



C-Star Calibration

Date **January 31, 2023** S/N# **CST-1681DR** Pathlength **25cm**

	Analog output	Digital output
V_d	0.003 V	0 counts
V_{air}	4.846 V	15917 counts
V_{ref}	4.701 V	15444 counts

Temperature of calibration water	17.4	°C
Ambient temperature during calibration	21.8	°C

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

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

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

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.