

## REVISION

Revision	Date	Description	Valid until:
1.0	2024-10-15	Initial specifications	2025-04-15

## TECHNICAL SPECIFICATIONS

### Optical Parameters at Nominal Wavelength

Description	Specification	Unit
Wavelength (in vacuum) [1,2]	1550.12 ± 0.04	nm
Instantaneous Linewidth at 1 MHz [1,3]	< 0.2	kHz
Output Power [1]	> 40	mW
Frequency Noise at 5 Hz [1]	< 1x10 <sup>6</sup>	Hz <sup>2</sup> /Hz
Frequency Noise at 1 kHz [1]	< 4x10 <sup>3</sup>	Hz <sup>2</sup> /Hz
Frequency Noise Between 100 kHz and 1 MHz [1]	< 8x10 <sup>1</sup>	Hz <sup>2</sup> /Hz
Frequency Noise at 100 MHz [1]	< 5x10 <sup>4</sup>	Hz <sup>2</sup> /Hz
Relative Intensity Noise [1,4]	< -155	dBc/Hz
Wavelength Stability over case temperature	By design	pm/°C
Frequency Stability over 2 Minutes [5]	By design	MHz
Frequency Stability over 1 Hour [5]	By design	MHz
Side Mode Suppression Ratio [1]	> 40	dB
Return Loss [1]	< -40	dB
Polarization Extinction Ratio	> 17	dB

### Slow Frequency Tuning

Description	Specification	Unit
Frequency Tuning Method	Thermal, control via software command	
Frequency Tuning Range	By design	± 25 (unlocked) / ± 2 (locked) GHz
Frequency Tuning Resolution	By design	20 (unlocked) / 5 (locked) MHz

### Fast Frequency Modulation

Description	Specification	Unit
Frequency Modulation Method	Analog voltage input	
Frequency Modulation Amplitude (peak-to-peak) [1,6]	≥ 0.2	GHz
Frequency Modulation Repetition Rate [1]	10	kHz
Maximum Modulation Voltage [1,7]	Within -2.5 to 2.5	V

## LXM-U1550.12-040-M1-I1-N0

### Interfaces

Description	Specification	Unit
Communication Unit	Included	
Power Supply Voltage [8]	5 V USB-C PD3.0 power block included	
Power and Communication Connectors	USB-C PD3.0 (power), USB-C (comm), MMCX (interlock)	
Frequency Modulation Connector	SMA	
Communication Interface	USB-C, Software included (Windows®)	
Optical Fiber type	Panda polarization maintaining	
Optical Fiber Length	1.0 ± 0.1	m
Optical Connector	FC / APC (narrow key), slow axis aligned to key	

### Mechanical & Environmental

Description	Specification	Unit
Size (L x W x H)	90 x 56 x 28	mm
Power Consumption [2,8]	By design 5	W
Operating Temperature [9]	By design -20 to +65	°C
Storage Temperature	By design -40 to +85	°C
Humidity (non-condensing)	By design < 95	%

### NOTE(S)

- [1] Tested parameter provided on test data report
- [2] Room temperature (20 to 23°C)
- [3] Instantaneous linewidth obtained by multiplying the one-sided PSD of frequency noise measured at 1 MHz by  $\pi$ .
- [4] Average of the relative intensity noise floor between 1 and 10 MHz.
- [5] Characterised as the standard deviation of the beat-note frequency between two similar LXM lasers.
- [6] For a triangular voltage waveform input at maximum modulation voltage and specified repetition rate.
- [7] Exceeding maximum modulation voltage may result in laser unlocking.
- [8] Max 15W power consumption during boot up, 5 VDC 3 Amp supply requirement.
- [9] Optical specifications guaranteed between -5°C to +55°C operating temperature.