

measurement of Carrier Envelope Offset Phase Drift by a Linear Transmission Ring

Current methods for measuring carrier envelope offset phase (CEP) drift require

- Laser pulses with octave spanning bandwidth
- Suitable non-linear media which works efficiently in the spectral range of the given laser
- Sufficient pulse energy to drive the non-linear process

Our solution for general CEP drift measurement: CEOLIT*

Features

- Based on linear optical interferometry
- No restriction on bandwidth
- No restriction on spectral range
- Precise CEP drift measurement
- Ring length is actively stabilized under 9 nm RMS precision by an ultra-stable He-Ne laser and high-precision piezo controller
- Simple to align and operate
- Designed to dump acoustic noise and mechanical vibrations
- Software for stabilization and measurement is included
- CEP drift detection rate up to 35 kHz **NEW!**

Our new, patented linear CEOLIT is designed for accurate measurement of carrier envelope offset phase (CEP) drift of an ultrashort pulse train. The basic principle is that the spectral

transmission of an ultrastable transmission ring with appropriately chosen length uniquely depends on the CEP drift of the pulse train.

Since the technique is fully linear, CEOLIT provides a unique possibility

to explore CEP drift of weak pulses at extreme wavelengths from VUV to IR. Moreover, the bandwidth of the light pulses can be considerably narrower than an octave.

*: Patent pending.

***: Suitable spectrograph (such as CEO-2D-800) is available separately from CE Optics.

Specifications

Accuracy of CEP drift measurement ¹⁾ :	@800nm:	<69 mrad
	@1030nm:	<54 mrad
	@1550nm:	<36 mrad
Rep. rate of pulse train (MHz) ²⁾ :		68-90
Minimum number of pulses in the train ³⁾ :		<3
Spectral range (μm) ^{1),3)} :		0.15 – 20
Clear aperture beam diameter in mm ³⁾ :		10
Dimension in mm (L×W×H):		575×370×150
Weight (kg):		45

¹⁾: Depends on the specifications of the spectrometer.

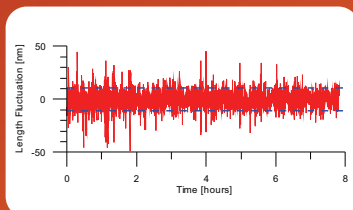
The number displayed is for 800 nm pulses with a spectrograph with a resolution of 0.3 nm.

²⁾: For other repetition range please contact CE Optics.

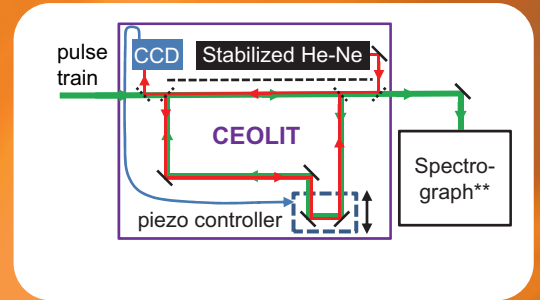
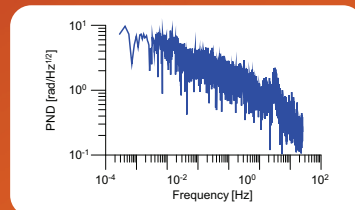
³⁾: Depends on the set of mirrors and beamsplitters set.

Stability charts

Long-term Length Stability



Phase Noise Density Chart



Schematic design of the CEOLIT



CEOLIT

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