



PART NUMBER 0515L-21C
 ITEM NAME 515 NM SLM LASER

PRODUCT DATASHEET



DESCRIPTION

514.5 nm nanosecond SLM laser is a substitute for Argon lasers in many applications, including sorting, illumination, and pump-probe spectroscopy. True SLM operation (each pulse is emitted in the same longitudinal mode) ensures high pulse-to-pulse stability, low jitter, and extremely stable harmonic generation, which ensures consistent experiment results. The 514.5 nm laser is offered in a very compact package, which is based on the famous MatchBox platform. Pulse-on-demand operation makes this laser suitable for various setups, where synchronization is a must.

Other potential applications of this laser are:

- pumping of Ti:Sapphire lasers,
- supercontinuum generation
- deep UV generation
- Raman shift excitation in H₂ filled fibers

SLM operation ensures high pulse-to-pulse stability, low jitter, and extremely stable harmonic generation. Dual-wavelength option 1029+514.5 nm is available on request.

Current configurations in production:

Variant	Pulse duration, ns	Pulse energy, μ J	Peak power, kW	Repetition rate, kHz
1	2,4	15	6	10
2	3,5	7	2	35

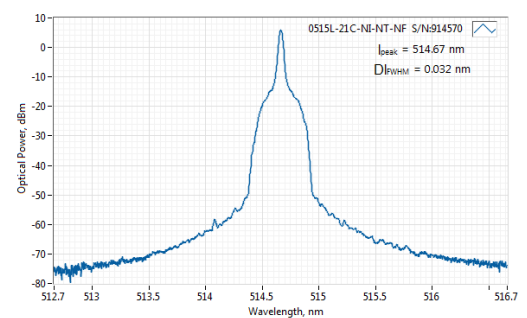
**Other parameters can be developed based on customer specifications. Please refer to the table below for possible parameter ranges.*

CARACTÉRISTIQUES

Specifications updated: 23 June 2023

Parameter	Minimum Value	Typical Value	Maximum Value
Central wavelength, nm	514.9	515.0	515.1
Longitudinal modes	-	Single	-
Spectral line width FWHM, pm	0.5	0.8 ¹	1
Output power, mW	-	As per request	150
Pulse duration, ns (FWHM)	1.5	3	4
Repetition rate, kHz (depending on pulse energy)	-	As per request	35
Pulse energy, μ J	3	As per request	15
Power stability, % (RMS, 8 hrs)	-	0.5 ²	1
Pulse-to-pulse stability, %	-	4	6
Transversal modes	-	TEM ₀₀	-
Beam width (1/e ²), mm	-	0.8 ³	-
Beam height (1/e ²), mm	-	0.9	-
Horizontal beam divergence, mrad	-	1	-
Vertical beam divergence, mrad	-	1	-
M ² effective	-	1.1 ⁴	1.4
Polarization direction	-	Horizontal ⁵	-

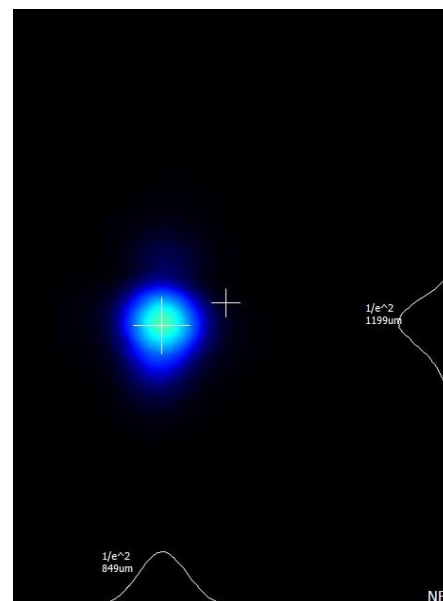
TYPICAL SPECTRUM



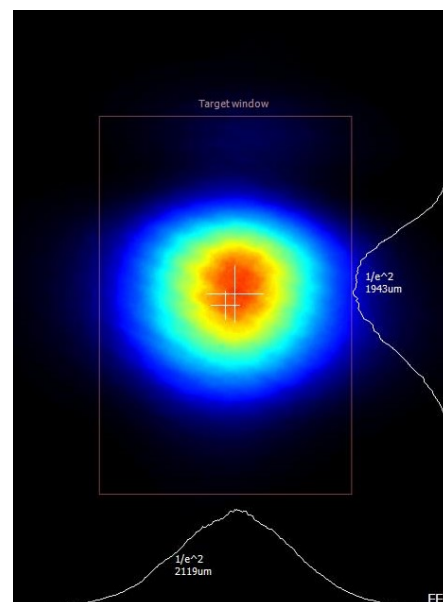
Typical spectrum of 0515 nm passive Q-Switch DPSS laser. Measured with 20 pm resolution.

Polarization contrast	500	800	-
Control interface type	-	UART ⁶	-
Operation mode	-	APC (Free-run) or ACC (Single-Shot triggering) ⁷	-
Input voltage, VDC	-	5	-
External power supply requirement	-	+5 V DC, 5A	-
Dimensions (LxWxH), mm	-	50 x 30 x 18 ⁸	-
Beam height from the base, mm	-	10.4	-
Heat-sinking requirement, °C/W	-	<0.5	-
Optimum heatsink temperature, °C	18	25	32
Warm up time, mins (cold start)	-	10	-
Temperature stabilization	-	Internal TEC	-
Overheat protection	-	Yes	-
Storage temperature, °C (non-condensing)	-	-	-
Net weight, kg	-	0.29	-
Max. power consumption, W	-	25	-
Warranty, months (op. hrs)	-	14 (10000) ⁹	-
Residual IR wavelength contrast, dB	-	10	-
Laser safety class	-	3B	-
RoHS	-	Yes	-
CE compliance	-	- General Product Safety Directive (GPSD) 2001/95/EC - (EMC) Directive 2004/108/EC	-
OEM lasers are not compliant with	-	IEC60825- 1:2014 (compliant using additional accessories)	-
Country of origin	-	Lithuania	-

TYPICAL NEAR FIELD



TYPICAL FAR FIELD



¹ Measured with a scanning Fabry-Perot interferometer having 7.5 Mhz resolution, with scanning frequency of about 10 Hz. Interferometer testing is not provided for each laser being manufactured, the standard test is OSA measurement with 20-30 pm resolution instead.

² The long term power test is carried out at constant laser body temperature (+/-0.1 °C) using an optical power meter with an input bandwidth of 10 Hz. The actual measurement rate has a period of about 20 seconds to 1 minute.

³ Beam width and height are measured at 0.45 m from output aperture.

⁴ M² parameter is typically worse for higher pulse energy laser configurations.

⁵ For lasers without integrated optical isolators.

⁶ Break-out-boxes AM-C8 and AM-C3 can be used for conversion of UART communication to either USB or RS232.

⁷ Operation mode must be specified upon ordering. Different operation modes require different electronics to be installed. Free-run mode is not triggerable and repetition rate can be changed by changing average optical power. Single-shot triggering in ACC mode is typically run at frequencies up to 100 Hz.

⁸ Excluding control interface pins and an output window/fiber assembly.

⁹ Whichever occurs first. The laser has an integrated operational hours counter.

Note: Product specifications are subject to change without prior notice to improve reliability, function or design or otherwise.

DRAWING

