

Annex F1

Calibration Certificates for
Surface Water Quality
Monitoring Equipment



REPORT OF EQUIPMENT PERFORMANCE CHECK/CALIBRATION

| | | | |
|----------|--|----------------|-------------|
| CONTACT: | BEN TAM | WORK ORDER: | HK2031198 |
| 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: | 18-Aug-2020 |
| | | DATE OF ISSUE: | 24-Aug-2020 |

SPECIFIC COMMENTS

Equipment information (Brand name, Model No., Serial No. and Equipment No.) is provided by client. 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 laboratory or quoted from relevant international standards.

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

The validity of equipment/ meter performance only applies to the result(s) stated in the report.

| | |
|----------------------------|---|
| Equipment Type: | Multifunctional Meter |
| Service Nature: | Performance Check |
| Scope: | Conductivity, Dissolved Oxygen, pH Value, Turbidity, Salinity and Temperature |
| Brand Name/ Model No.: | YSI Professional DSS |
| Serial No./ Equipment No.: | 17B102764/17B100758 (EQW019) |
| Date of Calibration: | 24-August-2020 |

GENERAL COMMENTS

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

Ms. Lin Wai Yu, Iris
Assistant Manager - Inorganic

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REPORT OF EQUIPMENT PERFORMANCE CHECK/CALIBRATION



WORK ORDER: HK2031198
SUB-BATCH: 0
DATE OF ISSUE: 24-Aug-2020
CLIENT: ACTION UNITED ENVIRONMENT SERVICES AND CONSULTING

Equipment Type: Multifunctional Meter
Brand Name/ Model No.: YSI Professional DSS
Serial No./ Equipment No.: 17B102764/17B100758 (EQW019)
Date of Calibration: 24-August-2020 **Date of Next Calibration:** 24-November-2020

PARAMETERS:

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

| Expected Reading (µS/cm) | Displayed Reading (µS/cm) | Tolerance (%) |
|--------------------------|---------------------------|---------------|
| 146.9 | 153.6 | +4.6 |
| 6667 | 6973 | +4.6 |
| 12890 | 13340 | +3.5 |
| 58670 | 61031 | +4.0 |
| | Tolerance Limit (%) | ±10.0 |

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

| Expected Reading (mg/L) | Displayed Reading (mg/L) | Tolerance (mg/L) |
|-------------------------|--------------------------|------------------|
| 3.72 | 3.82 | +0.10 |
| 5.39 | 5.44 | +0.05 |
| 7.33 | 7.29 | -0.04 |
| | 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 | 4.04 | +0.04 |
| 7.0 | 7.08 | +0.08 |
| 10.0 | 10.08 | +0.08 |
| | 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.

Ms. Lin Wai Yu, Iris
 Assistant Manager - Inorganic

REPORT OF EQUIPMENT PERFORMANCE CHECK/CALIBRATION



WORK ORDER: HK2031198
 SUB-BATCH: 0
 DATE OF ISSUE: 24-Aug-2020
 CLIENT: ACTION UNITED ENVIRONMENT SERVICES AND CONSULTING

Equipment Type: Multifunctional Meter
 Brand Name/ Model No.: YSI Professional DSS
 Serial No./ Equipment No.: 17B102764/17B100758 (EQW019)
 Date of Calibration: 24-August-2020 Date of Next Calibration: 24-November-2020

PARAMETERS:

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

| Expected Reading (NTU) | Displayed Reading (NTU) | Tolerance (%) |
|------------------------|-------------------------|---------------|
| 0 | 0.82 | -- |
| 4 | 4.21 | +5.3 |
| 40 | 41.52 | +3.8 |
| 80 | 83.91 | +4.9 |
| 400 | 403.92 | +1.0 |
| 800 | 789.93 | -1.3 |
| | Tolerance Limit (%) | ±10.0 |

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

| Expected Reading (ppt) | Displayed Reading (ppt) | Tolerance (%) |
|------------------------|-------------------------|---------------|
| 0 | 0.00 | -- |
| 10 | 10.06 | +0.6 |
| 20 | 21.29 | +6.5 |
| 30 | 31.36 | +4.5 |
| | 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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REPORT OF EQUIPMENT PERFORMANCE CHECK/CALIBRATION



WORK ORDER: HK2031198
SUB-BATCH: 0
DATE OF ISSUE: 24-Aug-2020
CLIENT: ACTION UNITED ENVIRONMENT SERVICES AND CONSULTING

Equipment Type: Multifunctional Meter
Brand Name/ Model No.: YSI Professional DSS
Serial No./ Equipment No.: 17B102764/17B100758 (EQW019)
Date of Calibration: 24-August-2020 Date of Next Calibration: 24-November-2020

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) |
|-----------------------|------------------------|----------------|
| 10.5 | 10.7 | +0.2 |
| 20.5 | 20.8 | +0.3 |
| 39.5 | 39.8 | +0.3 |
| | Tolerance Limit (°C) | ±2.0 |

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

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Assistant Manager - Inorganic



REPORT OF EQUIPMENT PERFORMANCE CHECK/CALIBRATION

| | | | |
|----------|--|----------------|-------------|
| CONTACT: | BEN TAM | WORK ORDER: | HK2037835 |
| 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: | 06-Oct-2020 |
| | | DATE OF ISSUE: | 14-Oct-2020 |

SPECIFIC COMMENTS

Equipment information (Brand name, Model No., Serial No. and Equipment No.) is provided by client. 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 laboratory or quoted from relevant international standards.

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

The validity of equipment/ meter performance only applies to the result(s) stated in the report.

| | |
|----------------------------|--------------------------|
| Equipment Type: | pH meter |
| Service Nature: | Performance Check |
| Scope: | pH Value and Temperature |
| Brand Name/ Model No.: | AZ8685 |
| Serial No./ Equipment No.: | 1259868 |
| Date of Calibration: | 12-October-2020 |

GENERAL COMMENTS

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

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Assistant Manager - Inorganic

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REPORT OF EQUIPMENT PERFORMANCE CHECK/CALIBRATION



WORK ORDER: HK2037835
SUB-BATCH: 0
DATE OF ISSUE: 14-Oct-2020
CLIENT: ACTION UNITED ENVIRONMENT SERVICES AND CONSULTING

Equipment Type: pH meter
Brand Name/ Model No.: AZ8685
Serial No./ Equipment No.: 1259868
Date of Calibration: 12-October-2020 **Date of Next Calibration:** 12-January-2021

PARAMETERS:

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

| Expected Reading (pH unit) | Displayed Reading (pH unit) | Tolerance (pH unit) |
|----------------------------------|-----------------------------|---------------------|
| 4.0 | 4.1 | +0.10 |
| 7.0 | 6.9 | -0.10 |
| 10.0 | 9.9 | -0.10 |
| Tolerance Limit (pH unit) | | ±0.20 |

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) |
|-----------------------------|------------------------|----------------|
| 10.5 | 10.6 | +0.1 |
| 20.5 | 20.8 | +0.3 |
| 39.0 | 39.1 | +0.1 |
| Tolerance Limit (°C) | | ±2.0 |

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

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