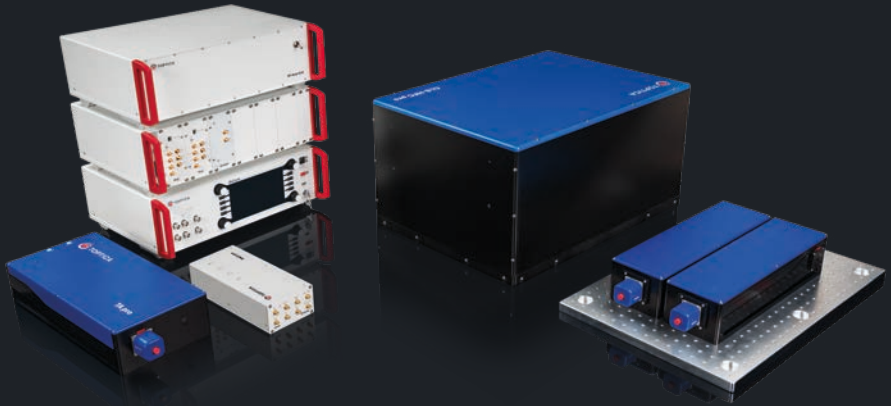


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ECDL referenced to a high-finesse cavity



CLS

Ultra-stable clock laser systems
for quantum computing and optical clocks

- Long coherence time for high qubit fidelity
- Exceptional frequency stability for elevated optical clock performance
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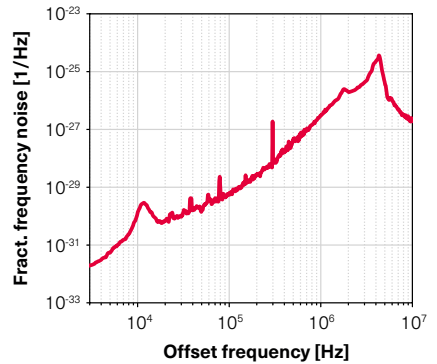
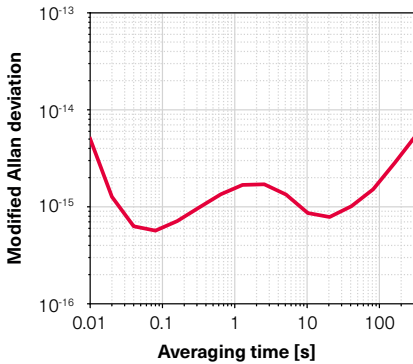
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Specifications				
Linewidth at 1 s integration time		< 1 Hz		
Fractional frequency instability	Integration time	1 s	10 s	100 s
	Modified Allan deviation, linear drift removed	$< 2 \times 10^{-15}$	$< 2 \times 10^{-15}$	$< 3 \times 10^{-15}$
Typical phase noise at 729 nm (source laser with F option)	Offset frequency	10 Hz	10 kHz	1 MHz
	Phase noise power spectral density	-42 dBc/Hz	-90 dBc/Hz	-90 dBc/Hz
Typical linear drift rate (12 months after installation)		150 mHz/s		
Loop bandwidth (depends on the source laser)		Up to 4.5 MHz		
Free spectral range of high-finesse cavity		1.5 GHz		



CLS frequency instability in terms of modified Allan deviation after linear drift removal (left) and frequency noise power spectral density normalised to the laser frequency $S_y(f)$ (right) extracted via cross-correlation analysis of beat-notes with two reference lasers.