PO Box 518
620 Applegate St.
Philomath, OR 97370

WET Labs®

(541) 929-5650
Fax (541) 929-5277
www.wetlabs.com

SLC Testing Certification

Date 9/26/2017 S/N# FLBBCDSLC-4844

Low temperature test #1

Chill 2.5 hr at -20 °C

High temperature test #1 Verify operation post-testing

Heat 2.5 hr at 50 °C

Low temperature test #2 same protocol as #1

High temperature test #2 same protocol as #1

Vacuum test

< 0.1" Hg change in 10 min.

Pressure test

5 cycles, 0–1250 m with 10-sec. soaks
Held at 1250 m for 2 hrs. on last cycle

Electrical isolation

Resistance between copper faceplate and grounding wire is > 1 mΩ

Calibration verification

Verify calibration and dark counts in bb, chl, and CDOM channels

Verify 5% of single point check for chl and bb

Verify 10% of single point check for CDOM

Signature William Jason Rowe / Ann Gaidos

NOTES:

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ECO CDOM Fluorometer Characterization Sheet

Date: 9/26/2017

S/N: FLBBCDSLC-4844

CDOM concentration expressed in ppb can be derived using the equation:

CDOM (ppb) = Scale Factor * (Output - Dark Counts)

	Digital
Dark Counts	48 counts
Scale Factor (SF)	0.0907 ppb/count
Maximum Output	4130 counts
Resolution	1.0 counts
Ambient temperature during characterization	22.0 °C

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.

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Scattering Meter Calibration Sheet

9/25/2017
Wavelength: 700 S/N FLBBCDSLC-4844

Use the following equation to obtain either digital or analog "scaled" output values:

$$\beta(\theta_c)\ m^{-1}\ sr^{-1} = \text{Scale Factor} \times (\text{Output} - \text{Dark Counts})$$

• **Scale Factor for 700 nm**	=	1.705E-06	$(m^{-1}sr^{-1})$/counts
• **Output**	=	meter output	counts
• **Dark Counts**	=	45	counts
Instrument Resolution	=	1.0	counts

Definitions:

- **Scale Factor**: Calibration scale factor, $\beta(\theta_c)$/counts. Refer to User's Guide for derivation.
- **Output**: Measured signal output of the scattering meter.
- **Dark Counts**: Signal obtained by covering detector with black tape and submersing sensor in water.

Instrument Resolution: Standard deviation of 1 minute of collected data.

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ECO Chlorophyll Fluorometer Characterization Sheet

Date: 9/26/2017

S/N: FLBBCDSLC-4844

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

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

	Digital
Dark counts	45 counts
Scale Factor (SF)	0.0073 µg/l/count
Maximum Output	4130 counts
Resolution	1.0 counts
Ambient temperature during characterization	22.0 °C

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.