

Appendix D. Calibration Certificates



MAXLAB

CALIBRATION CERTIFICATE

Certificate Information

Date of Issue	24-Mar-2020	Certificate Number	MLCN200615S
---------------	-------------	--------------------	-------------

Customer Information

Company Name	Mott MacDonald Hong Kong Limited
Address	3/F., International Trade Tower, 348 Kwun Tong Road, Kwun Tong, Kowloon, Hong Kong

Equipment-under-Test (EUT)

Description	Sound Level Meter
Manufacturer	Rion
Model Number	NL-52
Serial Number	00998505
Equipment Number	--

Calibration Particular

Date of Calibration	24-Mar-2020		
Calibration Equipment	4231(MLTE008) / AV180068 / 13-May-2020		
Calibration Procedure	MLCG00, MLCG15		
Calibration Conditions	Laboratory	Temperature	23 °C ± 5 °C
		Relative Humidity	55% ± 25%
	EUT	Stabilizing Time	Over 3 hours
		Warm-up Time	10 minutes
		Power Supply	Internal battery
Calibration Results	Calibration data were detailed in the continuation pages.		

Approved By & Date

	K.O. Lo	24-Mar-2020
--	---------	-------------

Statements

- * Calibration equipment used for this calibration are traceable to national / international standards.
- * The results on this Calibration Certificate only relate to the values measured at the time of the calibration and the uncertainties quoted will not include allowance for the EUT long term drift, variation with environmental changes, vibration and shock during transportation, overloading, mishandling, misuse, and the capacity of any other laboratory to repeat the measurement.
- * MaxLab Calibration Centre Limited shall not be liable for any loss or damage resulting from the use of the EUT.
- * The copy of this Certificate is owned by MaxLab Calibration Centre Limited. No part of this Certificate may be reproduced without the prior written approval of MaxLab Calibration Centre Limited.



MAXLAB

Certificate No. MLCN200615S

Calibration Data					
Frequency / Time Weighting	Range	EUT Reading	Standard Reading	EUT Error	Calibration Uncertainty
A / FAST (1 kHz Input)	25 - 138 dB	94.0 dB	94.0 dB	0.0 dB	0.2 dB
		114.0 dB	114.0 dB	0.0 dB	0.2 dB
C / FAST (1 kHz Input)	33 - 138 dB	94.0 dB	94.0 dB	0.0 dB	0.2 dB
		114.0 dB	114.0 dB	0.0 dB	0.2 dB
Z / FAST (1 kHz Input)	38 - 138 dB	94.0 dB	94.0 dB	0.0 dB	0.2 dB
		114.0 dB	114.0 dB	0.0 dB	0.2 dB
A / SLOW (1 kHz Input)	25 - 138 dB	94.0 dB	94.0 dB	0.0 dB	0.2 dB
		114.0 dB	114.0 dB	0.0 dB	0.2 dB
C / SLOW (1 kHz Input)	33 - 138 dB	94.0 dB	94.0 dB	0.0 dB	0.2 dB
		114.0 dB	114.0 dB	0.0 dB	0.2 dB
Z / SLOW (1 kHz Input)	38 - 138 dB	94.0 dB	94.0 dB	0.0 dB	0.2 dB
		114.0 dB	114.0 dB	0.0 dB	0.2 dB

- END -

Calibrated By :
Date :

Dan
24-Mar-2020

Checked By :
Date :

K.O. Lo
24-Mar-2020

Page 2 of 2



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

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. : AJ040073
Date of Issue : 21 April 2020
Page No. : 1 of 2

PART A – CUSTOMER INFORMATION

Enovative Environmental Service Ltd.
Flat 2207, Yu Fun House,
Yu Chui Court, Shatin
New Territories, Hong Kong
Attn: Mr. Thomas WONG

PART B – DESCRIPTION

Name of Equipment : YSI 6920V2 (Multi-Parameters)
Manufacturer : YSI (a xylem brand)
Serial Number : 0001C6A7
Date of Received : Apr 21, 2020
Date of Calibration : Apr 21, 2020
Date of Next Calibration^(a) : Jul 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
Dissolved Oxygen	APHA 21e 4500-O G
Conductivity at 25°C	APHA 21e 2510 B
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	4.02	0.02	Satisfactory
7.42	7.46	0.04	Satisfactory
10.01	10.10	0.09	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
10.0	10.1	0.1	Satisfactory
28.0	28.1	0.1	Satisfactory
49.0	49.1	0.1	Satisfactory

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

~ CONTINUED ON NEXT PAGE ~

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.
- The "Tolerance Limit" mentioned is referenced to YSI product specifications.


LEE Chun-ning, Desmond
Senior Chemist



專業化驗有限公司

QUALITY PRO TEST-CONSULT LIMITED

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. : AJ040073
Date of Issue : 21 April 2020
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
0.78	0.59	-0.19	Satisfactory
2.18	2.26	0.08	Satisfactory
5.67	5.55	-0.12	Satisfactory
8.03	8.11	0.08	Satisfactory

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

(4) Conductivity at 25°C

Conc. of KCl (M)	Expected Reading ($\mu\text{S/cm}$)	Displayed Reading ($\mu\text{S/cm}$)	Tolerance (%)	Results
0.001	146.9	147.6	0.48	Satisfactory
0.01	1412	1458	3.26	Satisfactory
0.1	12890	12666	-1.74	Satisfactory
0.5	58670	59424	1.29	Satisfactory
1.0	111900	110688	-1.08	Satisfactory

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

(5) Salinity

Expected Reading (g/L)	Displayed Reading (g/L)	Tolerance (%)	Results
10	9.95	-0.50	Satisfactory
20	19.96	-0.20	Satisfactory
30	30.34	1.13	Satisfactory

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

(6) Turbidity

Expected Reading (NTU)	Displayed Reading ^(f) (NTU)	Tolerance ^(g) (%)	Results
0	0	--	Satisfactory
10	9.90	-1.0	Satisfactory
20	19.80	-1.0	Satisfactory
100	98.9	-1.1	Satisfactory
800	793.2	-0.8	Satisfactory

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

~ END OF REPORT ~

Remark(s): -

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

^(g) 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.



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

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. : AJ040072
Date of Issue : 21 April 2020
Page No. : 1 of 2

PART A – CUSTOMER INFORMATION

Enovative Environmental Service Ltd.
Flat 2207, Yu Fun House,
Yu Chui Court, Shatin
New Territories, Hong Kong
Attn: Mr. Thomas WONG

PART B – DESCRIPTION

Name of Equipment : YSI 6920V2 (Multi-Parameters)
Manufacturer : YSI (a xylem brand)
Serial Number : 00019CB2
Date of Received : Apr 21, 2020
Date of Calibration : Apr 21, 2020
Date of Next Calibration^(a) : Jul 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
Dissolved Oxygen	APHA 21e 4500-O G
Conductivity at 25°C	APHA 21e 2510 B
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	4.01	0.01	Satisfactory
7.42	7.44	0.02	Satisfactory
10.01	9.96	-0.05	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
10.0	10.1	0.1	Satisfactory
28.0	28.0	0.0	Satisfactory
49.0	49.1	0.1	Satisfactory

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

~ CONTINUED ON NEXT PAGE ~

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.
^(d) "Displayed Reading" denotes the figure shown on item under calibration/ checking regardless of equipment precision or significant figures.
^(e) The "Tolerance Limit" mentioned is referenced to YSI product specifications.


LEE Chun-ning, Desmond
Senior Chemist



專業化驗有限公司

QUALITY PRO TEST-CONSULT LIMITED

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. : AJ040072
Date of Issue : 21 April 2020
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
0.78	0.60	-0.18	Satisfactory
2.18	2.22	0.04	Satisfactory
5.67	5.57	-0.10	Satisfactory
8.03	8.12	0.09	Satisfactory

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

(4) Conductivity at 25°C

Conc. of KCl (M)	Expected Reading ($\mu\text{S/cm}$)	Displayed Reading ($\mu\text{S/cm}$)	Tolerance (%)	Results
0.001	146.9	147.7	0.54	Satisfactory
0.01	1412	1438	1.84	Satisfactory
0.1	12890	12741	-1.16	Satisfactory
0.5	58670	59364	1.18	Satisfactory
1.0	111900	110822	-0.96	Satisfactory

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

(5) Salinity

Expected Reading (g/L)	Displayed Reading (g/L)	Tolerance (%)	Results
10	9.94	-0.60	Satisfactory
20	20.04	0.20	Satisfactory
30	30.52	1.73	Satisfactory

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

(6) Turbidity

Expected Reading (NTU)	Displayed Reading ^(f) (NTU)	Tolerance ^(g) (%)	Results
0	0	--	Satisfactory
10	9.90	-1.0	Satisfactory
20	19.70	-1.5	Satisfactory
100	97.8	-2.2	Satisfactory
800	794.2	-0.7	Satisfactory

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

~ END OF REPORT ~

Remark(s): -

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

^(g) 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.