CSIR- NATIONAL PHYSICAL LABORATORY
Dr. K.S. Krishnan Marg,
New Delhi – 110012 (INDIA)

Contact: 011 4560 8624
Email: purchase-so1@nplindia.org

From: Director, CSIR-NPL
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CORRIGENDUM

With reference to NPL's Global Tender No. 14-VI/AK(1099)22PB/T-82 Pre-Bid Conference (PBC) was concluded on 06/01/2023 for "Laser with related optical, optomechanics and electrical accessories". Consequent upon the outcome of PBC, **it is found that there is change in the technical specification of captioned tender. Revised specifications are as follows:**

Laser with related optical, optomechanics, and electrical accessories

- Two laser systems and associated laser controllers are required.
- Stable single mode (TEM_{00}) output with a feature of locking at the central wavelength 1542 nm.
- Laser systems with precise control over frequency either through current, temperature, and piezo transducer, or acousto optic modulator or other transducers.
- All the electronics required for locking to a cavity resonance
- Suitable optical Isolator, with isolation≥ 60dB and transmission≥ 80%
- The fiber-coupled laser output is required
- Laser central wavelength: 1542nm
- Coarse tuning range: ≥1 nm
- Output power: 30-35 mW after the isolator and fiber coupling
- Average free running Line width (10 μs integration time): ≤ 300 kHz,
- Output beam polarization: linear 100:1 or better
- The mode hop free tuning range: ≥15GHz
- ASE background:≤ -35dB (ASE ~ amplified spontaneous emission)
- Built-in piezoelectric element for frequency tuning
- Piezo-operating voltage range: 0-150 V
- Capable of external modulation of laser frequency
- Fiber coupler unit and coupling lenses to be provided for the Laser output beam

Multi-function digital locking electronics

- An automated or computer-controlled signal locking system based on Pound-Drever Hall method
- laser stabilization via side band modulation at any frequency between 5 to 35 MHz range
- phase adjustable 0-360 degrees
- It should have both option to demodulate internally and also with external reference
- Proportional Integral Derivative (PIDs) for current and piezo feedback with autolock and relock functions
- controlled via a touch user interface (UI) or personal computer-based graphical UI or remote-controlled commands
- tools to optimization of lock parameters, including optimization of PID settings

Fast control of laser linewidth module

- High bandwidth frequency locking for laser line width reduction
- Digital scanning of laser capability of externally modulating the current or acousto optic modulator or other transducers
- Suitable RF bias-T or equivalent high bandwidth current modulation with appropriate protection or equivalent
- Laser systems- built-in current, temperature, and piezo control or acousto optic modulator or other transducers.
- Built-in external current modulation or equivalent
- The capability of externally providing feedback to piezo transducer

Wavemeter

- The two laser wavelengths need to be measured using a wavemeter provided. The wavemeter should simultaneously measure the two laser wavelengths with a calibration source internally built in or with an external wavelength reference.
- Wavemeter measuring range: 400 nm – 1700 nm
- Absolute accuracy at 1542 nm: ±200 MHz or better
- PID for stabilizing two lasers to any wavelength should be provided in the wavelength meter.
- Fibre coupled inputs for high measurement stability

Beat signal detection

- A system to measure the beat frequency between the two lasers is needed. It should have components for sampling the two lasers and mixing/combining them in 50:50 proportions with proper polarization control and feed the resultant beat signal to a high-bandwidth detector.
- The detector should have a bandwidth of at least DC to 9 GHz.
- A fiber-based system is required (i) to sample some laser power for the wavemeter, (ii) to sample some laser power for beat note generation with fiber based combiner and polarization control for beat signal detection, and (iii) the final part of the laser beams, after being split for the beat frequency generator, should be available in free space with a fiber output coupler (collimator) for experiments.
- Suitable fiber-based splitters and combiners for wavemeter and beat signal detection should be provided.
- Fiber-optic/Angled polished connector (FC/APC) fiber connectors: All the fibers should be appropriately single mode polarisation maintaining at 1542 nm

Two data acquisition systems to be provided separately for laser and wavemeter (standard 27-inch. or better monitor size, 32 GB RAM or better, i7 or better (11th Generation or better), windows 11 with Microsoft Office, 1TB SSD or better, wireless keyboard & Mouse).

The vendor should provide installation services for the lasers, wavemeter, and beat signal detection systems.

All other terms & conditions of said tender will remain the same.

Stores & Purchase Officer