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C-Star Calibration

Date 7/14/2004 Customer WHOI Work order 001

Job # 0407008 S/N# CST-758DR Pathlength 25 cm

	Analog meter	
V_d	0.060	V
V_{air}	4.751	V
V_{ref}	4.651	V

Temperature of calibration water	22.6 °C
Ambient temperature during calibration	20.2 °C

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

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

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

V_d Meter output with the beam blocked. This is the offset.
V_{air} Meter output in air with a clear beam path.
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.
V_{sig} Measured signal output of meter.