



बसु बिज्ञान मन्दिर  
**BOSE INSTITUTE**

P-1/12, C.I.T. Scheme VII-M, Kolkata 700 054, West Bengal, India

Ref : BI-K/E-TEND/07/2020-21

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## **BIDDING DOCUMENTS**

For Tender Notice No.

**BI-K/E-TEND/07/2020-21**

To be addressed to:

Registrar (Officiating)

**Bose Institute, Centenary Building,  
P-1/12, CIT Scheme - VII -M  
Kolkata - 700054 (INDIA)**



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**INVITATION TO BIDS**

Bose Institute, Kolkata, West Bengal, India invites **online** offers from OEM or their authorised manufacturers or their Authorized Dealers for supply, installation and commissioning of the following equipment :

Sl. No.	Name of the items	Qty.
1.	Tip Enhanced Raman Spectrometer (TERS)	01

- **Details of specifications are enclosed in Annexure - I**

Sl. No.	Particulars	Date & Time
1.	Date of uploading of NIT & other documents (Online) (Publishing date)	25.01.2021
2.	Documents download start date (Online)	25.01.2021 at 18:00 hrs.
3.	<b>Clarification Start date</b> <b>Queries to be sent to the mail id <a href="mailto:bjpurchase@jcbose.ac.in">bjpurchase@jcbose.ac.in</a></b>	25.01.2021 at 18.30 hrs.
4.	<b>Clarification End date</b>	<b>01.02.2021 at 17:00 hrs.</b>
5.	Amendment (if any) (On line)	05.02.2021 at 18:00 hrs.
6.	Bid submission start date (On line)	08.02.2021 at 17:00 hrs.
7.	Documents download end date (Online)	15.02.2021 upto 17:00 hrs.
8.	Bid Submission closing (On line)	15.02.2021 upto 17:00 hrs.
9-	Bid opening date for Technical Proposals (Online)	17.02.2021 at 12:00 hrs.
10.	Date of uploading list for Technically Qualified Bidder (online)	To be notified later
11.	Date for opening of Financial Proposal (Online)	To be notified later



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**SECTION - A**  
**INSTRUCTION TO BIDDERS**

***The procurement will be made by Bose Institute in compliance with the Govt. of India rules framed for public procurement from time to time any bidder from a country which shares a land border with India will be eligible to bid in this tender only if the bidder is registered with the competent authority.***

***In this regard the clause and conditions issued as per Ministry of Finance, Department of Expenditure, Public Procurement Division order no F.No.6/18/2019-PPD dated 23 July 2020, must be strictly adhered to and necessary certification as mentioned in the subject order must be submitted along with the tender.***

- A. General guidance for e-Tendering :** Instructions / Guidelines for electronic submission of the tenders have been annexed for assisting the vendors to participate in e-Tendering.
1. **Registration of Vendors :** Any vendor willing to take part in the process of e-Tendering will have to enrol and get registered in the Central Public Procurement (CPP) Portal, NIC, GOI through logging on to <http://eprocure.gov.in/eprocure/app> and the vendor is to click on the link for e-Tendering site as given on the above.
  2. **Digital Signature certificate (DSC) :** Each vendor is required to obtain a Class-II or Class-III Digital Signature Certificate (DSC) for submission of tenders as applicable from the approved service provider of the National Informatics Centre (NIC) on payment of requisite amount. Details are available at the Web Site stated in Clause A.1. above. DSC is given as a USB e-Token.
  3. The vendor can search & download N.I.T. & Tender Document(s) electronically from computer once they log on to the website mentioned in Clause A.1. using the Digital Signature Certificate. This is the only mode of collection of Tender Documents.
  4. **Submission of Tenders:** Tenders are to be submitted through online as stated in Clause A.1. in two folders at a time for each bid, one in Technical Proposal & the other is Financial Proposal before the prescribed date & time using the Digital Signature Certificate (DSC). The uploaded documents are to be virus scanned and duly Digitally Signed. The documents will get encrypted (transformed into non readable formats).
  5. A. **Technical Proposal:** The Technical proposal should contain scanned copies of the following in two covers (folders).
    - (a) **Statutory Cover** containing the following documents :
      - (i) **NIT (upload the published NIT accepted using digital signature)**
      - (ii) Bidders' Information Form
      - (iii) Bid Form
      - (iv) Techno-Commercial Bid Form
      - (v) Manufacturer's Authorization Form
      - (vi) Bidder's Performance Statement Form
      - (vii) Service Support Details Form
      - (viii) Technical Compliance Statement Form
      - (ix) **Fall Clause Certificate**
      - (x) **Integrity Pact**



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- (b) **Non-statutory Cover** containing the following documents :  
For indigenous quotes the bidder has to upload requisite registration / tax certificate like TAN, PAN, Trade License, CIN, GST etc.

**Note :** *Failure to submit any of the above mentioned documents (listed under 5(a) & (b) may render the bid liable to be summarily rejected for both statutory and non-statutory cover.*

5.B. **Financial Proposal :**

- a. The financial bid should contain the Bill of Quantities (BOQ) corresponding to this tender, which is available on the tender webpage as an MS-Excel file.
  - b. This file must be downloaded and opened with MS-Excel. The rate being quoted by the bidder must be entered in the space marked for this purpose in the file. **Quoted rate** will be encrypted under BOQ. **In case quoting any rate in Tender Form, the tender is liable to be summarily rejected.**
  - c. All fields in the BOQ file other than those allocated for the name of the bidder and the rate(s) being quoted are non-editable.
  - d. The BOQ file must be saved after this and should be uploaded using digital signature.
  - e. OPTIONAL ITEMS/Additional Warranty Charge beyond Standard warranty period and training charges (if any) must be separately quoted and uploaded as PDF file.
- **In the BOQ quoted in foreign currency (click to select currency) fill up the applicable column (i.e. 'Ex-works', 'Discount (if any)', 'Freight', 'Insurance', 'other taxes (if applicable)', 'Installation & commissioning charges (if applicable)') and ignore the other column.**
  - **In the BOQ quoted in INR (click to select currency) fill up the applicable column (i.e. 'Basic Rate', 'Discount (if any)', 'GST', 'Other taxes (if applicable)', 'Installation & Commissioning charges (if applicable)') and ignore the other.**
  - **Bidders are requested not to put any percentage (%) in any column of the BOQ.**
  - **As per Govt. Notification # 45/2017 dt.14<sup>th</sup> November, 2017, Scientific Research Institute funded by the Govt. of India, GST will be applicable @5% for the goods used for research purpose, for the bids where GST will be applicable, against DSIR Certificates to be provided by the Institute.**

6. Earnest Money Deposit:

**As per recent Govt. Circular (OM no No. F.9/4/2020-PPD dated 12 Nov 2020, Department of Expenditure, Ministry of Finance) The bidders have to sign "Bid Security Declaration" in their letter head accepting that if they withdraw or modify their bids during period of validity etc., they will be suspended for the time specified in the tender documents."**



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**THE ABOVE STATED STATUTORY / NON-STATUTORY DOCUMENTS  
SHOULD BE ARRANGED IN THE FOLLOWING MANNER**

Click the check boxes beside the necessary documents in the My Document list and then click the tab " Submit Non Statutory Documents' to send the selected documents to Non-Statutory folder.

Next Click the tab "Click to Encrypt and upload" and then click the "Technical" Folder to upload the Technical Documents.

***N.B.: Failure of submission of any of the above mentioned documents as stated in Sl. No. A.5.(a). and Sl. No. A.5.(b). And 6 (a) & (b) will render the bidder liable to be rejected for both statutory & non statutory cover.***



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1. Tender Evaluation Committee (TEC) : Evaluation Committee constituted as per Order of the competent authority of Bose Institute, Kolkata.
2. Opening & evaluation of tender : If any vendor is exempted from payment of EMD, copy of relevant Government Order needs to be furnished and uploaded in the portal as PDF file.
3. Bidders or their representative may wish to be present during tender opening, if they so desire
4. Cover (folder) for Statutory Documents (Ref. Sl. No. A.5.(a).) will be opened first and if found in order, cover (folder) for Non-Statutory Documents (Ref. Sl. No. A.5.(b).) will be opened. If there is any deficiency in the Statutory Documents the bid will summarily be rejected.
5. Decrypted (transformed into readable formats) documents of the non-statutory cover will be downloaded & handed over to the Tender Evaluation Committee.
6. Pursuant to scrutiny & decision of the Tender Evaluation Committee, the summary list of eligible bidders will be uploaded in the web portals.
7. During evaluation the committee may summon of the bidders & seek clarification / information or additional documents or original hard copy of any of the documents already submitted & if these are not produced within the stipulated time frame, their proposals will be liable for rejection.
8. **Financial Proposal :**
  - a). The vendor is required to quote the rate online in the designated field marked for quoting rate in the BOQ. For optional items as mentioned in the specifications may be quoted separately in the additional sheet as enclosed in the Financial Cover.
  - b). Only downloaded copies of the above documents are to be uploaded upon virus scanning & Digitally Signed by the vendor.
  - c). Penalty for suppression / distortion of facts:

If any bidder fails to produce the original hard copies of the documents on demand of the Tender Evaluation Committee within a specified time frame, or if any discrepancy is found between the hard and soft copies that amounts to material deviation, the tender inviting authority may treat such a case as submission of false documents by the bidder and action may be referred to the appropriate authority for prosecution as per relevant IT Act.
  - (d). Rejection of Bid:

**Director, Bose Institute reserves the right to accept or reject any Bid or cancel the entire Bidding process at any time prior to the award of Contract without thereby incurring any liability to the Bidder or Bidders or any obligation to inform the Bidder or Bidders the ground for Institute's action.**
  - (e). Award of Contract :

The Bidder whose Bid has been accepted finally (both technical and financial), will be informed by the Institute authority for award of contract.  
The notification of award will constitute the formation of the Contract.



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<b>GENERAL INSTRUCTIONS</b>
<ul style="list-style-type: none"><li>The bids would be opened in the presence of the bidders who wish to attend the Bid-opening. However, the representative should bring with them a letter of authority from the corresponding bidders, without which, they are not permitted to attend the bid opening.</li></ul>
<ul style="list-style-type: none"><li>The acceptance of the quotation will rest with the competent authority of Bose Institute, Kolkata who does not bind himself to accept the lowest quotation and reserves the right to himself to reject, or partially accept any or all the quotations .</li></ul>
<ul style="list-style-type: none"><li>The offer shall be valid for ninety days (90 days) from the date of opening of the technical bid. No revision in price will be allowed after opening the quotation.</li></ul>
<ul style="list-style-type: none"><li>Unsolicited / conditional / in complete / unsigned digitally tenders shall not be considered.</li></ul>
<ul style="list-style-type: none"><li><u>Offers that have been blindly copied from the tender specifications are not acceptable and shall be rejected.</u></li></ul>
<ul style="list-style-type: none"><li>The Bidder / Company should not be in the list of black listed firms by any Govt. Dept. / agencies.</li></ul>
<ul style="list-style-type: none"><li>The price comparison will be decided as per BOQ comparative chart on the date of opening of financial bid.</li></ul>
<ul style="list-style-type: none"><li>Prices are required to be quoted in units. When quotations are given in terms of other units, relationship between two sets of units should be furnished. Quantity discounts, if any should also be indicated. The items should be quoted indicating the serial nos.</li></ul>
<ul style="list-style-type: none"><li>To assess in the examination / evaluation, comparison and post qualification of the bids, purchaser may at its discretion, ask the bidder for a clarification of its bid. The request for clarification and the response shall be in writing and no change in the prices or substance of the bids shall be sought, offered or permitted. Any clarification submitted by the bidder in respect of its bid which is not in response to a request by the purchaser shall not be considered.</li></ul>
<ul style="list-style-type: none"><li>Either the foreign principal or their Indian Agent can bid in the tender but not both. However, the offer of the Indian Agent should also accompany the authorisation letter from their principal. To maintain sanctity of tendering system, one Indian Agent can not represent two different foreign principals in one tender.</li></ul>
<ul style="list-style-type: none"><li>Please indicate the agents in India, their address, the details of service rendered by them &amp; the percentage of commission payable to them. In normal courses agency commission is not allowed.</li></ul>
<ul style="list-style-type: none"><li>Two or more vendors cannot submit bid quoting the rates on behalf of same OEM.</li></ul>
<ul style="list-style-type: none"><li>The Institute is registered with Department of Scientific &amp; Industrial Research, Govt. of India and thus is exempted from Customs/Central Excise duty vide notification no. 10/97 dated 01.3.1997 and 16/2007 dated 01.03.2007. The present details of registration are no. 11/106/1988-TU-V dt. 31.3.2018.</li></ul>
<ul style="list-style-type: none"><li>The mode of dispatch of the items must be mentioned clearly in the quotation.</li></ul>
<ul style="list-style-type: none"><li>Samples, if called for, shall be submitted free of charge and on no obligation basis.</li></ul>
<ul style="list-style-type: none"><li>The offered delivery period shall have to be strictly adhered to in case an order is placed.</li></ul>



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**SECTION B**

**TERMS & CONDITIONS**

1. **Price :**

- Bidders are requested to give their final and best offer. Techno-Commercial Discussions will be held with the Lowest Bidder only, if necessary.
- Vendors, who do not accept our standard commercial terms are liable to be ignored. **A categorical confirmation of acceptance of all our terms and conditions will have to be observed which enable speedy processing of the offers.**
- Pre-conditioned, incomplete offers, not in line with the terms and conditions of the tender documents, are liable to be rejected.

a. **For Foreign Quotation :**

- The price of the goods, quoted FOB/FCA port of shipment should include Export Packing, Loading Charges, Inland Freight, carriage etc. in the shipper country to be paid by the Supplier.
- The price for transportation / carriage and insurance and other costs incidental to delivery of the goods upto the port of despatch (CIF/CIP).
- Prices quoted by the bidder shall remain fixed during the entire period of contract and shall not be subject to variation on any account. A bid submitted with an adjustable price quotation will be treated as non - responsive and rejected.
- Prices charged by the Supplier for Goods delivered and Services performed under the Contract shall not vary from the prices quoted by the Supplier in its bid. Conditional offers indicating changes to price quoted due to price increase / decrease by the principal firm, market fluctuations, foreign exchange fluctuations etc. shall make the bid liable to be cancelled.

b. **For Indigenous Quotation :**

- The price of the goods, quoted (ex-works / ex-factory / ex-showroom / ex-warehouse, or off-the-shelf, as applicable), including all duties and sales and other taxes already paid or payable.
- The amount payable on account of GST should be mentioned clearly. **If there is no explicit mention of taxes in your offer then quoted price will be deemed inclusive of such taxes. No other charges except those mentioned clearly in the quotation will be paid.**
- Rates should be quoted FOR, Bose Institute, Kolkata inclusive of packing, forwarding, installation and documentation & commissioning charges etc. If ex-works prices are quoted then packing, forwarding, documentation, freight and insurance charges must be clearly mentioned separately. Vague terms like "packing, forwarding, transportation etc. extra" without mentioning the specific amount/percentage of these charges will NOT be accepted. Such offers shall be treated as incomplete and rejected. **Where there is no mention of packing, forwarding, installation and commissioning, freight, documentation, insurance charges, such offers shall be summarily rejected as incomplete.**

2. **Period of validity of Bids :**

- Bids shall remain **valid at least for 90 days** after the date of bid opening prescribed by the Purchaser.
- In exceptional circumstances, the Purchaser may solicit the Bidder's consent to an extension of the period of validity.





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3. **Bid Currencies** : Prices shall be quoted in Indian Rupees or in freely convertible foreign currency wherever possible for comparison.
4. **Purchaser's Right to vary Quantities at the Time of Award** : The Purchaser reserves the right at the time of Contract award to increase or decrease the quantity of goods and services originally specified in the Schedule of Requirements without any change in unit price or other terms and conditions. However, the Purchaser reserves the right to call the lowest firm for negotiation in case of increase in quantity.
5. **Order acceptance** : The successful bidder should submit acceptance of the Purchase Order immediately but not later than 30 days in any case from the date of issue of the Purchase Order failing which it shall be presumed that the vendor is not interested and his bid security is liable to be forfeited.
6. **Patent Rights** : The Supplier shall indemnify the Purchaser against all third-party claims of infringement of patent, trademark or industrial design rights arising from use of the Goods or any part thereof in India.
7. **Insurance** : The Goods supplied under the Contract shall be fully insured in Indian Rupees against loss or damage incidental to manufacture or acquisition, transportation, storage and delivery in the manner
8. **Transportation** : Where the Supplier is required under the Contract to transport the Goods to a specified place of destination within India defined as Project site, transport to such place of destination in India including insurance, as shall be specified in the Contract, shall be arranged by the Supplier, and the related cost shall be included in the Contract Price.
9. **Change Orders** :
  - The Purchaser may at any time, by written notice given to the Supplier make changes within the general scope of the Contract in any one or more of the following:
    - Drawings, designs, or specifications, where Goods to be furnished under the Contract are to be specifically manufactured for the Purchaser;
    - The method of shipping or packing;
    - The place of delivery; and/or
    - The Services to be provided by the Supplier.
    - The delivery schedule
    - If any such change causes an increase or decrease in the cost of, or the time required for, the Supplier's performance of any provisions under the Contract, an equitable adjustment shall be made in the Contract Price or delivery schedule, or both, and the Contract shall accordingly be amended. Any claims by the Supplier for adjustment under this clause must be asserted within fifteen (15) days from the date of the Supplier's receipt of the Purchaser's change order.
10. **Penalty** :
  - If the Supplier fails to deliver any or all of the Goods or to perform the Services within the period(s) specified in the Contract, the Purchaser shall, without prejudice to its other remedies under the Contract, deduct from the Contract Price, as penalty, a sum equivalent to the percentage of the delivered price of the delayed Goods or unperformed Services for each week or part thereof of delay until actual delivery or performance, up to a maximum deduction of the Percentage. Once the maximum is reached, the Purchaser may consider termination of the Contract.
  - The applicable rate is 0.5% per week and the maximum deduction is 5% of the contract price.
11. **Applicable Law** : The Contract shall be interpreted in accordance with the laws of the Union of India and all disputes shall be subject to place of jurisdiction at Kolkata.



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12. **Right to Use Defective Goods** : If after delivery, acceptance and installation and within the guarantee and warranty period, the operation or use of the goods proves to be unsatisfactory, the Purchaser shall have the right to continue to operate or use such goods until rectifications of defects, errors or omissions by repair or by partial or complete replacement is made without interfering with the Purchaser's operation.

13. **Payment** :

Payments shall be made promptly by the Purchaser normally after submission of the invoice or claim by the Supplier.

a. **For Foreign Payment** :

In case of imports, payments are usually made through Letter of Credit (LC) / wire transfer / FDD wherever applicable. The LC will be opened for 100% value but the payment shall be released partly after despatch and partly after installation & commissioning. 90% of payment will be released on shipping documents and remaining 10% on successful installation and commissioning with submission of Performance Bank Guarantee of 10% of the order value. **In case of Purchase Order value equivalent to INR 5 Lakh and above, 3% of the order value has to be submitted as Performance Bank Guarantee (PBG) covering the warranty period plus sixty days** before establishment of the LC/release of the payment/or as mentioned in the work order.

b. **For Indigenous Payment** :

- The general conditions of payment for any indigenous items are 100% payment after successful installation & commissioning of the equipment. In case the equipment does not need any installation & commissioning the period shall be reckoned from the date of delivery & inspection. **In case of Purchase Order value equivalent to INR 5 Lakh and above, 3% Performance Bank Guarantee (PBG) should be submitted before release of the payment.**

14. **Delivery** :

a. **For Foreign Consignment** :

- Delivery of the consignment(s) should be made within a maximum of **8 weeks from the date of placement of purchase order unless otherwise specified so**. Within 24 hours of shipment, the supplier shall notify the purchaser and the insurance company by cable/telex/fax/e mail the full details of the shipment including contract number, railway receipt number/ AWB etc and date, description of goods, quantity, name of the consignee, invoice etc. The supplier shall mail the following documents to the purchaser with a copy to the insurance company :
  - 4 Copies of the Supplier invoice showing contract number, goods' description, quantity, unit price, total amount;
  - Acknowledgment of receipt of goods from the consignee(s) by the transporter;
  - Insurance Certificate if applicable;
  - Manufacturer's/Supplier's warranty certificate;
  - Inspection Certificate issued by the nominated inspection agency, if any, and the Supplier's factory inspection report;
  - Certificate of Origin; and
  - Two copies of the packing list identifying the contents of each package.
- The above documents should be received by the Purchaser before arrival of the consignment(s) (except where the Goods have been delivered directly to the Consignee



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with all documents) and, if not received, the Supplier will be responsible for any consequent expenses.

**b. For Indigenous Consignment :**

The delivery of the consignment(s) should be made within 4-6 weeks from the issue of the Purchase Order, unless otherwise specified.

15. **Bank Charges : For Foreign Procurement :** The bank charges inside India to the applicant account and outside India to the beneficiary account.
16. **Installation :** Installation should be Free of Cost and should be completed within maximum 07-10 days after delivery of the consignment.
17. **Warranty :**
- The Supplier shall warrants that the Goods supplied under this Contract are new, unused, of the most recent or current models and that they incorporate all recent improvements in design and materials unless provided otherwise in the Contract. The Supplier shall further warrants that all Goods supplied under this Contract shall have no defect arising from design, materials or workmanship (except when the design and/or material is required by the Purchaser's Specifications) or from any act or omission of the Supplier, that may develop under normal use of the supplied Goods in the conditions prevailing in the country of final destination. The warranty should be comprehensive and on site.
  - The Purchaser shall promptly notify the Supplier in writing of any claims arising under this warranty. Upon receipt of such notice, the Supplier shall immediately, within a reasonable period, arrange to repair or replace the defective goods or parts thereof free of cost at the ultimate destination. The Supplier shall take over the replaced parts/goods at the time of their replacement. No claim whatsoever shall lie on the Purchaser for the replaced parts/goods thereafter. In case any component has to be imported the same shall be done on DDU Kolkata basis and the purchaser shall provide the customs duty exemption certificate. If the supplier having been notified fails to remedy the defects within a reasonable period, the purchaser may proceed to take such remedial action as may be necessary, at the supplier's risk and expenses and without prejudice to any other rights, which the purchaser may have against the supplier under the contract.
  - Period of warranty and details have been specified in the 'Technical Specification'.
  - The necessary warranty certificate in this effect should be furnished along with the consignment.
18. **Training :** The Supplier is required to train the designated Purchaser's technical and end user personnel to enable them to effectively operate the total equipment. The training shall comprise both user training as well as basic maintenance training to person(s) designated by Bose Institute.
19. **Supporting Equipment:** If equipment requires indigenous supporting instruments/accessories (computer, printer, online UPS etc.) at the time of the installation, the same should be either included in the main quote or quoted separately as per the technical specifications.
20. **Service Facility :** Supplier should mention about the possible service set up in India and how capable they are to provide after sales service.



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21. **Force Majeure :**

- The Supplier shall not be liable for forfeiture of its performance security, liquidated damages or termination for default, if and to the extent that, its delay in performance or other failure to perform its obligations under the Contract is the result of an event of Force Majeure.
- If a Force Majeure situation arises, the Supplier shall promptly notify the Purchaser in writing of such conditions and the cause thereof. Unless otherwise directed by the Purchaser in writing, the Supplier shall continue to perform its obligations under the

Contract as far as is reasonably practical, and shall seek all reasonable alternative means for performance not prevented by the Force Majeure event.

22. **Director, Bose Institute reserves the right to accept or reject any or all tenders either in part or in full. The reasons for rejecting the tender of a prospective bidder will be disclosed only when enquiries are made.**



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**PRE CONTRACT INTEGRITY PACT**

**General**

This pre-bid pre-contract Agreement (hereinafter called the Integrity Pact) is made on \_\_\_\_\_ day of the month of \_\_\_\_\_ 2020/2021, between, on one hand, the Director, Bose Institute acting through Shri....., Designation of the officer, Bose Institute (hereinafter called the "BUYER", which expression shall mean and include, unless the context otherwise requires, his successors in office and assigns) of the First Part and M/s\_\_\_\_\_ represented by Shri\_\_\_\_\_, Chief Executive Officer (hereinafter called the "BIDDER/Seller" which expression shall mean and include, unless the context otherwise requires, his successors and permitted assigns) of the Second Part.

WHEREAS the BUYER proposes to procure (Name of the Stores/Equipment/Item) and the BIDDER/Seller is willing to offer/has offered the stores and WHEREAS the BIDDER is a private company/public company/Government undertaking/partnership/registered export agency, constituted in accordance with the relevant law in the matter and the BUYER is a Ministry/Department of the Government of India/PSU performing its functions on behalf of the President of India

NOW, THEREFORE, to avoid all forms of corruption by following a system that is fair, transparent and free from any influence/prejudiced dealings prior to, during and subsequent to the currency of the contract to be entered into with a view to:-

Enabling the BUYER to obtain the desired said stores/equipment at a competitive price in conformity with the defined specifications by avoiding the high cost and the distortionary impact of corruption on public procurement, and

Enabling BIDDERS to abstain from bribing or indulging in any corrupt practice in order to secure the contract by providing assurance to them that their competitors will also abstain from bribing and other corrupt practices and the BUYER will commit to prevent corruption, in any form, by its officials by following transparent procedures.

The parties hereto hereby agree to enter into this Integrity Pact and agree as follows:

**Commitments of the BUYER**

1.1 The BUYER undertakes that no official of the BUYER, connected directly or indirectly with contract, will demand, take a promise for or accept, directly or through intermediaries, any bribe, consideration, gift, reward, favour or any material or immaterial benefit or any other advantage from the BIDDER, either for themselves or for any person, organization or their party related to the contract in exchange for an advantage in the bidding process, bid evaluation, contracting or implementation process related to the contract.

1.1.1 The BUYER will, during pre-contract stage, treat all BIDDERS alike, and will provide to all BIDDERS the same information and will not provide any such information to any particular BIDDER which could afford an advantage to that particular BIDDER in comparison to other BIDDERS.



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- 1.1.2 All the officials of the BUYER will report to the appropriate Government office any attempted or completed breaches of the above commitments as well as any substantial suspicion of such a breach.
2. In case any such preceding misconduct on the part of such official(s) is reported by the BIDDER to the BUYER with full and verifiable facts and the same is prima facie found to be correct by the BUYER, necessary disciplinary proceedings, or any other action as deemed fit, including criminal proceedings may be initiated by the BUYER and such a person shall be debarred from further dealings related to the contract process. In such a case while an enquiry is being conducted by the BUYER the proceedings under the contract would not be stalled.

**Commitments of BIDDERS**

3. The BIDDER commits itself to take all measures necessary to prevent corrupt practices, unfair means and illegal activities during any stage of its bid or during any pre-contract or post-contract stage in order to secure the contract or in furtherance to secure it and in particular commit itself to the following:-
- 3.1 The BIDDER will not offer, directly or through intermediaries, any bribe, gift, consideration, reward, favour, any material or immaterial benefit or other advantage, commission, fees, brokerage or inducement to any official of the BUYER, connected directly or indirectly with the bidding process, or to any person, organization or third party related to the contract in exchange for any advantage in the bidding, evaluation, contracting and implementation of the contract.
- 3.2 The BIDDER further undertakes that it has not given, offered or promised to give, directly or indirectly any bribe, gift, consideration, reward, favour any material or immaterial benefit or other advantage, commission, fees, brokerage or inducement to any official of the BUYER or otherwise in procuring the Contract or forbearing to do or having done any act in relation to the obtaining or execution of the contract or any other contract with the Government for showing or forbearing to show favour or disfavour to any person in relation to the contract or any other contract with the Government.
- 3.3 BIDDERS shall disclose the name and address of agents and representatives and Indian BIDDERS shall disclose their foreign principals or associates.
- 3.4 BIDDERS shall disclose the payments to be made by them to agents/brokers or any other intermediary, in connection with this bid/contract.
- 3.5 The BIDDER further confirms and declares to the BUYER that the BIDDER is the original manufacturer/integrator/authorized government sponsored export entity of the defence stores and has not engaged any individual or firm or company whether Indian or foreign to intercede, facilitate or in any way to recommend to the BUYER or any of its functionaries, whether officially or unofficially to the award of the contract to the BIDDER, nor has any amount been paid, promised or intended to be paid to any such individual, firm or company in respect of any such intercession, facilitation or recommendation.



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- 3.6 The BIDDER, either while presenting the bid or during pre-contract negotiations or before signing the contract, shall disclose any payments he has made, is committed to or intends to make to officials of the BUYER or their family members, agents, brokers or any other intermediaries in connection with the contract and the details of services agreed upon for such payments.
- 3.7 The BIDDER will not collude with other parties interested in the contract to impair the transparency, fairness and progress of the bidding process, bid evaluation, contracting and implementation of the contract.
- 3.8 The BIDDER will not accept any advantage in exchange for any corrupt practice, unfair means and illegal activities.
- 3.9 The BIDDER shall not use improperly, for purposes of competition or personal gain, or pass on to others, any information provided by the BUYER as part of the business relationship, regarding plans, technical proposals and business details, including information contained in any electronic data carrier. The BIDDER also undertakes to exercise due and adequate care lest any such information is divulged.
- 3.10 The BIDDER commits to refrain from giving any complaint directly or through any other manner without supporting it with full and verifiable facts.
- 3.11 The BIDDER shall not instigate or cause to instigate any third person to commit any of the actions mentioned above.
- 3.12 If the BIDDER or any employee of the BIDDER or any person acting on behalf of the BIDDER, either directly or indirectly, is a relative of any of the officers of the BUYER, or alternatively, if any relative of an officer of the BUYER has financial interest/stake in the BIDDER's firm, the same shall be disclosed by the BIDDER at the time of filing of tender.  
The term 'relative' for this purpose would be as defined in Section 6 of the Companies Act 1956.
- 3.13 The BIDDER shall not lend to or borrow any money from or enter into any monetary dealings or transactions, directly or indirectly, with any employee of the BUYER.

**4. Previous Transgression**

- 4.1 The BIDDER declares that no previous transgression occurred in the last three years immediately before signing of this Integrity Pact, with any other company in any country in respect of any corrupt practices envisaged hereunder or with any Public Section Enterprise in India or any Government Department in India that could justify BIDDER's exclusion from the tender process.
- 4.2 The BIDDER agrees that if it makes incorrect statement on this subject, BIDDER can be disqualified from the tender process or the contract, if already awarded, can be terminated for such reason.

**5. Earnest Money / Bid Security**

- 5.1 The bidder shall submit bid security declaration in their letter head



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5.2 The Bid Security Declaration form shall be valid upto a period covering the bid validity plus 45 days.

5.3 In case of the successful BIDDER a clause would also be incorporated in the Article pertaining to Performance Bond in the Purchase Contract that the provisions of Sanctions for Violation shall be applicable for forfeiture of Performance Bond in case of a decision by the BUYER to forfeit the same without assigning any reason for imposing sanction for violation of this Pact.

5.4 No interest shall be payable by the BUYER to the BIDDER on Earnest Money /Security Deposit for the period of its currency.

**6. Sanctions for Violations**

6.1 Any breach of the aforesaid provisions by the BIDDER or any one employed by it or acting on its behalf (whether with or without the knowledge of the BIDDER) shall entitle the BUYER to take all or any one of the following actions, wherever required:-

- (i) To immediately call off the pre contract negotiations without assigning any reason or giving any compensation to the BIDDER. However, the proceedings with the other BIDDER(s) would continue.
- (ii) The Earnest Money Deposit (in pre-contract stage) and/or Security Deposit/Performance Bond (after the contract is signed) shall stand forfeited either fully or partially, as decided by the BUYER and the BUYER shall not be required to assign any reason therefore.
- (iii) To immediately cancel the contract, if already signed, without giving any compensation to the BIDDER.
- (iv) To recover all sums already paid by the BUYER, and in case of an Indian BIDDER with interest thereon at 2% higher than the prevailing Prime Lending Rate of State Bank of India, while in case of a BIDDER from a country other than India with interest thereon at 2% higher than the LIBOR. If any outstanding payment is due to the BIDDER from the BUYER in connection with any other contract for any other stores, such outstanding payment could also be utilized to recover the aforesaid sum and interest.
- (v) To encash the advance bank guarantee and performance bond/warranty bond, if furnished by the BIDDER, in order to recover the payments, already made by the BUYER, along with interest.
- (vi) To cancel all or any other Contracts with the BIDDER. The BIDDER shall be liable to pay compensation for any loss or damage to the BUYER resulting from such
- (vii) cancellation/rescission and the BUYER shall be entitled to deduct the amount so payable from the money(s) due to the BIDDER.





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- (viii) To debar the BIDDER from participating in future bidding processes of the Government of India for a minimum period of five years, which may be further extended at the discretion of the BUYER.
- (ix) To recover all sums paid in violation of this Pact by BIDDER(s) to any middleman or agent or broker with a view to securing the contract.
- (x) In cases where irrevocable Letters of Credit have been received in respect of any contract signed by the BUYER with the BIDDER, the same shall not be opened.
- (xi) Forfeiture of Performance Bond in case of a decision by the BUYER to forfeit the same without assigning any reason for imposing sanction for violation of this Pact.
- 6.2 The BUYER will be entitled to take all or any of the actions mentioned at Para 6.1(i) to (x) of this Pact also on the Commission by the BIDDER or any one employed by it or acting on its behalf (whether with or without the knowledge of the BIDDER), of an offence as defined in Chapter IX of the Indian Penal Code, 1860 or Prevention of Corruption Act, 1988, or any other statute enacted for prevention of corruption.
- 6.3 The decision of the BUYER to the effect that a breach of the provisions of this Pact has been committed by the BIDDER shall be final and conclusive on the BIDDER. However, the BIDDER can approach the independent Monitor(s) appointed for the purposes of this Pact.

**7. Fall Clause**

- 7.1 The BIDDER undertakes that it has not supplied/is not supplying similar product/systems or subsystems at a price lower than that offered in the present bid in respect of any other Ministry/Department of the Government of India or PSU and if it is found at any stage that similar product/systems or sub systems was supplied by the BIDDER to any other Ministry/Department of the Government of India or a PSU at a lower price, then that very price, with due allowance for elapsed time, will be applicable to the present case and the difference in the cost would be refunded by the BIDDER to the BUYER, if the contract has already been concluded.

**8. Independent Monitors**

- 8.1 The BUYER has appointed independent Monitors (hereinafter referred to as Monitors) for this Pact in consultation with the Central Vigilance Commission (Independent External Monitors appointed by CVC for the tender -Dr. Sanjay Kumar Panda, IAS (Retd.) & Shri Amol Prabhakar Joshi, CES (Retd.)
- 8.2 The task of the Monitors shall be to review independently and objectively, whether and to what extent the parties comply with the obligations under this Pact.
- 8.3 The Monitors shall not be subject to instructions by the representatives of the parties and perform their functions neutrally and independently.
- 8.4 Both the parties accept that the Monitors have the right to access all the documents relating to the project/procurement, including minutes of meetings.
- 8.5 As soon as the Monitor notices, or has reason to believe, a violation of this Pact, he will so inform the Authority designated by the BUYER.



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- 8.6 The BIDDER(s) accepts that the Monitor has the right to access without restriction to all Project documentation of the BUYER including that provided by the BIDDER. The BIDDER will also grant the Monitor, upon his request and demonstration of a valid interest, unrestricted and unconditional access to his project documentation. The same is applicable to Subcontractors. The Monitor shall be under contractual obligation to treat the information and documents of the BIDDER/Subcontractor(s) with confidentiality.
- 8.7 The BUYER will provide to the Monitor sufficient information about all meetings among the parties related to the Project provided such meetings could have an impact on the contractual relations between the parties. The parties will offer to the Monitor the option to participate in such meetings.
- 8.8 The Monitor will submit a written report to the designated Authority or BUYER/Secretary in the Department/within 8 to 10 weeks from the date of reference or intimation to him by the BUYER / BIDDER and should the occasion arise, submit proposals for correcting problematic situations.

**9. Facilitation of Investigation**

In case of any allegation of violation of any provisions of this Pact or payment of commission, the BUYER or its agencies shall be entitled to examine all the documents including the Books of Accounts of the BIDDER and the BIDDER shall provide necessary information and documents in English and shall extend all possible help for the purpose of such examination.

**10. Law and Place of Jurisdiction**

This Pact is subject to Indian Law. All disputes arising out of this Contract will be subjected to Kolkata jurisdiction.

**11. Other Legal Actions**

The actions stipulated in this Integrity Pact are without prejudice to any other legal action that may follow in accordance with the provisions of the extant law in force relating to any civil or criminal proceedings.

**12. Validity**

- 12.1 The validity of this Integrity Pact shall be from date of its signing and extend up to 5 years or the complete execution of the contract to the satisfaction of both the BUYER and the BIDDER/Seller, including warranty period, whichever is later. In case BIDDER is unsuccessful, this Integrity Pact shall expire after six months from the date of the signing of the contract.
- 12.2 Should one or several provisions of this Pact turn out to be invalid; the remainder of this Pact shall remain valid. In this case, the parties will strive to come to an agreement to their original intentions.



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13. The parties hereby sign this Integrity Pact at \_\_\_\_\_ on \_\_\_\_\_

**BUYER**

**BIDDER**

**Name of the Officer:**

**CHIEF EXECUTIVE OFFICER**

**Designation**

**BOSE INSTITUTE**

**Witness**

**Witness**

1. \_\_\_\_\_

1. \_\_\_\_\_

2. \_\_\_\_\_

2. \_\_\_\_\_

\*Provisions of these clauses would need to be amended / deleted in line with the policy of the BUYER in regard to involvement of Indian agents of foreign suppliers.

**\*\* The bidders may note that they must upload the Integrity Pact signed by both the bidder as well as the buyer (Institute) and upload the same alongwith the bidding document.**



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BID FORM

(to be submitted on the official letterhead of the bidder)

**The Director,  
Bose Institute,  
P-1/12, CIT Scheme-VII/M,  
Kolkata - 700054 (W.B.) India**

Sir,

Having examined the bidding documents the receipt of which is hereby duly acknowledged, I/We agree to furnish required supplies/services in conformity with the Techno-Commercial Bid or such portions thereof at the prices given in the Price Bid on receipt of order for the same.

I/We agree to hold this offer open until \_\_\_\_\_ and to supply, install and commission the equipment and complete the whole of the work and hand over to the purchaser within the period of \_\_\_\_\_ weeks, from the date of receipt of intimation from you regarding acceptance of this tender/receipt of supply order.

I/We agree to submit the bank guarantee as specified in the form prescribed by your goodself for the due performance of the contract, if our bid is accepted.

I/We understand that you are not bound to accept the lowest or any bid you may receive.

( \_\_\_\_\_ )  
Signature of Bidder  
With Office Stamp  
Name & Address

Telephone No.:

FAX No.:

E-mail address:

Name & Designation of the Contact Person:



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**TECHNO-COMMERCIAL BID FORM**

1.	Tender reference No	:	
2.	Due date of bid submission	:	
3.	Main Item Model No.	:	
4.	Life Expectancy of the Equipment (in years)	:	
5.	Warranty Period (in years)	:	
6.	Delivery Period of the Equipment	:	
7.	Details of Bank Guarantee enclosed as Bid Security	:	
	:		
	Name of the Bank	:	
	Branch	:	
	Address with Phone, FAX & E-mail Nos.	:	
	Amount Rs.	:	
	Valid Upto	:	
8.	Country of the Origin of the Equipment	:	
9.	Bid currency	:	
10.	Schedule of Requirements :		
I.	Whether agreeing to all the terms and conditions including payment terms as mentioned in the bidding documents		
II.	Port of Shipment		
III.	Approximate Shipment Weight (chargeable weight) in Kg. of the packed consignment		
IV.	Approximate Dimensions/ Volume of the packed consignment		
Note			
::			
1.	Adhering to the format given above is a pre-requisite for considering your bid.		
2.	All columns must be filled up.		
3.	Separate list should be attached where required in the same format giving details of each item.		
4.	Please indicate applicability.		
I/we certify that I/We have completely read and understood and agree to all the terms & conditions given in NIT.			

( )  
Signature of Bidder  
With Office Stamp  
Name & Address



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**MANUFACTURERS' AUTHORIZATION FORM**

No. \_\_\_\_\_

Dated \_\_\_\_\_

**The Director,  
Bose Institute,  
P-1/12, CIT Scheme-VII/M,  
Kolkata - 700054 (W.B.) India**

Dear Sir:

I/We \_\_\_\_\_ who are established and reputable manufacturers of \_\_\_\_\_ having factories at ----- (address of factory) do hereby authorize M/s. \_\_\_\_\_ (Name and address of Agent) to submit a bid, negotiate and receive the order from you against your tender enquiry.

No company or firm or individual other than M/s. \_\_\_\_\_ is authorized to bid, and conclude the contract in regard to this business.

I/We hereby extend our full guarantee and warranty as per Clause 15 of the General Conditions of Contract and Clause of the Special Conditions of Contract for the goods and services offered by the above firm.

Yours faithfully,

(Name)

(Name of manufacturers)

**Note:** This letter of authority should be on the **letterhead of the manufacturer** and should be signed by a person competent and having the power of attorney to bind the manufacturer. It should be included by the Bidder in its techno-commercial unpriced bid.



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**BIDDER'S PERFORMANCE STATEMENT FORM**  
**(For a Period of Last 3 Years)**

Name of the Firm.....

Order placed by (full address with Tel. No., Fax No. & e-mail address of purchaser)	Date	Description and quantity of ordered equipment	Date of completion of delivery as per Contract/ Actual	Remarks indicating reasons for late delivery, if any	Has the equipment been installed satisfactory? (Attach a certificate from the purchaser/ Consignee)

Place :

Signature :

Date :

Office stamp



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**SERVICE SUPPORT DETAILS FORM**

Sl. No.	Nature of training imparted	List of similar type equipments serviced in the past 3 years	Address, Telephone Nos., Fax and e mail address of the firm located in Kolkata, if any	Value of minimum stock of consumable spares held at all times.

Signature and Seal of the manufacturer/Bidder.....

Place :

Date :





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**TECHNICAL COMPLIANCE STATEMENT FORM**

An item-by-item commentary on the Purchaser's Technical Specifications demonstrating substantial responsiveness of the goods and services to those specifications or a statement of deviations and exceptions to the provisions of the Technical Specifications.

ITEM NAME			
Sl.No.	Tender Specifications	Bidder's Specifications	Deviation/ Remarks, if any Including justification

*(Technical literature/brochures/manuals should be attached along with this format)*

**Please note:**

1. Compliance/Deviation statement comparing the specifications of the quoted model to the required specifications. This statement should also give the page number(s) of the technical literature where the relevant specification is mentioned.
2. Bids must have supporting documents (technical literature or copies of relevant pages from the service manual or factory test data) for all the points noted above, failure regarding which may result in rejection of bid.
3. In case the bidder furnishes wrong or false information wilfully in the technical compliance chart, such action shall be viewed strictly and the bidders may be blacklisted.
4. Where there is no deviation, the statement should be returned duly signed with an endorsement indicating "No Deviations".

Signature and Seal of the manufacturer/Bidder.....

Place :

Date :



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Quotation No.....

Date :

**PROFORMA OF FALL CLAUSE CERTIFICATE**

If on any subsequent date after submission of quotation or placing of supply order, the manufacturer (the term manufacturer will also include his authorized distributor / agent) reduces the sale price of such stores or sells such stores to any party at a price lower than the price charged / chargeable against supply order placed by Bose Institute, Kolkata, the manufacturer (including his authorized distributor / agent) as aforesaid in case the quotation is submitted by them and supply / service is also effected by them) will forth-with notify such reduction in sale price to Bose Institute, Kolkata and price payable for the stores to be supplied against the Supply Order after the date of such reduction in sale price coming into force shall reduced **correspondingly and will be reimbursed to the Institute.**

(Signature & Date of Bidders with Rubber Stamp)

*\*\* This certificate should be uploaded on the letter head of the company / firm / agency*



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**BID SECURITY DECLARATION**

"The bidders to sign "Bid Security Declaration" accepting that if they withdraw or modify their bids during period of validity etc., they will be suspended for the time specified in the tender documents."



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**PERFORMANCE SECURITY FORM**

(To be executed by a scheduled Bank in India on non-judicial stamp paper)

To  
The Director,  
Bose Institute,  
P-1/12, CIT Scheme-VII/M,  
Kolkata - 700054 (W.B.) India

Dear Sir,

Sub: Your Contract No. -----dated -----for  
-----

1. You have entered into a contract with reference no as given above with \_\_\_\_\_ (herein after referred to as the contractor) for the supply, installation, and commissioning of \_\_\_\_\_ (herein after referred to as stores) for the price and on the terms and conditions contained in the said contract.
2. In accordance with the terms of said contract, the contractor has undertaken to produce a bank guarantee for Rs. \_\_\_\_\_ (Rupees \_\_\_\_\_ only) being 3% of the total value of the said stores supplied to you, for the due fulfilment of its obligations to you for due performance as per the contract during warranty period.
3. In consideration thereof, we hereby expressly, irrevocably and unconditionally undertake and guarantee as principal obligator on behalf of the contractor that in the event you submit a written demand to us that the contractor has not performed according to the contractual obligations included in the said contract, we will pay you on written demand, without demur and without reference to the contractor any sum up to a maximum amount of Rs \_\_\_\_\_ (Rupees \_\_\_\_\_ only). Your demand shall be conclusive evidence to us that such payment is due under the terms of the said contract. Payment by us to you will be made within thirty (30) days from receipt of your request making reference to this guarantee and on demand.
4. This guarantee shall not be revoked without your express consent and shall not be affected by your granting any indulgence to the contractor, which shall include but not be limited to postponement from time to time of the exercise of any powers vested in you or any right which you may have against the contractor and to exercise the same in any manner at any time and either to forbear or to enforce any covenant contained or implied in the said contract or any other course or remedy or security available to you, and our Bank shall not be released from its obligations under this guarantee by your exercising any of your rights with reference to matters aforesaid or any of them or by reason of any other act or forbearance or other acts of omission or commission on your part or any other indulgence shown by you or by any other matter or thing whatsoever which under law would, but for this provision, have the effect of relieving our Bank from its obligation under this guarantee.
5. Notwithstanding anything herein contained, our liability under this guarantee is restricted to Rs \_\_\_\_\_ (Rupees \_\_\_\_\_ only) and the guarantee shall remain in force up to and including the \_\_\_\_\_ day of being reported to us by you and returned to us duly discharged.



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6. Unless a demand or claim under this guarantee is made on us in writing on or before the aforesaid expiry date as provided above or unless this guarantee is extended by us all your rights under this guarantee shall be proscribed and we shall be discharged from the liabilities hereunder.
  
7. This guarantee shall not be affected by any change in the constitution of our Bank or of the contractor or for any other reason whatsoever.

Date:

Signature.....

Place:

Seal of Bankers

(Complete Address/Contact Details with Tel./Fax/email etc)

Witness:

1. ....

2. ....



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**TECHNICAL SPECIFICATION FOR TIP ENHANCED RAMAN  
SPECTROSCOPY (TERS)**

The system should be fully integrated AFM Raman system with state-of-the-art scanning probe microscope and fully automated Raman spectrometer.

**Both the Raman spectrometer and the AFM systems must be able to run as standalone on a separate computer, so as to allow two users to use the equipment independently but simultaneously. The system must be able to do Tip-Enhanced Raman Spectroscopy (TERS). TERS imaging should have resolution 40 nm or better.**

Prospective vendors should quote for supply, delivery, installation, testing and commissioning with a list of other accessories required for complete and smooth installation and uninterrupted operation of the equipment. The technical offer should also include make and model number of facilities such as microscope, CCD LASERS, optical components (objectives, filters, polarizers, mirrors, lenses and others) , AFM, etc.

**Raman Part Specification:**

Raman Spectrometer should have high stability open space research grade confocal microscope, transfer and filtering optics, an achromatic spectrograph equipped with gratings, multichannel detector, laser, Motorized stage and relevant software and computer platforms with the following specifications.

1. **Spectrometer**: A large focal length ( $\geq 250$  mm) achromatic spectrograph should be equipped with reflective optics and with the following specifications;
  - a. Spectral Range: 200nm–2100 nm
  - b. Raman range –  $50\text{cm}^{-1}$ - $4000\text{cm}^{-1}$  or better
  - c. Spectral resolution:  $< 0.5 \text{ cm}^{-1}$  or better
  - d. Scan to scan repeatability  $0.1\text{cm}^{-1}$  (or better)
  - e. Spatial Resolution: A lateral resolution should be better than 0.5 micron and an axial resolution typically should be better than 1.5 microns with a 100X objective in the visible range.
  - f. Include Rayleigh scattering filters
  - g. Gratings- 1800gr/mm and 600gr/mm or 1200 gr/mm and 2400 gr/mm to be mounted on a motorized turret driven by software, to vary spectral resolution. The gratings should be quickly and easily interchangeable without realignment.
  - h. Interface: USB/RS-232
  - i. Power supply: 220-230 VAC, single phase



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**2. Entrance optics assembly:**

- a. Computer control laser power selection (100% to 0.01%) should be provided.
- b. Laser line filters
- c. An adjustable kinematic rejection filtermount to allow fine tuning of the (Notch or Edge) filter operation angle for low frequency cut-off adjustment and easy and quick exchange of excitation wavelength.
- d. Computer control edge angle selection of filters

**3. Confocal Microscope with high stability:**

Microscope should be branded research grade. The vendor should clearly specify the geometry, model and make of the microscope.

- a. It should have removable bottom stage
- b. An internal white light illuminator
- c. It should have large free space under objective turret
- d. A revolver equipped with following plan-achromatic objectives:
  1. 5X visible, NA = 0.1, WD = 19.6 mm
  2. 10X visible, NA = 0.25, WD = 10.6 mm
  3. 50X ULWD visible, NA = 0.35, WD = 18 mm
  4. 100X LWD visible, NA = 0.80, WD = 3.4 mm
- e. High grade Colour video camera should be provided for viewing the sample under white light illumination and to simultaneously visualize the laser spot. Switching between video and Raman mode is to be automated.
- f. XYZ motorized stage with 100 nm (or better) step size in XY & 16 nm (or better) in Z direction. A detachable sample holder XYZ Mapping Stage with manual (with Joy Stick) as well as computer-controlled, XY-Z movements.

**4. Confocal coupling optics between the microscope and the spectrometer:**

Software controlled continuously adjustable confocal pinhole from few microns to 1 mm should be provided.

**5. CCD Detector:**

- a. Spectral Range: 200 nm to 1050 nm or better
- b. Cooling Type: Peltier cooled to -60 deg C or better
- c. Pixel Format: Minimum 1024x256 or better
- d. Pixel Size: 26x26 microns
- e. Chip size: Minimum 1 inch for maximum wavelength coverage and fast spectral measurement
- f. Read out noise typically 4.7 e-/pixel or better
- g. Dark noise less than 0.002e-/pixel/sec or better
- h. Quantum efficiency > 30 % (visible and IR wavelengths)
- i. Interface: USB/RS-232.
- j. Vendors should provide the information and data sheet about sensitivity for CCD.



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**6. Lasers:**

The LASERS should be extremely stable for the long time Raman experiments (at least 48 hours continuously). All LASERS should be single mode, TEM<sub>00</sub>. Vendors also provide the information and data sheet about sensitivity (signal to noise ratio) for each LASER.

- a) 532nm DPSS laser 100 mW or more with appropriate filters to do Raman from 50cm<sup>-1</sup>
- b) 785nm Diode laser 100mW or more with appropriate filters to do Raman from 50cm<sup>-1</sup>
- c) Computer control laser selection
- d) Laser line filters should be provided if required for specific excitation laser.
- e) Safety equipments and protective eye-glasses for LASERS (5 numbers)
- f)

The system should be upgradable to other laser wavelengths like 266nm, 325nm, 633 nm , 830 nm and etc,

**7. NIR Extension Detector with accessory:**

- (a) Peltier/Liquid Nitrogen cooled Linear InGaAs array detector of 512 pixels or better should be provided with working from 800 nm to 1550 nm or higher with a quantum efficiency of 80% between 1000 nm and 1500 nm
- (b) 100X NIR objective with NA = 0.90, WD = 0.28 mm or better
- (c) 300gr/mm ruled grating blazed at 1000nm or better
- (d) 50 X NIR LWD, NA = 0.55, WD = 8 mm or better

**8. Special filter to do Raman from 10 cm<sup>-1</sup> (or lower) for 532nm laser.** The technical quote should provide the details about the filter for ultra-low frequency Raman (both stokes and anti stokes) measurements down to 10 cm<sup>-1</sup> (or lower).

**9. Provision for doing photoluminescence measurement from 400 nm to 1550 nm or higher must be present.**

**10. Provision for doing both linear and circular polarization dependent Raman and photoluminescence measurements for both 532 nm and 785 nm lasers must be present.**

**11. Power meter :** The power meter should be capable to measure LASER power (in the range 10 pW to 1W), with accessories to measure laser power. Power meter should have accuracy of 0.15 % (or less).

**12. Liquid sample holder arrangement for measurement from cuvettes.**





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**AFM Part Specification:**

Atomic force microscope should be coupled with Raman spectrometer by means of hard coupling using optical path having lenses and mirrors. The integration of AFM & Raman system should be in a manner so that for every pixel, co-related AFM & Raman data is available. Both AFM & Raman should get data synchronously & simultaneously using single software for each pixel. The AFM should be able to perform TERS (Tip enhanced Raman spectroscopy) in any mode/sample type

It should include optical platform and scanning probe microscope and should come with the following:

- Required AFM modes: Contact, Semi-Contact, Non-Contact, Lateral Force Microscopy (LFM), Piezo Force Microscopy (PFM), Phase contrast, Magnetic Force Microscopy (MFM), Single-Pass MFM, Electrostatic Force Microscopy (EFM), Single-Pass EFM, Scanning Kelvin Probe Microscopy (SKM), Scanning Capacitance Microscopy (SCM), Nanolithography.
- The AFM must be efficient for the study of solid and liquid samples (biological samples).
- Top/side optical access for external laser illumination should be available:
  - Top optical access with objective lens up to 100x 0.7NA for co-localized optical measurements
  - Simultaneous optical access for top objective (10x 0.28NA) and side objective 100x 0.7NA objective with special sample holder should be provided.
- Low vibration-sensitive setup
- Complete vibration isolation of AFM from the Raman system in order to minimize mechanical noise from the lasers and CCD.
- Optional Acoustic isolation for AFM may be quoted
- High speed flexure based closed loop SPM XYZ scanner with 100x100x15 micron scan range should be provided
- Motorized XY stage 5x5mm on AFM platform
- AFM system noise less than 0.1 nm
- Fully automated AFM feedback laser and AFM photodiode sensor alignment, bringing hands-free operation should be offered.



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- Fully automated cantilever re-alignment after tip exchange
- Integrated USB colour 3Mpix camera should be provided for simultaneously visualizing the sample and laser spot
- AFM-RAMAN setup should be capable of performing Tip Enhanced Raman Spectroscopy and co-localized AFM/Raman measurements for conducting and non conducting systems.
- Provision for doing variable temperature dependent TERS measurement must be present
- Objective scanner for objective (100X) should be provided.
  - XYZ objective closed loop piezo-scanner with capacitive sensors and flexible guides
  - Scanning range 30x30x15  $\mu\text{m}$  or better should be available
  - LWD objective thread should be provided
    - This scanner should allow fine positioning of the spectroscopy laser relative to the SPM probe with nanometer precision, and closed-loop operation insures that the position can be maintained over long periods of time.
    - It should also allow fast scanning of the spectroscopy laser on the SPM probe for easy alignment using spectroscopic or SPM signals.
- Following Plan achromatic objectives should be provided:
  - 10x 0.28 NA or better
  - 100x 0.7 NA or better
- Set of 50 probes for TERS (gold) and Set of 50 probes for AFM TERS (silver) should be provided
- 50 AFM tips for co-localized measurements, non-contact (ACCESS tip), backside coating should be provided
- 50 AFM Tips for non-contact and tapping mode, backside coating should be provided
- 50 AFM tips for SKM/KPFM, Conductive AFM, EFM, Spreading resistance, with backside coating should be provided
- 50 AFM Tips for contact mode or liquid, with backside coating should be provided

**Vibration Free Table:** Suitable vibration free tables for AFM-Raman setup must be provided. Vendor should quote the specification of the vibration free tables as per system requirement.

**Controller:** suitable controller for Raman spectrometer and AFM must be provided. Synchronizing module for TERS operation.



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**Computer –**

Two nos computers for stand alone operation of AFM and Raman. A robust computer control system compatible-with and optimized for the application software to perform the various measurement options automatically. The desktop computer with i7 Processor or better, 16 GB RAM, 1 TB Hard drive, DVD RW, 23 inches color LED monitor, wireless key board and mouse with preinstalled software should be provided..

**Software**

- The data acquisition and analysis software should be compatible with Windows 10 or latest version of computer environment. Enough number of software licenses should be supplied to be used with more than two computers (one as main and one standby) for control of the instrument, data acquisition and data analysis of Raman, photoluminescence, AFM and TERS data with storage options. The data file should be compatible for plotting in different data plotting and analyzing software.
- The vendor should provide atleast 4 number of the latest software licenses for data/spectrum analysis.

**Other Requirement:**

The vendor should provide declaration certificates for following

- a) Vendor should provide the standard samples for testing and calibrating the instruments at any time for the demonstration of the performance of Raman, AFM and TERS measurements.
- b) **Installation** – The satisfactory installation to the full specifications of the machine with all accessories at Bose Institute campus. Any additional equipment/accessory for the installation of the system should be quoted invariably. Bose Institute will provide only space and electrical connection.
- c) **Training** : Free training to Bose Institute's students, operator and faculty members.
- d) **Warranty** : Minimum three-year comprehensive warranty (excluding breakdown periods) including spares and components and additional five years of maintenance and service from the date of installation (cost of the AMC will also be part of the financial evaluation).
- e) **Technical support** : The bidder must agree and issue a certificate stating that technical query will be responded within 5 working days and the support will be provided within 15 working days from the date of reporting of the technical failure for down time free operation of the instrument.



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- f) **Power supply** : The complete system should be compatible to 220-230 VAC 50Hz, single phase power supply.
- g) **Power requirement** : The vendor should specify the power requirements for all the components in the technical quotation.
- h) **Site preparation** : Vendor should specify the laboratory conditions for site-preparation.
- i) **List of users**: The details of the institutions where the vendor earlier supplied the equipments and the cost with the name of equipment may be supplied with the bids.
- j) The printed literature and catalogue/brochure giving full technical details should be included with the technical bid to verify the specifications quoted in the tender. The bidders should submit copies of suitable documents in support of their reputation, credentials and past performance.
- k) User manual, drawing, software etc. of the equipment should be provided (soft copy as well as hard copy).
- l) If the supplier/firm is original equipment manufacturer (OEM)/authorized dealer/sole distributor of any item, the certificate to this effect should be attached.

**TERS demonstration : The Vendor should demonstrate TERS signal acquisition from standard samples after instalation. Spatial resolution 40nm or better in TERS imaging must be demonstrated.**

**Optional Items:**

The vendor should quote separately for following optional items providing the complete technical details of the listed items.

- Vender should offer probe contracts for different kind of probes as specified in the tender.
- Vender should offer a 830 nm (100 mW) air cooled diode laser for maximal confocal performance with Edge and bandpass filters set at 830 nm for Raman measurements from 50 cm<sup>-1</sup>
- A latest library of Raman spectra for inorganic, organic materials should be provided.
- Fiber coupled Raman probe for remote sampling option (for both excitation and collection of the scattered light from the sample to spectrometer). Optical fiber should maintain the polarization of the LASER light impinging on the sample and must be compatible with Raman Measurements (The fiber should not have Raman modes of its own in the required spectral range). Raman Probe should be capable of both motorized and manual exit/entrance for fiber coupling for probes and lasers,

**A DETAILED COMPLIANCE STATEMENT AGAINST ABOVE MENTIONED TECHNICAL SPECIFICATION SHOULD BE ENCLOSED IN THE BID.**