



LFT – a characterizing laser bar burn-in tester data sheet

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1 Introduction

This manual introduces to Nanofoot LFT series laser bar burn-in tester features and options.

2 Terms and definitions

- DUT – device under test (the light emitting component)
- Integrating sphere – a light collector component for power and spectrum readout
- Photodiode – a light intensity/power sensor
- LIV – intensity, current, voltage measurement. A measurement where current is swept from 0 to desired current and DUT voltage and output power are simultaneously measured on each current step.
- CSV – Comma separated values. A text file to store measurement data in easily machine & human readable numeric format.
- CW – Continuous wave. Constant light output, non-pulsed.
- QCW – Quasi continuous wave. Slow pulsing of light.

3 Construction

LFT series are cost optimized systems for laser diode burn-in and lifetime testing. The system consists moving measurement station for simultaneous characterization needs. The system can be set to fully characterize DUT's on constant time periods, such as once in a hour or day.

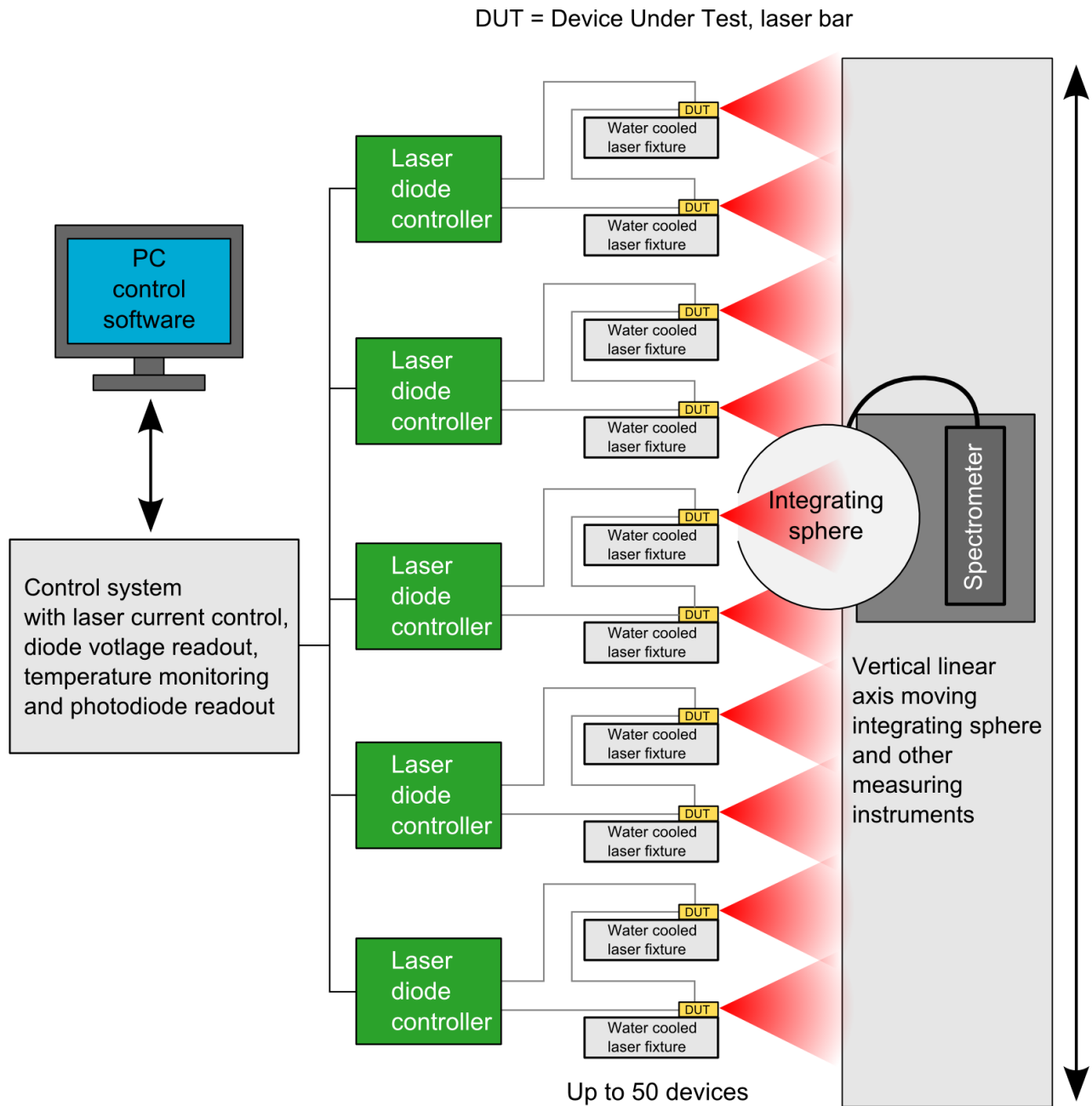


Figure 1: LFT construction principle (simplified). In standard configuration one laser controller/driver is shared between two DUTs reducing cost and meaning that current can be adjusted only in groups of 2 DUTs.

4 System features and options

	Standard LFT model	Customization capabilities
Number of simultaneous DUTs	20 pcs	1...50 pcs
Laser optical power per DUT	Up to 80 W CW	1...120 W CW
Laser mount	Water cooled fixture for C or CS mount laser bars (typ. size 25x25x12 mm).	Customized fixture for any laser mount. Water cooled or microchannel cooled.
Laser current driver	0...5V 0...60A driver. Current is settable for every 2 DUTs as groups. 16 bits resolution.	Custom up to 120A, shared between multiple DUTs or individual for each DUT.
Laser current pulsing	<ul style="list-style-type: none"> CW QCW 1 sec on/ 1 sec off 	<ul style="list-style-type: none"> High speed pulsing
Laser voltage readout	Diode voltage drop readout for group of 2 DUTs. 16 bits.	Diode voltage drop readout for individual DUTs.
Laser current readout	Current readout from every 2 DUTs. 16 bits.	Current readout for individual DUTs.
Laser power readout	Integrating sphere with photodetector. 24 bit resolution.	
Temperature control	Water circulation on DUT fixtures. Requires customer supplied cooled water source.	Water circulation or TEC in fixtures. Water chiller can be included in system delivery eliminating customer's water supply requirement.
Temperature monitoring	<ul style="list-style-type: none"> Temperature sensor for every 2 DUTs. Input water temperature monitoring Output water temperature monitoring Cabinet air temperature monitoring User settable fault limits for temperatures 	<ul style="list-style-type: none"> Temperature sensor for every DUT Any number of additional temperature sensors
Measurement devices	<ul style="list-style-type: none"> Integrating sphere for optical power measurement. Wavelength range 400-1100 nm LIV (intensity, current, voltage) by current sweeping Single current power 	<ul style="list-style-type: none"> Wavelength range expanded up to 2500 nm Spectrum measurement Far field measurement Laser facet inspection By-emitter analysis (each emitter of laser bar can be measured independently)

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	Standard LFT model	Customization capabilities
	measurement (no need to sweep current) <ul style="list-style-type: none"> • Measurement automated by timer 	
Software features	<ul style="list-style-type: none"> • Table based real-time interactive UI • Configuring laser drive & measurement options for each DUT • Plotting of measurement results: LIV plot or output power vs time drifting graph • Storing of data in CSV format • Pausing and continuing of DUT testing without interfering ongoing measurements • Fault limit monitoring and safety shutdown 	<ul style="list-style-type: none"> • SQL-database storage • PDF datasheet or report generation • Derived analysis unit calculation from LIV or spectrum. • Addition of user specified features
Cabinet	Floor standing aluminum cabinet	