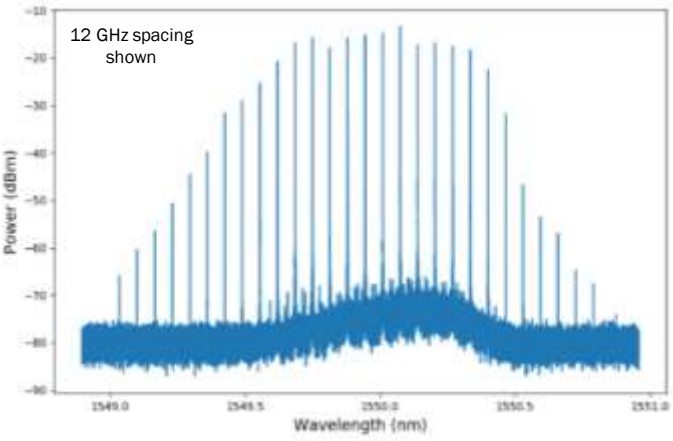
LYRA-OCS-1000

Optical comb laser module



Typical Optical Comb Spectrum

The Lyra OCS 1000 is an optical frequency comb source based on our patented technology that offers a flat comb of coherent wavelengths with low optical linewidth, tunable wavelength spacing (free spectral range), and excellent stability.

Features

- Stable and robust optical frequency comb
- Low optical linewidth (<300 kHz, 80 kHz in Q42022)
- Tunable free spectral range with high accuracy, through an external voltage
- Strong phase correlation between comb lines
- Polarisation maintaining fibre coupled output
- Simple, push-button operation
- RF drive module included

Applications

- Terabit superchannel transmitters
- Flexgrid wavelength division multiplexing
- Generation of millimetre-wave and THz signals
- Generation of 5G signals
- Ultra-wideband (UWB) over fibre HD-video distribution
- Optical signal processing (e.g. optical clock recovery)
- Precision optical measurements
- Spectroscopy
- Sensor interrogation

Typical Specifications

Wavelength Availability	1530 – 1565 nm others on request*
Free Spectral Range	6 – 14 GHz/ others on request*
Number of Comb Lines	5 – 15
Spectral Flatness	3 dB
Comb Bandwidth	200 GHz @ -40 dB
Linewidth	300 kHz/ <80 kHz in Q42022
Carrier to Noise Ratio	35 dB
Average Power	3 mW

*Other specifications might change

New design with enhanced features shipping in Q4 2022

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Optical Specifications	Min.	Typ.	Max.	Unit	Notes
Centre Wavelength	1530	1550	1565	nm	Other wavelengths 500-1100 nm and 1200-2000 nm available on request, other specifications might change.
Centre Wavelength Tuning range	- 1	-	+ 1	nm	On request, wavelength can be tuned within the specified range around the selected centre wavelength.
Free Spectral Range/ Wavelength Spacing	6	10	14	GHz	The free spectral range can be tuned over specified range by an external voltage.
Total Spectral Bandwidth		200		GHz	Measured at -40 dB from envelope peak.
Number of Comb Lines	4		15		Within a 3 dB spectral flatness for free spectral ranges between 6-25 GHz.
Average Output Power	0	3	6	mW	Measured from fibre output
Optical Linewidth	100	300	500	kHz	< 80 kHz in Q42022.
Carrier to Noise Ratio	30	40	50	dB	
Relative Intensity Noise	-140	-130	-120	dBc/Hz	Uniform over frequency span.
RF Beat Tone Linewidth		30		Hz	Driven by laboratory synthesizer.
RF Beat Tone Linewidth		400		kHz	Driven by provided RF module with broad frequency tunability.
Comb Line Power Stability			1	dB	Measurements taken every 30 s during 24 h with OSA (Resn: 2.5 pm).
Comb Line Wavelength Stability			3	pm	Measurements taken every 30 s during 24 h with OSA (Resn: 2.5 pm).
Physical Specifications					
Dimensions		190 x 110 x 31		mm	
Power Consumption			10	W	
AC Voltage	100		240	V	
DC Supply Voltage	10	12	13		AC-DC power supply is provided.
DC Supply Noise (1 kHz – 200 kHz)		20	60	mVpp	
Operating Temperature	+5		+35	°C	
Storage Temperature	-20		+70	°C	
Humidity, Non-Condensing			90	%RH	
RF Input Connector		SMA			Female.
Optical Output		FC/APC PM			
Other Specifications					
Turn On Time			7	s	Ready-to-work-time, from the moment of DC power application.
Cold Start Settling Time (System Warm-up)	5	15	30	min	System warm-up time to reach optimum performance.
Rise Time of Optical Signal	30	50	100	ms	Delay between pressing the Enable button and the light source emission.