

**GOVERNMENT OF INDIA
DEPARTMENT OF SPACE
SEMI-CONDUCTOR LABORATORY (SCL)
CHANDIGARH**

Tender for AlN deposition and characterization

Bids to be submitted online

Tender No.: SCL/PurUnit-2/SC202100008101 dated 01-09-2021

A. Tender Details

Tender No : **SCL/PurUnit-2/SC202100008101**

Tender Date : **01-09-2021**

Tender Classification: **SERVICES**

Purchase Entity : **PurUnit-2**

Centre : **SEMI-CONDUCTOR LABORATORY (SCL)**

AIN deposition and characterization of wafers

E-Procurement Tender No. SCL/PurUnit-2/VMFG/21000081 dated 01-09-2021; SEMI-CONDUCTOR LABORATORY [SCL] invites ONLINE offers in Single part system through e-tender portal <https://eproc.vssc.gov.in> for AIN deposition and characterization of wafers. Bid can be submitted from 01.09.2021 -1600 hrs. and Bid Opening on 29.09.2021 from 1530 hrs. The vendors need to get enrolled in the e-tender portal to access tender and submit their offer online. Vendors need to have Digital Signature Certificate as detailed on our e-portal and corporate e-mail ID to register on the above portal. Only online tenders will be accepted. No Manual/Postal/ courier/ e-mail/fax tender will be entertained. Please note Tender fee shall not be applicable for tenders submitted on-line through this portal. Vendors interested to participate in this e-Tender are required to register themselves as vendors, if not already registered, in our e-procurement portal <https://eproc.vssc.gov.in> by downloading plugins and help demos listed on the home page of the e-procurement link mentioned above to complete the vendor registration process. Vendors may please note that without registering in our E-procurement portal they will not be able to quote for this tender.

In case bidder encounters any technical snag pertaining to e-procurement system while acting on the tender, computer screen shot of the error message with date & time stamp on the web-browser along with the query shall be e-mailed by the bidder to the help desk, for resolution of the problem, at least 2 working days before the due date and time of bid submission. The contact detail of the help desk is available on the home page of the e-procurement website.

Purchaser will make all efforts to resolve technical queries reported by the bidders but will not be bound to do so if the problems are reported beyond the time mentioned above. Purchaser will not be responsible for non-submission of bids for such cases. The time taken to ascertain, evaluate and suggest a solution for the problem reported by bidder may vary from case to case. Hence bidders are advised to submit the bid well in advance before closing date and time to avoid last minute issues.

A.1 Tender Schedule

Bid Submission Start Date : **01-09-2021 16:00**

Bid Clarification Due Date : **10-09-2021 14:30**

Bid Submission Due Date : **29-09-2021 14:30**

Bid Opening Date : **29-09-2021 15:30**

B. Tender Attachments

Technical Write-up/Drawings

Document : General Specification

Instructions To Vendors

2. INSTRUCTIONS TO TENDERERS AND TERMS CONDITIONS OF TENDER

1. TEST CERTIFICATE: Wherever required, test certificates shall be uploaded in EGPS.
2. Bid shall be submitted on-line only complying specified schedule.
3. Late tenders and delayed tenders will not be considered.
4. GST and/or other duties/levies legally leviable and intended to be claimed should be distinctly shown separately in the tender.
5. (a) Your quotation should be valid for 90 days (single part tender) and 120 days (two part tender) from the date of opening of the 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.
6. (a) All available technical literature, catalogues and other data in support of the specifications and details of the items 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 also be indicated in your offer.
(c) Specifications: Stores offered should strictly confirm to our specifications. Deviations, if any, should be clearly indicated by the tenderer in his quotation. The tenderer should also indicate the Make/Type number of the stores offered and provide catalogues, technical literature and samples, wherever necessary, along with the quotations. Test Certificates, wherever necessary, should be forwarded along with supplies. Wherever options have been called for in our specifications, the tenderer should address all such options. Wherever specifically mentioned by us, the tenderer could suggest changes to specifications with appropriate response for the same.
7. The purchaser shall be under no obligation to accept the lowest or any tender and reserves the right of acceptance of the whole or any part of the tender or portions of the quantity offered and the tenderers shall supply the same at the rates quoted.

8. The tenderer should supply along with his tender, the name of his bankers as well as the latest Income-Tax clearance certificate duly countersigned by the Income-Tax Officer of the Circle concerned under the seal of his office, if required by the Purchaser.

9. The Purchaser reserves the right to place order on the successful tenderer for additional quantity up to 25% of the quantity offered by them at the rates quoted.

10. The authority of the person signing the tender, if called for, should be produced.

11. TERMS CONDITIONS OF TENDER

12. DEFINITIONS:

(a) The term PURCHASER shall mean Semi-Conductor Laboratory, Sector-72, Mohali, Punjab-160071, under the administrative control of DOS, Government of India.

(b) The term CONTRACTOR shall mean, the person, firm or company with whom or with which the order for the supply of stores is placed and shall be deemed to include the Contractor's successors, representative, heirs, executors and administrators unless excluded by the Contract.

(c) The term STORES shall mean what the Contractor agrees to supply under the Contract as specified in the Purchase Order. (d) The term PURCHASE ORDER shall mean the communication signed on behalf of the Purchaser by an Officer duly authorised intimating the acceptance on behalf of the Purchaser on the terms and conditions mentioned or referred to in the said communication accepting the tender or offer of the Contractor for supply of stores or plant, machinery or equipment or part thereof.

13. PRICES: Tenderer offering firm prices will be preferred. Where a price variation clause is insisted upon by a tenderer, quotation with a reasonable ceiling should be submitted. Such offers should invariably be supported by the base price taken into account at the time of tendering and also the formula for any such variation/s.

14. PACKING FORWARDING INSURANCE: The Contractor will be held responsible for the stores being sufficiently and properly packed for transport by rail, road, sea or air to withstand transit hazards and ensure safe arrival at the destination. The packing and marking of packages shall be done by and at the expense of the Contractor. The purchaser will not pay separately for transit insurance, all risks in transit being exclusively of the Contractor and the Purchaser shall pay only for such stores as are actually received in good condition in accordance with the Contract

15. DESPATCH: The Contractor is responsible for obtaining a clear receipt from the Transport Authorities specifying the goods dispatched. The consignment should be dispatched with clear Railway Receipt/Lorry Receipt. If sent in any other mode, it shall be at the risk of the Contractor. Purchaser will take no responsibility for short deliveries or wrong supply of goods when the same are booked on said to contain basis. Purchaser shall pay for only such stores as are actually received by them in

accordance with the Contract. Any dispatch action shall start only after receipt of purchase order signed by competent authority and as per terms and conditions.

16. ACCEPTANCE OF STORES:

- (a) The stores shall be tendered by the Contractor for inspection at such places as may be specified by the purchaser at the Contractor's own risk, expense and cost.
- (b) It is expressly agreed that the acceptance of the stores Contracted for, is subject to final approval by the purchaser, whose decision shall be final.
- (c) If, in the opinion of the purchaser, all or any of the stores do not meet the performance or quality requirements specified in the Purchase Order, they shall be rejected.
- (d) If the whole or any part of the stores supplied are rejected in accordance with Clause No. 6 (c) above, the purchaser shall be at liberty, with or without notice to the Contractor, to purchase in the open market at the expense of the Contractor stores meeting the necessary performance and quality Contracted for in place of those rejected, provided that either the purchase, or the agreement to purchase, from another supplier is made within six months from the date of rejection of the stores as aforesaid.

17. REJECTED STORES: Rejected stores will remain at destination at the Contractor's risk and responsibility. If instructions for their disposal are not received from the Contractor within a period of 14 days from the date of receipt of the advice of rejection, the purchaser or his representative has, at his discretion, the right to scrap or sell or consign the rejected stores to Contractor's address at the Contractor's entire risk and expense, freight being payable by the Contractor at actuals.

18. DELIVERY:

- (a) The time for and the date of delivery of the stores stipulated in the Purchase Order shall be deemed to be the essence of the Contract and delivery must be completed on or before the specified dates.
- (b) Should the Contractor fail to deliver the stores or any consignment thereof within the period prescribed for such delivery, the purchaser shall be entitled at his option either:
 - (i) to purchase from elsewhere, without notice to the Contractor on the account and at the risk of the Contractor, the stores not delivered or others of a similar description (where others exactly complying with the particulars, are not, in the opinion of the purchaser, readily procurable, such opinion being final) without cancelling the Contract in respect of the consignment (s) not yet due for delivery, or
 - (ii) to cancel the Contract or a portion thereof and if so desired to purchase or authorise the purchase of stores not so delivered or others of a similar description (where others exactly if complying with the particulars are not, in the opinion of the purchaser, readily procurable, such opinion final) at the risk and cost of the Contractor. In the event of action being taken under sub-clause (iii) of clause 10 (b) above, the Contractor shall be liable for any loss which the purchaser may sustain on that account, provided that the re-purchase or if there is an agreement to repurchase then such agreement is made within six months from the date of such failure. But the Contractor shall not be entitled to any gain on such re-purchase made against default. The manner and method of such re purchase shall be at the discretion of the purchaser, whose decision shall be final. It shall not be necessary for the purchaser to

serve a notice of such re purchase on the defaulting Contractor. This right shall be without prejudice to the right of the purchaser to recover damages for breach of Contract by the Contractor.

19. EXTENSION OF TIME: As soon as it is apparent that the Contract dates cannot be adhered to, an application shall be sent by the Contractor to the purchaser. If failure, on the part of the Contractor, to deliver the stores 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 circumstances, of the case without prejudice to the purchaser's right to recover liquidated damages under clause 09 thereof.

20. PAYMENT: Contractor's bill will be passed for payment only after the stores have been received, inspected and accepted by the Purchaser.

21. MODE OF PAYMENT: Normally payment will be made for the accepted stores within 30 days from the date of receipt of the materials.

22. RECOVERY OF SUM DUE: Whenever any claim for the payment of, whether liquidated or not, money arising out of or under this Contract against the Contractor, the purchaser shall be entitled to recover such sum by appropriating in part or whole, the security deposited by the Contractor, if a security is taken against the Contract. In the event of the security being insufficient or if no security has been taken from the Contractor, then the balance or the total sum recoverable as the case may be, shall be deducted from any sum then due or which at any time thereafter may become due to the Contractor under this or any other Contract with the purchaser. Should this sum be not sufficient to cover the full amount recoverable, the Contractor shall pay to the purchaser on demand the remaining balance due. Similarly, if the purchaser has or makes any claim, whether liquidated or not, against the Contractor under any other Contract with the purchaser, the payment of all moneys payable under the Contract to the Contractor including the security deposit shall be withheld till such claims of the purchaser are finally adjudicated upon and paid by the Contractor.

23. INDEMNITY: The Contractor shall warrant and be deemed to have warranted that all stores supplied against this Contract are free and clean of infringement of any Patent, Copyright or Trademark, and shall at all times indemnify the purchaser against all claims which may be made in respect of the stores for infringement of any right protected by Patent Registration of design or Trade mark and shall take all risk of accidents or damage which may cause a failure of the supply from whatever cause arising and the entire responsibility for sufficiency of all means used by him for the fulfilment of the contract.

24. COUNTER TERMS AND CONDITION OF SUPPLIERS: Where counter terms and conditions printed or cyclostyled conditions have been offered by the supplier, the same shall not be deemed to have been accepted by the Purchaser, unless specific written acceptance thereof is obtained.

25. SECURITY FOR PURCHASE OF MATERIALS: Successful tenderer will have to furnish in the form of a bank guarantee or any other form as called for by the purchaser towards adequate security for the materials and properties provided by the Purchaser for the due execution of the Contract.

C. Bid Templates

C.1 Technical Bid - AlN deposition and characterization

1. AlN 1000nm thin film deposition

Item specifications for AlN 1000nm thin film deposition

| SI No | Specification | Value | Compliance | Offered Specification | Remark |
|-------|--|-------|------------|-----------------------|--------|
| 1 | Thin film AlN deposition on Si wafers patterned or global based on requirements. The film required to be highly c-axis oriented with full width half maxima less than 3 degrees. | | - | | |

[Document : indent](#)

2. AlN film characterization

Item specifications for AlN film characterization

| SI No | Specification | Value | Compliance | Offered Specification | Remark |
|-------|---|-------|------------|-----------------------|--------|
| 1 | XRD characterization of AlN in scan mode (non destructive method). FWHM of the film over Si should be less than 3degrees. | | - | | |

[Document : indent](#)

Common Specifications (Applicable for all items)

| SI No | Specification | Value | Compliance | Offered Specification | Remark |
|-------|---------------|-------|------------|-----------------------|--------|
|-------|---------------|-------|------------|-----------------------|--------|

| | | | | | |
|---|---|-----------|--------------------|--|--|
| 1 | Vendor to provide film thickness uniformity as $\pm 5\%$ across the 6inch wafer. The thickness uniformity will be verified by SCL. | $\pm 5\%$ | Yes / No / Explain | | |
| 2 | Vendor to ensure FWHM through XRD and the desired value of FWHM should be 3. The FWHM shall be measured by the vendor on a Si test wafer supplied by SCL alongside the actual wafers. Also, vendor shall share the XRD image/data with SCL. | 3 | Yes / No / Explain | | |
| 3 | XRD shall also be done on patterned wafer and FWHM should be 3. Vendor to share result of XRD. Note – the XRD measurement should be non-destructive and there should not be any damage to wafer or pattern during characterization. | 3 | Yes / No / Explain | | |
| 4 | Deposition and characterization must be done in a Class 100 or better clean room. | 100 | Yes / No / Explain | | |

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|---|---|---|--------------------|--|--|
| 5 | Vendor shall do the above deposition/ characterization in India | - | Yes / No / Explain | | |
| 6 | List of customers (domestic /foreign) to whom such depositions/characterizations have been done by the bidder in the past shall be duly supported with POs etc. which is to be submitted along with the bid | - | Yes / No / Explain | | |
| 7 | Bidder shall fully comply with the tendered specifications and acceptance criteria along with the bid | - | Yes / No / Explain | | |

Supporting Documents required from Vendor

1. Specifications-2

2. Specifications-1

5 additional documents can be uploaded by the vendor

C.2 Commercial Terms / Bid

| Sl. No. | Description | Compliance | Vendor Terms |
|---------|---|--------------------|--------------|
| 1 | New items | Yes / No / Explain | |
| 2 | <p>Delivery Term :</p> <p>Packed wafers will be picked up for AIN deposition and Characterization and shall be delivered back after completion of these services to SCL by the Vendor.</p> <p>To and Fro transportation of wafers from SCL to Vendors Works will be taken care by the vendor and shall be Vendor responsibility.</p> | Yes / No / Explain | |
| 3 | <p>Eligibility Criteria:</p> <p>i)Bidder shall do deposition/characterization of wafers in India.</p> <p>ii)Bidder has to provide the list of customers (Domestic/Foreign) to whom such deposition/characterization have been done by the bidder in the past shall be duly supported with P.O etc. which is to be submitted alongwith the bid.</p> <p>iii)Bidder shall fully comply with the specification/acceptance criteria alongwith the bid.</p> | Yes / No / Explain | |
| 4 | <p>GST :</p> <p>GST with the rate at which the same is applicable on this service or any other Govt. levy should be clearly mentioned.</p> | Yes / No / Explain | |
| 5 | <p>Delivery Period:</p> <p>The Vendor to indicate the time frame by which the wafers after completion of service shall be delivered to SCL, after pick up of the wafers from SCL.</p> | Yes / No / Explain | |

| | | | |
|----|---|--------------------|--|
| 6 | <p>Security Amount:</p> <p>i)As the wafers will be in possession of the contractor during service, an amount of Rs. 50,000.00 shall be deposited by the contractor towards Security amount.</p> <p>ii)Security amount shall be submitted through Demand Draft/Banker Check/Fixed Deposit receipt or Bank Guarantee from any of the scheduled banks executed on non-judicial stamp paper of appropriate value and shall be valid for a period of 60 days beyond the bid completion of the purchase order/contract.</p> <p>iii)After purchase order/contract is successfully executed in all respects, the security amount shall be discharged.</p> | Yes / No / Explain | |
| 7 | <p>Payment Term:</p> <p>100% payment shall be made within 30 days of receipt and acceptance of the wafers at SCL.</p> <p>The payment shall be made after deduction of TDS as per Income Tax Act 1961 with latest amendments..</p> | Yes / No / Explain | |
| 8 | <p>Validity of Offer:</p> <p>The tender must be valid for a minimum period of 90 days from the date of opening of bids.</p> | Yes / No / Explain | |
| 9 | <p>Liquidated Damages:</p> <p>If the Contractor fails to deliver the stores within the time specified in the Contract or any extension thereof, the purchaser shall recover from the Contractor as liquidated damages a sum of one-half of one percent (0.5 percent) of the Contract price of the undelivered stores for each calendar week of delay. The total liquidated damages shall not exceed ten percent (10 percent) of the Contract price.</p> | Yes / No / Explain | |
| 10 | <p>Insurance:</p> <p>Insurance for transit risks (to and fro) shall be arranged by the Vendor and shall be to Vendor account.</p> | Yes / No / Explain | |

| | | | |
|----|---|--------------------|--|
| 11 | Packing & Forwarding: The Contractor shall pack and crate all stores for air/sea/road shipment as applicable in a manner suitable for export to a tropical humid climate, in accordance with internationally accepted export practices and in such a manner so as to protect it from damage and deterioration in transit by road, rail, air or sea. The Contractors shall be responsible for all damages due to improper packing. | Yes / No / Explain | |
| 12 | REJECTION: In the event that any of the stores supplied by the Contractor is found defective in material or workmanship or otherwise not in conformity with the requirements of the Contract specifications/acceptance criteria, the purchaser shall either reject the stores or request the Contractor, in writing, to rectify the same. The Contractor, on receipt of such notification, shall either rectify or replace the defective stores free of cost to the purchaser. | Yes / No / Explain | |
| 13 | Name, Address & Focal Point: The vendor is advised to provide complete Name & Address of the Company for placing order alongwith name & designation, Phone No., e-mail ID of the person to be contacted for getting clarifications. | Yes / No / Explain | |
| 14 | The participating vendors/suppliers/service providers shall indicate specifically whether they fall in the category of Class-I Local supplier or Class-II Local supplier or Non-Local supplier for evaluation as per Ministry of Commerce and Industry Office Order No;-P-45021/2/2017-PP (B-II) dt September 16, 2020.The vendor/supplier/service provider shall submit documentary proof in this regard. The provisions of above referred OM shall apply for this procurement. | Yes / No / Explain | |
| 15 | Any Other Term: | Yes / No / Explain | |

C.3 Price Bid

| Sl. No. | Item | Quantity | Unit Price | Currency | Total Price | Remark |
|---------|------|----------|------------|----------|-------------|--------|
|---------|------|----------|------------|----------|-------------|--------|

| | | | | | | |
|---|---------------------------------|-----------|--|---|--|--|
| 1 | AIN 1000nm thin film deposition | 2.00 Nos. | | - | | |
| 2 | AIN film characterization | 2.00 Nos. | | - | | |