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## WETStar Characterization and Repairs

Date: September 19, 2007 Customer: University of Hawaii

Job#: 0512020-002	S/N#: WS1S-1137	Sales or Repair Order:	001844
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### Repairs and Modifications:

Standard re-characterization and calibration.  
Replaced O-Rings.

### Comments:

- Shake-tested unit
- Pressure-tested unit
- Noise test: 1 sample/sec for 60 sec
- Stability test: 1 sample/min for 12 hrs
- Saturation test
- Temperature test: 25–2 °C
- Update unit's characterization sheet



## Chlorophyll WETStar Characterization

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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 meter
Clean Water Offset (CWO)	0.051 V @
Scale Factor (SF)	32.3 $\mu\text{g/l/V}$ @
Maximum Output	5.49 V @
Resolution	0.2 mV
Ambient Characterization Temperature	23 $\pm$ 1°C
Current Draw	40 mA @ 12V (typical)
12-hour Stability	0.09 mV/hr
Temperature Stability, 25–2 °C	0.17 mV/°C

### 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 solid 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.