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## C-Star Calibration

Date	January 22, 2007	Customer	Oregon State University	Work order	003
Job #	0204013	S/N#	CST-590DR	Pathlength	25 cm

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	Analog meter	
$V_d$	0.058 V	
$V_{air}$	4.874 V	
$V_{ref}$	4.776 V	
Temperature of calibration water		19.9 °C
Ambient temperature during calibration		22.8 °C

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

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.