

1550 nm Tunable Picosecond Laser Source

Product Code: TMLL1550



Product Description

The tunable picosecond laser TMLL 1550 is designed for STM-64 / OC-192 (with or without FEC) based ultra high-speed transmission up to 160 Gbit/s, optical soliton transmission, picosecond sampling measurements and optical receiver testing. It has a very compact size and an excellent stability. The small cavity design allows to operate the device in the first optical mode at 10 GHz. Wavelength and repetition rate are independently tunable over a wide range. No adjustments are necessary.

Polarization maintaining fiber option available upon request. The PM fiber is aligned along the slow axis.

The TMLL can be operated in two modes:

- passively mode-locked (no external RF needed, the TMLL delivers a clock signal)
- hybrid electrically mode-locked (to an external RF clock signal)

Features

- Compact and robust design
- Sech² pulse shape
- Very small pulse width
- Large wavelength tuning range
- 10 GHz adjustable repetition rate
- Excellent long-term stability
- Polarization maintaining fiber upon request

Applications

- STM-64/OC-192 communication systems
- Transmission up to 160 Gbit/s
- High-speed time domain lightwave characterization

Absolute Maximum Ratings

Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Storage temperature	T _{stg}	non condensing	-10		+60	°C
DC laser current	I				120	mA
RF input power	P _{rf max}				30	dBm

Operation Conditions

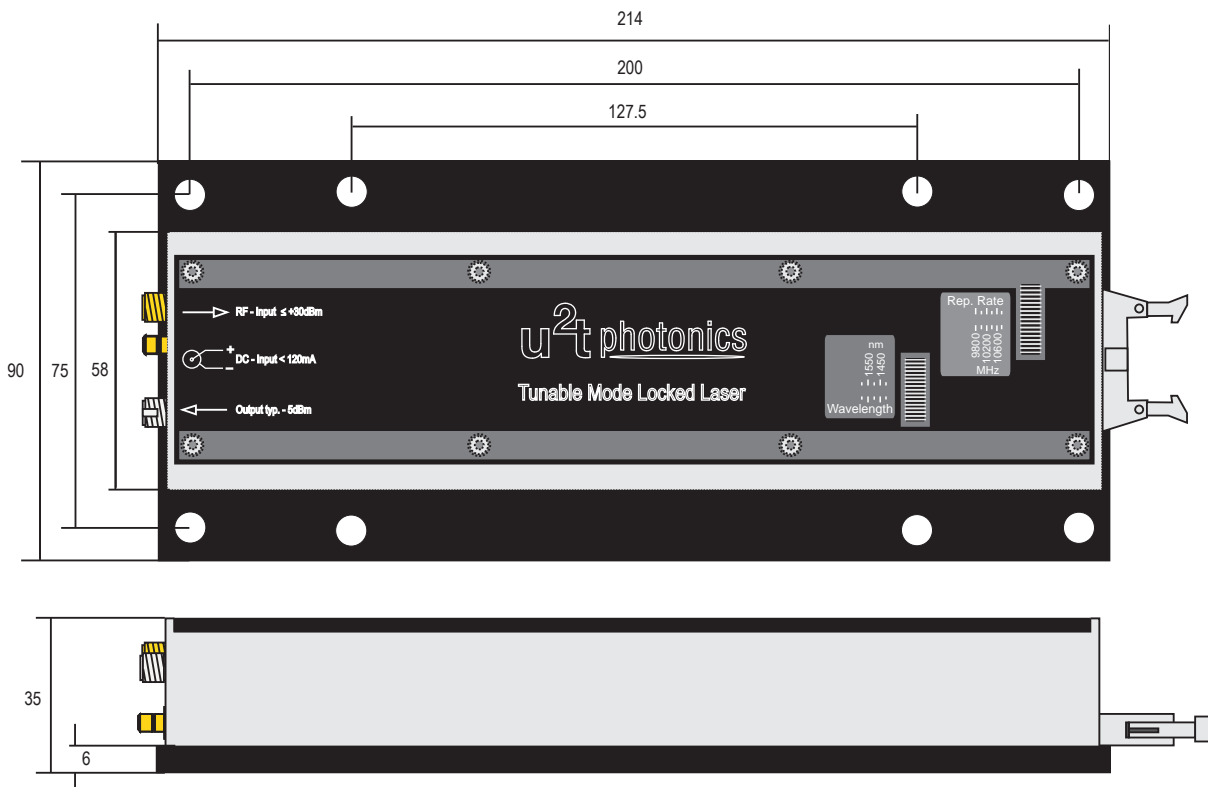
Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Operating ambient temperature range	T _{amb}	non condensing	+10		+35	°C
RF input power	P _{rf}	(6), (7)		25		dBm

Optical and Electrical Specifications

Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Center wavelength	λ_c	1)	1510		1550	nm
Tuning range	$\Delta\lambda$	1), 2)	100			nm
Repetition rate	Δ_{frep}		9.8		10.8	GHz
Pulse width @ center wavelength	τ	3)		1.3	1.5	ps
Pulse width over 100 nm wavelength range	τ	3)		2		ps
Jitter @ 1550 nm		4)		100	150	fs
Average output power	SM fiber PM fiber	P_{opt}		-5 -7		dBm dBm
Stability		8)	72			h
Weight				1.2		kg
Polarization extinction ratio @ 1550 nm		9)	20			dB

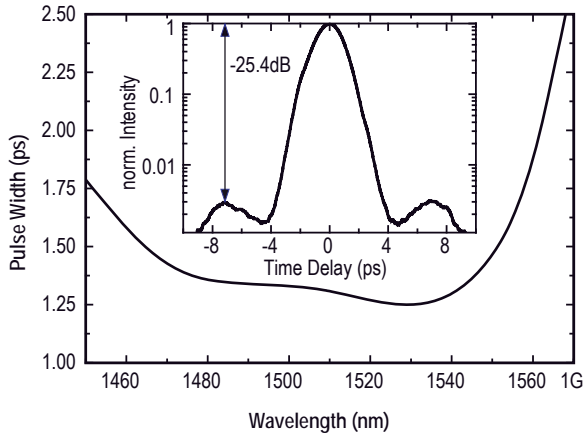
- Notes:
- 1) Passive mode-locking at maximum laser current, T=19°C
 - 2) +/- 50 nm with respect to center wavelength
 - 3) Pulse sech² shape, Dt * dD < 0.35, passive mode-locking
 - 4) Combined SSB phase noise of synthesizer, hybrid electrically mode-locked TMLL, and rf spectrum analyzer
 - 5) Compatible optical booster amplifier (EDFA) can be recommended or provided upon request
 - 6) Compatible RF-amplifier and / or Voltage Controlled Oscillator can be recommended or provided upon request
 - 7) For hybrid mode-locking
 - 8) Error-free 10 Gbit/s, 100 km DSF (terminated by operator)
 - 9) Only applicable for the version with PM fiber

Mechanical Dimensions

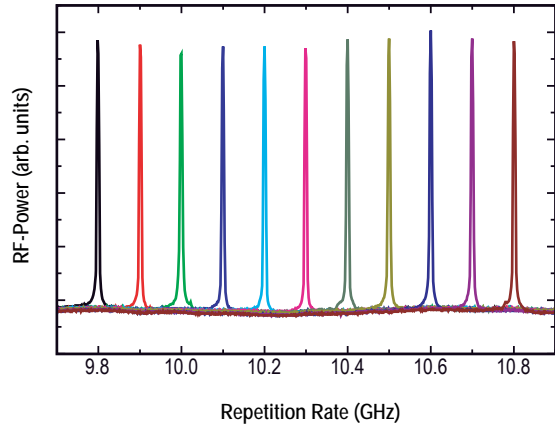


Typical Performance

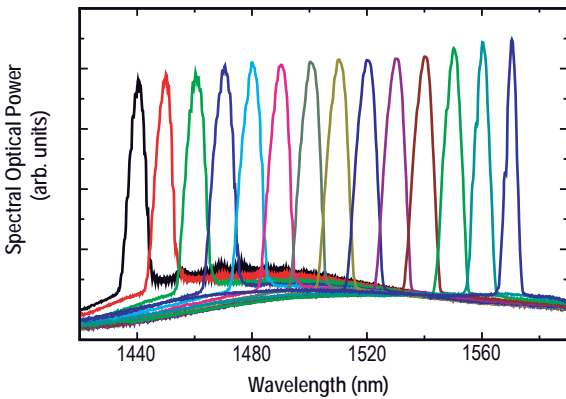
Pulse width an Trailing Pulse Suppression



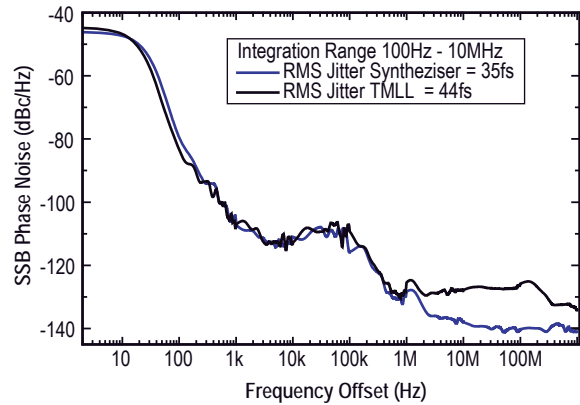
Repetition Rate Tuning



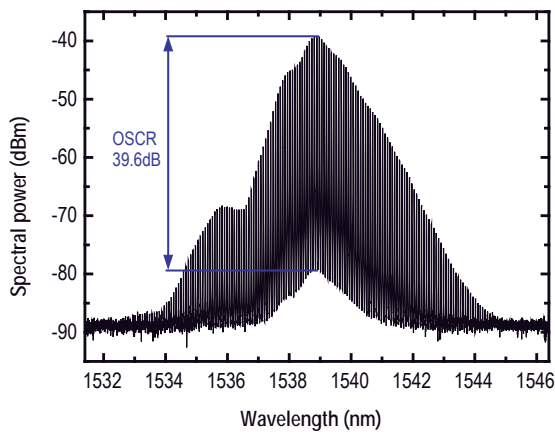
Wavelength Tuning



SSB Phase Noise / Jitter



Typical Optical Spectrum



Accessories

Upon request and depending on the application u²t can provide the following OEM equipment matching with the TMLL:

- Laserdiode Controller
- EDFA/Optical Isolator
- RF-Amplifier
- Voltage Controlled Oscillator

For further specification details of these devices please contact sales@u2t.com.

Ordering Information

Please use the following table to select your required configuration of the mode-locked laser.

TMLL1550 - ZZ

└─ specifies optical connector
FA = FC/APC

Headquarters

u2t Photonics AG
Reuchlinstr. 10/11
10553 Berlin, Germany

Phone: +49(30)726113-500
Fax: +49(30)726113-800
E-mail: contact@u2t.com



Regional Sales Partners

USA - East coast

Teracomm
800 Village Walk #296
Guilford, CT 06437
USA

Phone: +1/2032450237
Fax: +1/2032861535
Contact: Michael Carr
E-mail: sales@teracomm.com
<http://www.teracomm.com>

USA - West coast

Amasco
6830 Via Del Oro
Suite 106
San Jose, CA 95119
USA

Phone: +1/408 360 1300
Fax: +1/408 360 1309
Contact: Tom Fry
E-mail: tom@amasco.com
<http://www.amasco.com>

China

Luster Lightwave (Beijing) Corp.
F6, South Tower Newton Office
No. 25 Lan Dian Chang Nan Road
Haidian District
Beijing, 100089
China

Phone: +86/1088400202 Ext. 6101
Cell Phone: +86/13911774855
Fax: +86/1088400260
Contact: Vincent Wang
E-mail: vincentwang@lusterlighttech.com
<http://www.lusterlighttech.com>

Japan

I-Wave Corporation
Nakarin Auto Bldg. 5F
2-8-4 Shinkawa, Chuo-ku
Tokyo, 104-0033
Japan

Phone: +81/335371772
Fax: +81/335371773
Contact: Koichi Shimada
E-mail: shimada@i-waveco.com
<http://www.i-waveco.com>

South Korea

CoreTech Corporation
2nd floor, Jaedang Bldg, 643-1
Bokjeong-Dong, Sujeong-Gu,
Seongnam-Si,
Gyeonggi-Do, 461-200
South Korea

Phone: +82/24465316
Fax: +82/24465326
Contact: Ukhyun Yun
E-mail: coretech@coretk.com
<http://www.coretk.com>

Singapore

Wintek International Pte Ltd
194 Pandan Loop #07-29
Pantech Industrial Complex
Singapore 128383

Phone: +65/67780498
Fax: +65/ 67780368
Contact: Justin Woon
E-mail: justin@wtk-intl.com
<http://www.wtk-intl.com>

Spain

BFI Optilas, S.A.U.
Isabel Colbrand 6
28050 Madrid
Spain

Phone: +34/ 91 453 11 60
Fax: +34/ 91 662 68 37
Contact: Concepcion Marcos
E-mail: concepcion.marcos@bfioptilas.com
<http://www.bfioptilas.com>

France

BFI Optilas France
4, Allée du Cantal
Z.I. La Petite Montagne Sud
CE 1834, 91018 EVRY Cedex
France

Phone: +33/160798928
Fax: +33/160798903
Contact: Pierre Ball
E-mail: Pierre.Ball@bfioptilas.com
<http://www.bfioptilas.fr>