Fringeezz

Single-shot, multi-kHz Carrier-Envelope Phase (CEP) measurement.

For CEP feedback loop or phase-tagging, fast and single-shot measurement is mandatory.

Placed after a f-to-2f setup, the Fringeezz extract the CEP error for every shot, up to 10kHz.

Recent record CEP stability values obtained on CPA and OPCPA systems using the Fringeezz as a detector already set the Fringeezz as the new standard for CEP measurement.

Principle - Key benefits

- Single-shot CEP measurement at multi-kHz repetition rates

With a CEP measurement speed 100 times faster than conventional techniques, The Fringeezz stands out as the new fast CEP measurement standard tool.

Moreover, single-shot detection is also possible at 100kHz (still with a CEP measurement rate at 10kHz) thus allowing single-shot and fast CEP measurement on the third generation of ultrafast laser sources.

- Real time data analysis and data logging

Fringeezz software provides real-time information on the measured CEP stability, such as rms and pkpk values, power spectral density (PSD), etc···

Combined with the data-logging feature, this makes the Fringeezz ideal for laser development, lab environment improvement, or applications requiring phase tagging.
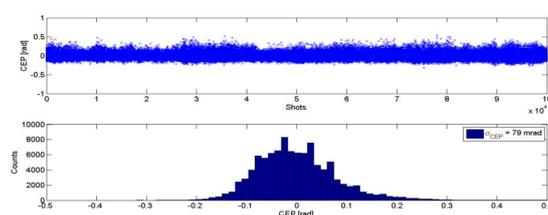
Applications

- CEP measurement and stabilization

With a CEP measurement speed about 2 orders of magnitude faster than

conventional techniques, the Fringeezz is designed to characterize the CEP of multi-kHz Ti:Sa amplifiers or OPCPA, on a single shot basis, thus providing the full analysis of the frequency noise contributions.

When combined with the Dazzler CEP control module, or any other CEP controller with comparable speed and accuracy, the Fringeezz allows to build a high-bandwidth feedback loop to reach ultimate CEP stability.

Data below shows the CEP measurement of a 800nm OPCPA at 4kHz (closed loop with Dazzler): 79mrad rms, single-shot.

- Phase tagging

Beyond real-time data analysis (PSD, statistics, etc ⋯), Fringeezz software allows to log all measured pulses at repetition rates up to 10kHz.

Ideal for application not requiring CEP stable pulses, but needing accurate phase information for each experimental data point.

Specifications

Click on the image to download the standard NIR Fringeezz specifications.

Click on the image to download the standard MIR Fringeezz specifications -To come soon…

For other wavelengths, please contact Fastlite.

Options

- f-to-2f module

The Fringeezz, as its name suggests, is measuring fringes out of a f-to-2f interferometer.

Fastlite has designed a f-to-2f module specifically matching the Fringeezz requirements, and perfectly integrating the Fringeezz detector.