



Chlorophyll WETStar Characterization

Date: February 29, 2012

S/N: WS3S-742P

Chlorophyll concentration expressed in $\mu\text{g/l}$ can be derived using the equation:

$$\text{CHL}(\mu\text{g/l}) = \text{Scale Factor} \times (\text{Output} - \text{Clean Water Offset})$$

| | |
|--|-------------------------------|
| Clean Water Offset (CWO) | Analog output 0.065 V @ |
| Scale Factor (SF) | 5.5 $\mu\text{g/l/V}$ @ |
| Maximum Output | 5.18 V @ |
| Resolution | 0.36 mV |
| Ambient Characterization Temperature | 22 \pm 1 $^{\circ}\text{C}$ |
| Current Draw | 40 mA @ 12V (typical) |
| 12-hour Stability | 0.28 mV/hr |
| Temperature Stability, 25–2 $^{\circ}\text{C}$ | 0.17 mV/ $^{\circ}\text{C}$ |

| Range | |
|---------------------|---|
| 15 $\mu\text{g/l}$ | 0 |
| 28 $\mu\text{g/l}$ | X |
| 150 $\mu\text{g/l}$ | 0 |

Definitions:

CWO: Clean Water Offset value obtained using pure filtered de-ionized water.

SF: Scale Factor is used to convert the fluorescence response of the instrument into chlorophyll-a concentration. Scale Factor is determined at WET Labs during a cross calibration using a liquid fluorescent standard and a reference fluorometer whose chlorophyll fluorescence response has been characterized in a laboratory using a mono-species lab culture of *Thalassiosira weissflogii* phytoplankton.

Maximum Output: Maximum signal output of the fluorometer.

Resolution: Standard deviation of 1 minute of clean water data, sampled once per second.

Ambient Characterization Temperature: Room temperature at time of characterization.

Current Draw: The amount of current the instrument uses for operation.

12-hour Stability: Deviation of output averaged over 12 hours.

Temperature Stability: Measured output variation per degree.

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WETStar Calibration and Repairs

Date February 29, 2012 **Customer** NOAA

S/N# WS3S-742P **Repair Order** 13997

Standard Service

- Performed noise test: 1 sample/sec for 60 sec
- Performed stability test: 1 sample/min for 12 hrs
- Performed temperature test: 25–2 °C
- Performed saturation test
- Shake-tested unit
- Pressure-tested unit
- Updated unit's calibration sheet

Additional Repairs

Parts Replaced: Bulkhead Connector and O-Rings.

Comments

WETStar was re-calibrated with 100ppb Uranine.
Installed new 6 Pin Bulkhead Connector.
Analog Patch Cable Part #: EXA-210317