

Ref No : PUR/IMP/GT/VSN/IS/20/2012-13.

March 08, 2013.

M/s.

Dear Sir/s,

The Director, Indian Institute of Astrophysics, Bangalore, invites Sealed Tenders Two bid system ( both Technical bid & Commercial bid) for the Import of “**sCMOS image Sensors - 2 Nos.**” as per the specifications. The terms and conditions may be noted from IIA Website and if you are in a position to quote for the supply in accordance with the requirements, please submit your quotation. The Tender documents and other details are available on IIA web site [www.iiap.res.in/tenders.htm](http://www.iiap.res.in/tenders.htm)

**The Tender bids must be in Foreign currency quote.** Your completed Tender bids both Technical and Commercial bid ( **2 Bid system**) must reach our office on or before 30/03/2013 by 15 00 hrs. The bids must be in a separate Sealed envelopes duly superscribed with the name of the supply and Due Date and all the envelopes kept in a bid envelopes mentioning the supply must reach this Office within the Due Date and time. The Technical bids (a) will be opened in the presence of bidders or their authorized representative of the Company by 15.30 hrs on 02/04/2013. The commercial bids will be opened only for those vendors quotes qualify in Technical evaluation, The opening of commercial bids date will be intimated later. Incomplete Bids are liable for rejection.

For any Technical clarifications you may contact during Office hours Shri Venkata Suresh Narra (Phone No.2254 1421) and for any commercial clarifications can contact Shri Y.K.Raja Iyengar, Purchase Officer (Phone No.2254 1244).

Thanking you,

Yours faithfully,

Y.K.Raja Iyengar  
Purchase Officer

**GLOBAL TENDER DOCUMENT No : PUR/IMP/GT/IS/20/2012-2013.  
DT : 08/03/2013.**

**TENDER FORM**

FROM:

TO

THE DIRECTOR  
Indian Institute of Astrophysics,  
Bangalore - 560 034.

Sir,

I/We hereby offer to supply the Items/Equipment indicated below at the price hereunder quoted and agree to hold this office open till . I/We shall be bound to supply the items/Equipment hereby offered upon the issue of the Purchase Order communicating to the acceptance thereof on or before the expiry of the last mentioned date. You are at liberty to accept any one or more of the items such Items/Equipment. I/We notwithstanding that the offer in this tender has not been accepted in whole, shall be bound to supply such items and such portion or portions of one or more of the items as may be specified in the said Purchase order communicating the acceptance.

-----  
S No. Description of the item(s) Qty. Unit Rate Dely. Period  
-----

1. Scientific Grade CMOS image sensors of size 2K x 2K 2 Nos.

as per the following Technical specifications and RFP enclosed.

Sensor Type: Front Illuminated Scientific grade CMOS, Active pixels (W x H) : 2K x 2K , Pixel size(W x H) : 6.5 x 6.5 microns, Pixel well depth (e-) : >25,000, Pixel readout rate : > 100 MHz, Read noise (e-) : 1 – 2, Dark current(e-/pix/s : 40 at room temperature < 10 at -20°C, Maximum cooling : -40°C, Full frame rate : > 10 fps, Gain : Selectable gains 1X or 2X ; 10X or 30X, or (similar 4 Gains), Read out : 2 parallel read out, one at low gain other at high gain (preferably), ADC resolution : 11 bit x 2 (parallel read outs), Quantum Efficiency : ≥ 50 % (500-750nm)

(Two bid system, both Technical bid and commercial / price bid should be submitted separately)  
(IIA will provide Excise duty and Customs duty exemption certificate )

( Tender bids should be Foreign currency quote )

-----  
Place at which the Delivery is required : Indian Institute of Astrophysics, Bangalore -34

Date by which the supplies are required : 4 weeks from the date of order.

2 I/We have understood the items of the tender annexed to the invitation to the Tender and have thoroughly examined the specifications/drawing and / or pattern quoted or referred to herein and / are fully aware of the nature of the items/ Equipment required and my / our offer is to supply the items/ Equipment strictly in accordance with the requirements subject to the terms and conditions contained in the Purchase order communicating the acceptance of this tender either in whole or in part.

Date :

Signature and Seal of Supplier

## Annexure - A

### INSTRUCTIONS TO SUPPLIERS

1. Tenders should be sent in a sealed and superscribe with both Technical bid and commercial bid in separate envelopes with mention of Tender Number date and date of opening. Only one Tender should be sent in each envelope.
2. Late and Delayed tender will not considered at all.
3. Duties, Taxes where legally leviable and intended to be claimed should distinctly shown separately in the Tender.
4. a) Your quotation should be valid for 90-120 days from the date of opening of Tender.  
b) Prices are required to be quoted according to the units indicated in the annexed tender form. When quotations are given in terms of units other than those specified in the Tender form, relationship between the two sets of units must be furnished.
5. a) All available Technical Literature(s), Catalogue(s) and other data in support of the specifications and details of the item(s) should be furnished along with the offer.  
b) Approximate net and gross weight of the items offered shall be indicated in your offer. If dimensional details are available the same should indicated in your offer.  
c) Air freight/sea freight charges up to IIA, Bangalore/ Bangalore Airport may be sent along with the offer.

#### d) Specifications:

Items / Equipment offered should strictly conform to our specifications. Deviation, if any should be clearly indicated by the Supplier in their quotation. The supplier should also indicate the Make / type No. of the stores offered and provide catalogue(s), Technical literature(s) and sample(s), wherever necessary along with the quotations. Test certificates wherever necessary should be forwarded along with the supplies. Whenever options are called for in our specifications, the Supplier should address all such options. Wherever specifically mentioned by us, the Supplier could suggest changes to specifications with appropriate response for the same.

1. Corrections, if any, must be attested. All amounts shall be indicated both in words as well as in figures. Where there is difference between amounts quoted in words and figures, amount quoted in words shall prevail.
2. The supplier should supply along with the tender, the Banking information for payment or any other purpose.
3. A complete set of instruction and operation manual should be supplied.
4. Final performance should be guaranteed.

## **TERMS AND CONDITONS OF CONTRACT**

### **1. DEFINITIONS:**

—

- a) The terms 'Purchaser' shall mean the Director, Indian Institute of Astrophysics, Bangalore - 560 034.
- b) The term 'Supplier' shall mean, the person, firm or company with whom or with which the order for the supply of Items / Equipment is placed.
- c) The terms 'Purchase Order' shall mean the communication signed on behalf of the Purchaser by an officer duly authorized intimating the acceptance on behalf the Purchaser on the terms and conditions mentioned or referred to in the said communications accepting the tender or offer of the supplier for supply of Items/Equipment.

### **2. PRICES:**

The price may please be indicated on unit basis only.

#### **Duty Exemption:**

Please note that we may issue "Customs duty Exemption Certificate & Excise duty exemption certificate" under the Govt. of India notification No.51/96 & No.10/97 valid till 2016.

### **3. GUARANTEE AND REPLACEMENT:**

The Supplier shall guarantee that the Items/Equipment supplied shall comply fully with the specifications laid down, for material workmanship and performance. The Guarantee should be for a period of one year minimum from the date of supply.

### **4. PACKING, FORWARDING AND INSURANCE:**

The Contractor will be held responsible for the stores being sufficiently and properly packed for transport by air / Sea to withstand transit hazards ensure safe arrival at the destination. The packing and marking of packing shall be done by and at the expenses of the contractor. The Purchaser will not pay separately for transit insurance, all risks in transit being exclusively of the supplier and the Purchase shall pay only for such Items/Equipment as are actually received in good condition, in accordance with contract.

5. **TEST CERTIFICATE:**

Wherever required Test Certificate should be sent before dispatch of the items.

6. **ACCEPTANCE OF ITEMS / EQUIPMENT:**

a)It is expressly agreed that the acceptance of Items/Equipment, is subject to final approval by the Purchase, whose decision shall be final.

7. **DELIVERY PERIOD:**

Delivery is the essence of the contract. The supplier should adhere to delivery schedule as indicated in the Purchase order.

8. **EXTENSION OF DELIVERY TIME:**

As soon as it is apparent that Supplier dates cannot be adhered to, an application shall be sent by the Supplier to the Purchaser. If failure, on the part of the Supplier to deliver the Items/Equipment in proper time shall have arisen from any cause which the Purchaser may admit as reasonable ground for an extension of the time ( and his decision shall be final he may allow such additional time as he considers it to be justified by the circumstances of the case). In case of Letter of Credit the banking charge for the LOC amendment will be on suppliers account.

9. **PAYMENT:**

Preference will be given to the supplier whose payment terms is on Site Draft or Credit basis.

10. **SECURITY FOR PAYMENT:**

Successful Supplier will have to furnish in the form of a Bank Guarantee or any other form as called for by the Purchase towards any payments before supply of items/equipment. In case of payment through Letter of Credit the Banking charges outside India and inside India will be on suppliers account.

11. IIA reserves the right to reject any or all the Tenders without assigning any reason.

Purchase Officer  
IIA, Bangalore - 34.

## **Request For Proposal (RFP) for sCMOS Image Sensors (2No's)**

Name of the proposal:

sCMOS Image Sensors with high dynamic range and low readout noise.

Project under which the item to be procured:

Aditya-1

Justification for the requirement of the item

Above mentioned items will be used for the imaging the near specular scatter from highly polished optical surfaces with different surface microroughness. These studies are important in order to estimate the scatter from surfaces with different micro roughness. These studies are very important for background estimation of VELC on board Aditya-1. Also for other laboratory experiments related to VELC.

Introduction/background about the item.

Above mentioned items will be used for the imaging the near specular scatter from highly polished optical surfaces with different surface microroughness. These studies are important in order to estimate the scatter from surfaces with different micro roughness. These studies are very important for background estimation of VELC on board Aditya-1. Also used for other laboratory experiments related to VELC.

### **Technical specifications of the components with codes and standards if any:**

Sensor Type	: Front Illuminated Scientific grade CMOS
Active pixels (W x H)	: 2K x 2K
Pixel size(W x H)	: 6.5 x 6.5 microns
Pixel well depth (e-)	: >25,000
Pixel readout rate	: > 100 MHz
Read noise (e- )	: 1 - 2
Dark current(e-/pix/s)	: 40 at room temperature < 10 at -20°C
Maximum cooling	: -40°C

Full frame rate	: > 10 fps
Gain	: Selectable gains 1X or 2X ; 10X or 30X or (similar 4 Gains)
Read out	: 2 parallel read out, one at low gain and other at high gain(preferably)
ADC resolution	: 11 bit x 2 (parallel read outs)
Quantum Efficiency	: $\geq 50\%$ (500-750nm)

**Scope of the item:**

Above mentioned items will be used for the laboratory experiments on near specular scatter studies from highly polished optical surfaces with different surface microroughness. . Also used for other laboratory experiments related to VELC.

**Eligibility criteria of vendor:**

The vendor must have understanding, experience and infrastructure for the design and fabrication of Scientific grade CMOS Systems and associated software.

**Expected deliverables**

sCMOS Image sensors as mentioned above.

**Safety Requirements:**

**Environmental conditions:**

Components will be operated and stored in ISO6 (class 1000) clean rooms

**Inspection, test and acceptance criteria:**

The following tests need to be performed at representative wavelengths covering the range 350-750nm

- 1.Pixel response non uniformity
2. Cosmetics
3. PSF degradation
4. Readout noise, gain linearity and full well capacity, charge transfer efficiency
- 5.Quantum efficiency, stability of the detector sensitivity over the temperature range.

**Expected Time Schedule**

2-3 months

**Conceptual layout/drawings if any.**

3D model of the detector with all connectors and mount interfaces.



