satisfactory
800	790	-1.3	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.

R-BA110031

Date of Issue

25 November 2021

Page No.

1 of 2

PART A - CUSTOMER INFORMATION

Acuity Sustainability Consulting Limited Unit E, 12/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

PPHNOMXY

Date of Received

24 November 2021

Date of Calibration

24 November 2021

Date of Next Calibration(a)

23 February 2022

PART C - REFERENCE METHODS/ DOCUMENTS FOR THE CALIBRATION

Parameter

Reference Method

pH at 25°C

APHA 21e 4500-H+ B APHA 21e 4500-O G

Dissolved Oxygen 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	0.06	Satisfactory
7.42	7.52	0.10	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
15.0	15.21	0.3	Satisfactory
20.5	20.50	0.0	Satisfactory
32.0	31.80	-0.2	Satisfactory

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

~ CONTINUED ON NEXT PAGE ~

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 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 Senior Chemist



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REPORT OF EQUIPMENT PERFORMANCE CHECK/ CALIBRATION

Report No.

R-BA110031

Date of Issue

25 November 2021

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
9.62	9.27	-0.35	Satisfactory
5.89	5.60	-0.11	Satisfactory
3.27	3.59	0.32	Satisfactory
0.53	0.96	0.46	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	10.05	0.50	Satisfactory
20	20.61	3.05	Satisfactory
30	31.66	5.53	Satisfactory

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

(5) Turbidity

Expected Reading (NTU)	Displayed Reading ^(f) (NTU)	Tolerance ^(g) (%)	Results
0	0.23		Satisfactory
10	11.0	10.0	Satisfactory
20	20.4	2.0	Satisfactory
100	102	2.0	Satisfactory
800	808	1.0	Satisfactory

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

~ END OF REPORT ~

Remark(s): -

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⁽b) "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

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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

UHB5F2BB

Date of Received

Sep 28, 2021

Date of Calibration

Sep 29, 2021

Date of Next Calibration(a)

Dec 28, 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 APHA 21e 2520 B

Salinity

APHA 21e 2130 B

Turbidity 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

\ , I			
Target (pH unit)	Displayed Reading ^(d) (pH Unit)	Tolerance ^(e) (pH Unit)	Results
4.00	3.82	-0.18	Satisfactory
7.42	7.43	0.01	Satisfactory
10.01	10.03	0.02	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	15.1	0.1	Satisfactory
25	25.1	0.1	Satisfactory
33.5	33.1	-0.4	Satisfactory

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

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> LEE Chun-ning Senior Chemist



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REPORT OF EQUIPMENT PERFORMANCE CHECK/ CALIBRATION

Report No.

: BA100007

Date of Issue

: 05 October 2021

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
0.65	0.56	-0.09	Satisfactory
1.91	1.79	-0.12	Satisfactory
3.30	3.34	0.04	Satisfactory
6.98	6.99	0.01	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	10.18	1.80	Satisfactory
20	20.70	3.50	Satisfactory
30	31.45	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	0.00		Satisfactory
10	10.5	5.0	Satisfactory
20	20.3	1.5	Satisfactory
100	106	6.0	Satisfactory
800	788	-1.5	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
229	231	2	Satisfactory

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

~ END OF REPORT ~

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