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## C-Star Calibration

Date **April 2, 2018** S/N# **CST-1853DR** Pathlength **25**

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	Analog output	Digital output
$V_d$	<b>0.003 V</b>	<b>0 counts</b>
$V_{air}$	<b>4.804 V</b>	<b>15783 counts</b>
$V_{ref}$	<b>4.702 V</b>	<b>15448 counts</b>

Temperature of calibration water	<b>22.4 °C</b>
Ambient temperature during calibration	<b>21.6 °C</b>

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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.