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WET Labs

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Date 3/11/2008 **Customer Oregon State University/David O'Gorman**

S/N# FLRTD-426 **Technician JP**

Repairs and Modifications: Standard Service, circuit boards updated to current specs. Fully tested and re-characterized. Updated firmware.

Comments: New Device Files and Characterization Sheet included.

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ECO Chlorophyll Fluorometer Characterization Sheet

Date: 3/11/2008 S/N: FLRTD-426

Chlorophyll concentration expressed in µg/l can be derived using the equation:

CHL (µg/l) = Scale Factor * (Output - Dark Counts)

	Analog Range 1	Analog Range 2 (default)	Analog Range 4		Digital	
Dark Counts	0.086	0.044	0.024	V	65	counts
Scale Factor (SF)	6	12	24	µg/l/V	0.0073	µg/l/count
Maximum Output	4.98	4.98	4.98	V	16340	counts
Resolution	0.9	0.9	0.9	mV	1.0	counts

Ambient temperature during characterization 22.3 °C

Analog Range: 1 (most sensitive, 0–4,000 counts), 2 (midrange, 0–8,000 counts), 4 (entire range, 0–16,000 counts).

Dark Counts: Signal output of the meter in clean water with black tape over detector.

SF: Determined using the following equation: SF = x ÷ (output - dark counts), where x is the concentration of the solution used during instrument characterization. SF is used to derive instrument output concentration from the raw signal output of the fluorometer.

Maximum Output: Maximum signal output the fluorometer is capable of.

Resolution: Standard deviation of 1 minute of collected data.

The relationship between fluorescence and chlorophyll-a concentrations *in-situ* is highly variable. The scale factor listed on this document was determined using a mono-culture of phytoplankton (*Thalassiosira weissflogii*). The population was assumed to be reasonably healthy and the concentration was determined by using the absorption method. To accurately determine chlorophyll concentration using a fluorometer, you must perform secondary measurements on the populations of interest. This is typically done using extraction-based measurement techniques on discrete samples. For additional information on determining chlorophyll concentration see "Standard Methods for the Examination of Water and Wastewater" part 10200 H, published jointly by the American Public Health Association, American Water Works Association, and the Water Environment Federation.