Department of Electrical Engineering,
Indian Institute of Technology, Delhi

Hauz Khas, New-Delhi -110016, India

NIQ no. IITD/EE/BEEN/114 Due Date: **24.02.2014, 5 PM**

Notice inviting quotations for High Sensitivity Microscopy Add-on for Imaging and Spectroscopy

Sealed quotations are invited for a High Sensitivity Microscopy Add-on for Imaging and Spectroscopy. The purchase will be made through a two part bidding process. Technical and Financial bids have to be made separately. Complete technical information should be provided along with the Technical bid. Please refer to the page on Terms and Conditions for details on how and when to submit the Technical and Financial bids.

Required Specifications for High Sensitivity Microscopy Add-on for Imaging and Spectroscopy

The system to be interfaced with a Microscope (Olympus BX-51) would have the following components:

1. SPECTROGRAPH
    - Focal length ; 303mm
    - Aperture : f/4 (faster), triple grating turret
    - Linear dispersion : 1.78nm/mm to 2.58nm/mm for 1200l/mm grating (depends on wavelength range)
    - Scan range : 0nm to 11300nm
    - CCD resolution : maximum 0.04nm (depends on grating and CCD selected)

- Wavelength coverage : maximum of 67nm with 1200l/mm grating
- Focal plane : 27mm x14mm
- Input slit : 10um to 2.5mm
- CCD port
- Wavelength accuracy : 0.04nm
- Repeatability : 4pm
- Step size : 0.004nm
- Interface : USB
- Accessories required for imaging should be included

2. DETECTOR

- Format : 512 x 512
- Pixel size : 16um x 16um
- Full Frame rate : 56 fps
- Active area pixel well depth : 160000 e-1
- Gain register pixel well depth : 800,000 e-1
- Maximum cooling : down to -100 °C
- Image area : 8.2mm x 8.2mm, with 100% fill factor
- Dark current at -85°C in e-1/pixel/sec : < 0.001 e-1/pixel/sec
- Maximum pixel readout : 17MHz
- Readout : through both EMCCD and conventional amplifiers
- Option of readout through conventional amplifier with <3 e-1 read noise
- Back illuminated with fringe suppression
- Calibration of EMCCD gain on the field without requiring light source

- Computer interface : USB as well as Camlink

3. Software for camera control and data acquisition
4. Accessories required for interfacing with a microscope (Olympus BX-51) should be offered and specified
5. Warranty : 2 years

Asst. Prof. A. Dhawan
(Principal Investigator)

Terms and Conditions

1. Please submit the TECHNICAL and FINANCIAL bids in separate sealed envelopes. Mark the two envelopes clearly as “Technical Bid” and “Financial Bid” respectively. Both the sealed envelopes should be sent in a single sealed envelope, clearly marked as “High Sensitivity Microscopy Add-on for Imaging and Spectroscopy”. The quote should reach the following address (all mails should be sent only to the following address) on or before **24.2.2014, 5 PM**:

   Dr. Anuj Dhawan,
   Room 216, Block II,
   Department of Electrical Engineering,
   IIT Delhi, Hauz Khas,
   New Delhi, 110016, India

2. Please quote prices at FOB New Delhi, inclusive of all taxes and duties.
3. Quote should be in Indian Rupees for Indian agents, or in foreign currency, for foreign agents, and needs to be valid for at least three months.
4. Attach all the technical literature and a list of similar installations done in India.
5. If the quote is being submitted by a representative of the manufacturer, a valid agency-ship or dealership certificate authorizing the agent to quote to IIT Delhi on behalf of the manufacturers should be enclosed.
6. Complete set of manuals for the operation of the equipment should be given.
7. Clearly specify the installation requirements – such as space, power, frequency, environment etc.
8. If the item quoted is proprietary in nature, please enclose proprietary certificate from the principals stating, “Certified that _____ is a proprietary of M/s _____ and no other manufacturer makes this item.”
9. Please attach a signed and stamped compliance chart for the specifications. The format of the compliance chart is attached to this document.
10. Please specify all of your terms and conditions clearly, including delivery period.
11. Preferred modes of payment for foreign agents are through letter of credit, or as payment on delivery. For Indian agents, typically payment is on delivery.
12. The Institute reserves the right to accept or reject any or all quotations without assigning any reasons thereof.

Asst. Prof. A. Dhawan
(Principal Investigator)

Compliance Chart

Spectrograph Specifications

	Parameter	Requirement	Model Spec	Complies
1	Focal length	303 mm		
2	Aperture	f/4 (faster), triple grating turret		
3	Linear dispersion	1.78nm/mm to 2.58nm/mm for 1200l/mm grating (depends on wavelength range)		
4	Scan range	0nm to 11300nm		
5	CCD resolution	maximum 0.04nm		
6	Wavelength coverage	maximum of 67nm with 1200l/mm grating		
7	Focal plane	27mm x14mm		
8	Input slit	10um to 2.5mm		
9	CCD port	Present		
10	Wavelength accuracy	0.04nm		
11	Repeatability	4pm		
12	Step size	0.004nm		
13	Interface	USB		
14	Accessories required for imaging	Should be included		
15	Warranty	2 years		

Detector Specifications

	Parameter	Requirement	Model Spec	Complies
1	Format	512 x 512		
2	Pixel size	16um x 16um		
3	Full Frame rate	56 fps		
4	Active area pixel well depth	160000 e-1		
5	Gain register pixel well depth	800,000 e-1		
6	Maximum cooling	-100 °C		
7	Image area	8.2mm x 8.2mm, with 100% fill factor		
8	Dark current -85°C in e-1/pixel/sec	0.001 e-1/pixel/sec		
9	Maximum pixel readout	17MHz		
10	Readout	through both EMCCD and conventional amplifiers		
11	Option of readout through conventional amplifier	read noise should be < 3 e-1		
12	Back illuminated or Front illuminated	Back illuminated With fringe suppression		
13	Calibration of EMCCD gain	without requiring light source		
14	Computer interface	USB as well as Camlink		
15	Warranty	2 years		