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C-Star Calibration

Date 4.12.18 S/N# CST-1856DR Pathlength 25 cm

	Analog output	Digital output
V_{dark}	0.002 V	0 counts
V_{air}	4.814 V	15806 counts
V_{ref}	4.700 V	15432 counts

Temperature of calibration water	22.9 °C
Ambient temperature during calibration	22.1 °C

Relationship of transmittance (Tr) to beam attenuation coefficient (c), and pathlength (x, in meters): $\mathbf{Tr = e^{-cx}}$

To determine beam transmittance: $\mathbf{Tr = (V_{sig} - V_{dark}) / (V_{ref} - V_{dark})}$

To determine beam attenuation coefficient: $\mathbf{c = -1/x * \ln (Tr)}$

$\mathbf{V_{dark}}$ Meter output with the beam blocked. This is the offset.
$\mathbf{V_{air}}$ Meter output in air with a clear beam path.
$\mathbf{V_{ref}}$ Meter output with clean water in the path.
Temperature of calibration water: temperature of clean water used to obtain V_{ref}.
Ambient temperature: meter temperature in air during the calibration.
$\mathbf{V_{sig}}$ Measured signal output of meter.