CHEETAH-X Compact Picosecond Laser

Customized systems with SESAM® technology*

The CHEETAH-X high-average power, passively mode-locked, diode-pumped, solid-state laser system employs SESAM technology. The combination of longitudinal diode-pumping, a saturable absorber mirror, and a robust sealed package yields turnkey, self-starting performance with exceptionally stable output characteristics.

The CHEETAH-X laser system can be customized to user-defined repetition rates ranging from 50 to 400 MHz. Additional customized features include increased pulse width through an etalon, frequency conversion with nonlinear crystals, or timing sychronization with the CLX-1100 phase-locked-loop feedback system. Its sealed housing design is optimized for use in laboratories and demanding industrial environments. The laser achieves its specified performance level in a span of seconds to minutes and requires very little maintenance.

Features

- Passively mode-locked DPSSL
- Sealed laser head
- Temperature-stabilized
- Turnkey operation
- Low maintenance

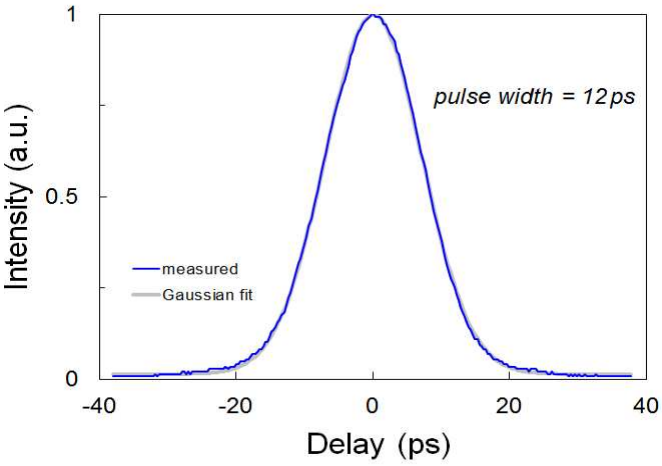
Options

- Extended pulse widths
- Second harmonic generation (SHG)
- Third harmonic generation (THG)
- Long-term power stabilization
- Remote control
- Clock synchronization
- RS232

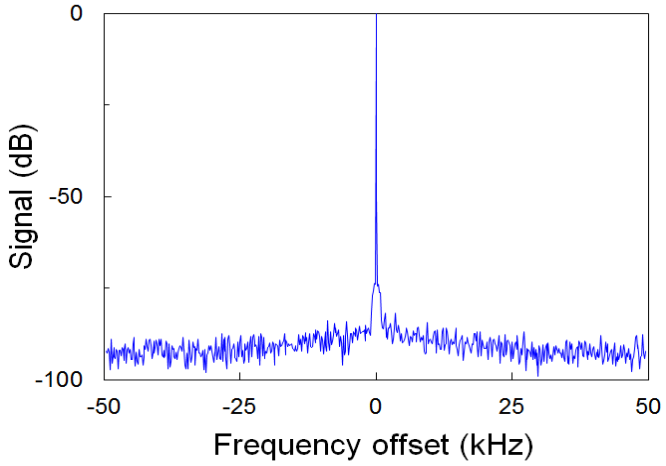
Applications

- Flow cytometry
- Sync-pumped dye lasers
- Seeding amplifier
- Photocathode illumination
- Pump-probe experiments
- Optoelectronic sampling
- Nonlinear optics

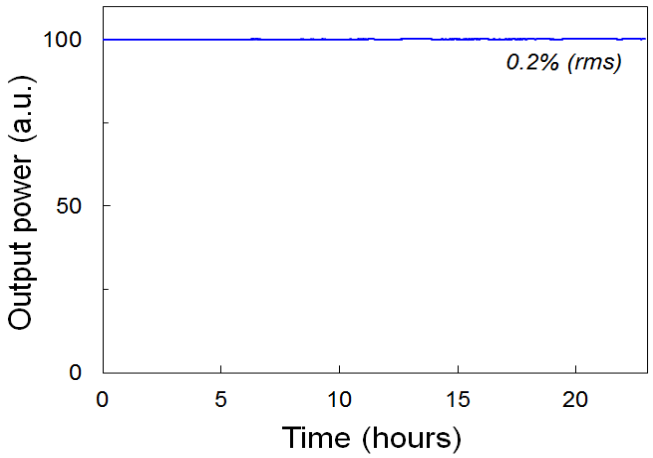
*The CHEETAH-X laser uses passive, self-starting JDSU-proprietary SESAM technology (a semiconductor saturable absorber mirror) to generate the picosecond seed pulses without requiring any external control. SESAMs from JDSU are designed and optimized for the CHEETAH-X laser to avoid long-term degradation.



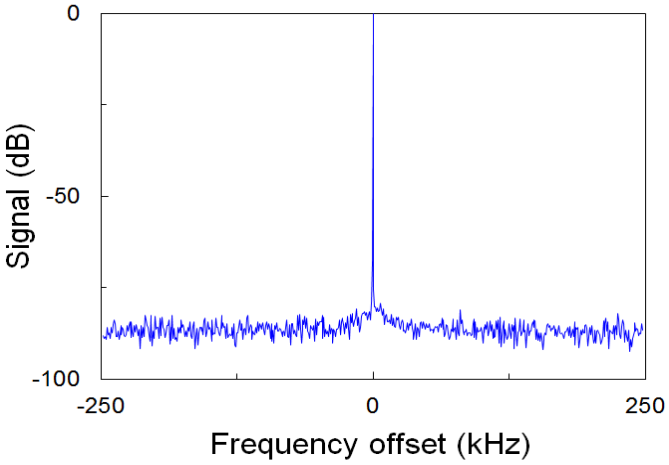
Typical CHEETAH-X laser pulse auto-correlation trace



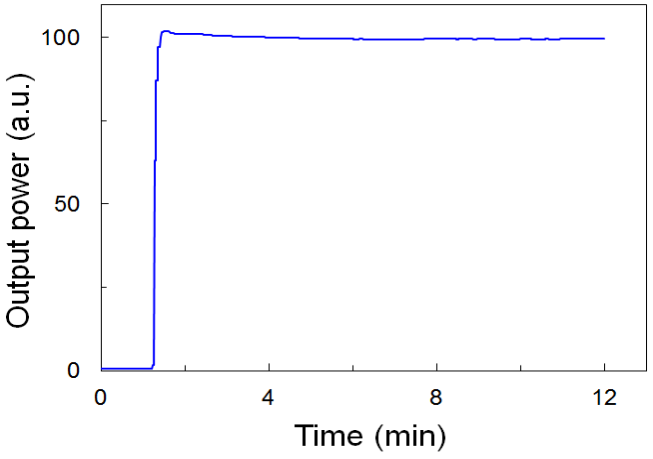
Typical pulse train microwave spectrum centered at the laser repetition rate (span: 100 kHz, resolution: 30 Hz, vertical scale in dB)



Average laser output power (long term)



Typical pulse train microwave spectrum centered at the laser repetition rate (span: 500 kHz, resolution: 100 Hz, vertical scale in dB)



Average laser output power after a cold start

Specifications

Parameter	CHEETAH-X Laser Details
Output power	10 W at 1064 nm
Repetition rate	50 – 400 MHz
Pulse width	10 ps
Wavelength	1064, 532, and 355 nm
Power stability	0.3%/°C
Spatial mode	1.1 M^2 (TEM_{00})
Turn-on time	10 mins
Pointing stability	25 µrad/°C
Pulse energy stability (>1 kHz)	0.1% rms
Voltage (single phase)	100 – 240 V AC
Frequency	50 – 60 Hz
Input power (single phase)	1350 VA
Laser head (L x W x H, weight)	500 x 170 x 78, 11 kg
Power supply (L x W x H, weight)	380 x 360 x 160 mm, 15 kg
Chiller (L x W x H, weight)	390 x 280 x 220 mm, 9.5 kg

Laser Safety

Ordering Information

For more information on this or other products and their availability, please contact your local JDSU account manager or JDSU directly at 1-800-498-JDSU (5378) in North America and +800-5378-JDSU worldwide or via e-mail at customer.service@jdsu.com.

Laser Head

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PRF	Code
Specify within the range of 50 – 400 MHz	xxx[1]

Pulse Width	Code
Specify within the range of 10 – 200 ps	xxx[2]

NLO	Code
Infrared	R
SHG	G
THG	V

Options	Code
No options	0
CLX[3]	C

Example of a Complete Order

CH-076-010-R-C-00 (76 MHz, 10 ps, infrared, CLX)[4]

Notes:

1. Where 076 equals 76 MHz
2. Where 010 equals 10 ps
3. CLX-110 phase-locked clock synchronizer to synchronize the repetition rate of a laser system to a reference clock signal.
4. Includes air-water chiller, 2-m chiller hose, and 2-m umbilical cable. Different cable lengths are available upon request.

JDSU

North America Toll Free: 800 498-JDSU (5378)
Worldwide Tel: +800 5378-JDSU

www.jdsu.com

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