



Unit 29, Riverside Business Centre, Victoria Street, High Wycombe, HP11 2LT, UK



Certificate of Conformance of ELODIZ THEYA - LED Calibration Light Source for 785nm Raman Systems

Product name	THEYA-LED Calibration Light Source for 785nm
Model Number	ELO-9002
Serial Number	FVO641
ELODIZ DocID certificate Number	4Ba5Ab2_785_LED_FVO641_Cert

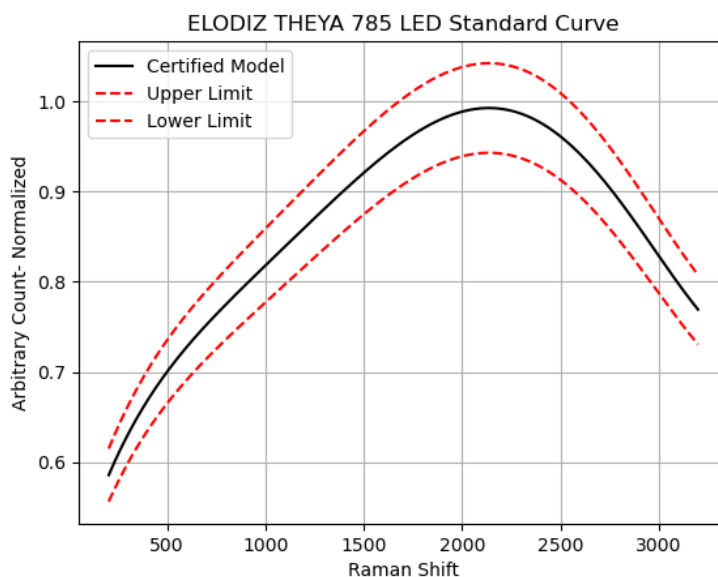
The ELODIZ THEYA-LED Calibration Light Source for Relative Intensity Correction of 785 nm Raman Systems is produced for its use as a reference light source for spectroscopy devices in standard laboratory conditions only. **This reference light source is a secondary calibration standard which is based upon NIST 2241 standard.** The ELODIZ THEYA-LED Calibration Light Source identified above has been evaluated to conform to all applicable tests for this product to match our operational specifications. The data and the results of the test are documented in the completed factory test report and summarized in this conformance certificate; a full copy of the results can be obtained by request to ELODIZ.

This document certifies that the identified product meets applicable factory specifications and accepted international standards for intensity calibration light sources. This certificate is emitted based on the test results obtained in our manufacturing and test protocols.

For the spectral range of applicability of the THEYA-LED intensity calibration source corresponds to the calibration function:

$$Y(x, \text{cm}^{-1}) = A0 + A1*x + A2*x^2 + A3*x^3 + A4*x^4 + A5*x^5$$

Polynomial Coefficients	Certified Model	Upper Limit (+5% Standard Deviation)	Lower Limit (-5% Standard Deviation)
A0	0.456580666	0.47940969930000005	0.4337516327
A1	0.000789574302	0.0008290530171000001	0.0007500955869
A2	-8.6567801e-07	-9.089619105000001e-07	-8.223941094999999e-07
A3	6.21687555e-10	6.5277193275e-10	5.9060317725e-10
A4	-2.08275588e-13	-2.186893674e-13	-1.978618086e-13
A5	2.41938216e-17	2.5403512680000004e-17	2.298413052e-17

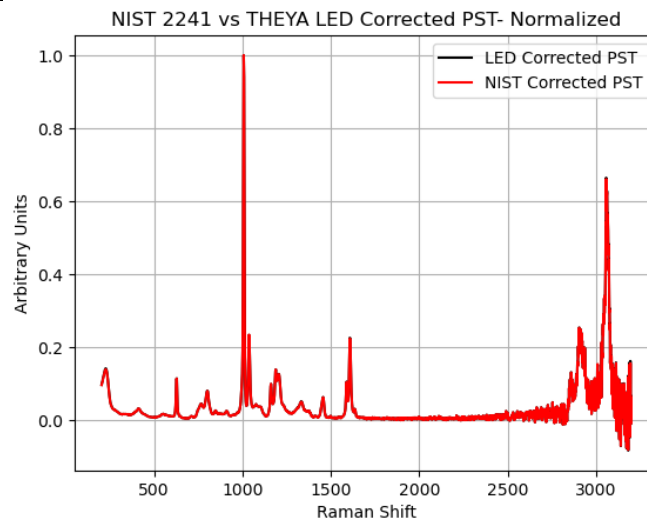


An ELODIZ manufacturing sticker reflecting the conformance is applied to the device, next to the Unique Serial Number assigned to this product. The manufacturing date on the device applies for the first validation period. Following recertifications of the unit will require new stickers and certificates.

Range, cm⁻¹ (with respect to the 785 nm line)	200 to 3200
Temperature, °C	20 to 30
Reference source	785 nm – FVO641
Mean relative error (MRE), % (Polystyrene corrected with NIST 2241 vs ELODIZ THEYA 785 LED)	0.0066 %
Final Disposition (MRE < 2.5%)	PASS
Certification Date	04/12/2024
Certification Expiration	2 years from manufacturing or 250h of use

The table below provides the Relative Errors between Corrected Polystyrene using NIST 2241 and ELODIZ THEYA LED.

S.No	Raman Shift (cm ⁻¹)	Relative Error (%)	PASS/FAIL
1	620.9	0.55	Relative Error < 2% (PASS)
2	795.8	1.03	
3	1001.4	0.05	
4	1031.8	0.34	
5	1155.3	0.30	
6	1450.5	0.86	
7	1583.1	0.70	
8	1602.3	0.81	
9	2852.4	0.77	Relative Error < 5% (PASS)
10	2904.7	0.24	
11	3054.3	0.39	



Additional Information:

- 1- The certified values become invalid if the unit is improperly stored or used, damaged, contaminated, or altered in any way.
- 2- Measurement Conditions: The measuring unit is wavelength calibrated as per CHARISMA CWA-1 (17815)

Performed by: Muhammad Faizan

Title: Development Engineer

Signature: *Muhammad Faizan*

Date: 04/12/2024