

## Chlorophyll WETStar Characterization

Date: March 13, 2012

S/N: WS3S-1352

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

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

	Analog output	Digital output
<b>Clean Water Offset (CWO)</b>	0.082 V @	86 counts
<b>Scale Factor (SF)</b>	5.0 $\mu\text{g/l/V}$ @	5.0144 $\mu\text{g/l/count}$
Maximum Output	5.48 V @	4095 counts
Resolution	0.43 mV	1 counts
Ambient Characterization Temperature	22 $\pm$ 1 $^{\circ}\text{C}$	
Current Draw	70 mA @ 12V (typical)	
12-hour Stability	0.23 mV/hr	1 counts/hr
Temperature Stability, 25–2 $^{\circ}\text{C}$	0.22 mV/ $^{\circ}\text{C}$	1 counts/ $^{\circ}\text{C}$

Range	
15 $\mu\text{g/l}$	0
27 $\mu\text{g/l}$	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.

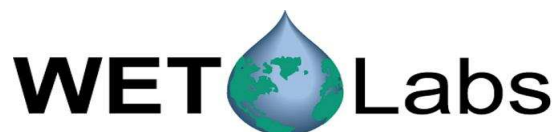
**Ambient Characterization Temperature:** Room temperature at time of characterization.

**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** March 13, 2012      **Customer** University of Hawaii Marine Center

**S/N#** WS3S-1352      **Repair Order** 14931

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### 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: Long Nozzle and O-Rings.

### Comments

WETStar was re-calibrated with 100ppb Uranine.