

राष्ट्रीय रेडियो खगोलभौतिकी केन्द्र - टाटा मूलभूत अनुसंधान संस्थान

National Centre for Radio Astrophysics - Tata Institute of Fundamental Research एस. पी. पुणे विश्वविद्यालय परिसर, पोस्ट बैग 3, गणेशखिंड, पुणे 411 007, भारत

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e-Tender (RFP) No. NCRA:WF069:CPPP:2025

SKAO के लिए - 2550 इकाइयों का बिल्ड-टू-प्रिंट आधार पर पूर्णतः परीक्षणित एकीकृत ADU बोर्डों का निर्माण, आपूर्ति एवं वितरण के लिए प्रस्ताव हेतु अनुरोध

Request for Proposal (RFP) for Manufacture, Supply and Delivery of fully tested Integrated ADU Boards on a Build-to-Print basis for SKAO - 2550 Units



टाटा मूलभूत अनुसंधान संस्थान का राष्ट्रीय रेडियो खगोलभौतिकी केंद्र, भारत सरकार के परमाणु ऊर्जा विभाग के प्रशासनिक नियंत्रण में एक संस्थान है। यह सावित्रीबाई फुले पुणे विश्वविद्यालय परिसर, पुणे में स्थित है एवं रेडियो खगोलभौतिकी के क्षेत्र में अनुसंधान में संलग्न है। एनसीआरए ने नारायणगांव, तालुका-जुन्नार, जिला-पुणे के पास खोडद में विशाल मीटरवेव रेडियो टेलीस्कोप (जीएमआरटी) का निर्माण किया है एवं जीएमआरटी एवं ऊटी रेडियो टेलीस्कोप (ओआरटी), उदगमंडलम दोनों का संचालन करता है।

The National Centre for Radio Astrophysics (NCRA) of the Tata Institute of Fundamental Research (TIFR) is an Institute under the administrative control of the Department of Atomic Energy, Govt. of India, located in the Savitribai Phule Pune University Campus, Pune and is engaged in research in the field of radio astrophysics. NCRA has built the Giant Metrewave Radio Telescope (GMRT) at Khodad near Narayangaon, Taluka-Junnar, District-Pune operates both GMRT and Ooty Radio Telescope (ORT), Udhagamandalam.

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CHAPTER - I

NOTICE INVITING TENDER (RFP) / LETTER OF INVITATION

Subject: A Request for Proposal (RFP) in two parts (Technical Bid and Financial Bid) is invited through the online Central Public Procurement Portal (CPPP) from technically shortlisted bidders against EOI No. NCRA/SKAO/2024/EoI-10 for the **Manufacture**, **Supply and Delivery of fully tested Integrated ADU Boards on a Build-to-Print basis for SKAO - 2550 Units**, having delivery at Tier-1 Company i.e. M/s. Elemaster, Lomagna, Italy, as per the drawings and design provided in the detailed Tender (RFP) document, towards India's in-kind contribution to SKAO under the category of SKA-Low Signal Processing Sub-System (SPS) and allied electronic manufacturing and testing services for the Square Kilometre Array (SKA) Telescope mentioned in the EOI published vide NCRA/SKAO/2024/EoI-10.

Tender (RFP) Mode	Tender (RFP) in two parts through the CPPP online mode and only for those bidders who have been technically shortlisted against our EOI No. NCRA/SKAO/2024/EoI-10
Name of Work	Manufacture, Supply and Delivery of fully tested Integrated ADU Boards on a Build-to-Print basis for SKAO - 2550 Units, having delivery at Tier-1 Company i.e. M/s. Elemaster, Lomagna, Italy, as per the drawings and design provided in the detailed Tender (RFP) document.
	Quantity: 2550 Units (# see note below)
Tender (RFP) Issue Date & Time	08.10.2025 at 1800 hrs.
Last Date & Time of Tender (RFP) Submission	29.10.2025 at 1800 hrs.
Earnest Money Deposit (EMD)	Rs. 20,00,000 (Twenty Lakhs Only) towards EMD has to be deposited in the form of Demand Draft, Fixed Deposit Receipt, Bankers cheque or through online transfer through bank (Bank details shall be provided on demand) in favour of TIFR Pune. EMD shall be interest-free and it will be refunded to the unsuccessful bidder without any interest. EMD will be forfeited if the bidder withdraws or amends, impairs or derogates from the Tender (RFP) in any respect. EMD should be submitted along with the bid, as specified in this document.
Pre-bid Queries / Meeting	NCRA-TIFR shall hold a pre-bid meeting in offline and online modes in order to clarify and discuss issues with respect to this tender. The meeting will be held on 17.10.2025 at 1100 hrs. at NCRA-TIFR, Pune. Shortlisted bidders are requested to submit their pre-bid queries via email to purchase@ncra.tifr.res.in with a subject line — Pre-bid Query for Manufacture , 2550 Units . Any request or clarification in writing must be sent to the Purchase Department's Email ID purchase@ncra.tifr.res.in on or before 15.10.2025 at 1700 hrs. This will ensure that the queries can be addressed effectively during the meeting.
Corrigendum, if	The due date for final submission may be extended if a corrigendum is issued with
any Date of Opening of Technical Bids	additional information, changes, etc., which necessitate the due date extension. 30.10.2025 at 1800 hrs.
Date of Opening of Financial Bids	Date of Opening of Financial / Price Bids shall be intimated to all techno-commercially qualified bidders through email
Completion Period	18 months from the issue of the Work Order. However, if any situation arises that compels a change in the completion period, it will be discussed and agreed upon with

	the Supplier at a later date. If there is no change in the completion date and if the delivery is delayed, NCRA shall apply the LD clause.
Performance Bank Guarantee (PBG)	5% of the Work Order / Contract value, including taxes, statutory expenses and other charges, to be submitted immediately within 14 days from the date of the work order
Delivery Location	Tier-1 Company i.e. M/s. Elemaster, Lomagna, Italy
Delivery of Items	2530 ADU Boards to be delivered at Tier-1 Company and 20 Boards to be delivered at NCRA-TIFR, Pune.
Payment Terms	As per CHAPTER-VIII in this tender document

NCRA-TIFR reserves the right to add or reduce the quantity based on the requirements and other circumstances within a percentage of \pm 15%. This addition or reduction will be communicated to the Supplier from time to time. This change in the quantity within a percentage of \pm 15% will be binding on the Supplier and will not have any bearing on the finally agreed per unit cost.

This Tender (RFP) is hosted on CPPP under the Two Parts as Request for Proposal (RFP) and is only for those bidders who have been qualified and shortlisted against our EOI. Offers from firms that were not shortlisted against the earlier EOI process and formally informed in writing by NCRA regarding their non-shortlisting shall be summarily rejected and shall not be considered for any evaluation process.

For further instructions, please refer to Instructions to Bidders and other relevant sections in this document.

In case of any clarification about the submission of bids, please contact:

Purchase Department NCRA-TIFR, Pune purchase@ncra.tifr.res.in

Tel: 020-2571 9276 / 9266 / 9206 / 9205

In case of any technical clarifications, please contact by email to : scc@gmrt.ncra.tifr.res.in

Administrative Officer-C (Purchase) NCRA-TIFR, Pune

CHAPTER - II

GENERAL INFORMATION AND DEFINITIONS

1. Definitions:

In this Contract, the following terms shall be interpreted as indicated:

- i. "The Order" means the Purchase Order placed by the Purchaser, including all the attachments and appendices thereto and all documents incorporated by reference therein;
- ii. "The Contract Price" means the price payable to the Supplier under the Order for the full and proper performance of its contractual obligations;
- iii. The Bidder or Tenderer means and includes, person, party, company, firm, etc. who is participating in this Tender (RFP) process and submitting the tender (RFP) documents.
- iv. "The Goods" means all the equipment, machinery, and/or other materials, which the Supplier is required to supply to the Purchaser under the Contract;
- v. "Services" means services ancillary to the supply of the Goods, such as transportation and insurance, and any other incidental services, such as installation, commissioning, provision of technical assistance, training and other obligations of the Supplier covered under the Contract
- vi. "GCC" means the General Conditions of Contract contained in this Tender (RFP).
- vii. "SCC" means the Special Conditions of Contract.
- viii. "The Purchaser's country" is "India".
- ix. "The Supplier" means the Individual/firm/company/contractor/manufacturer that will be awarded a work contract under this tender (RFP) after successful completion of all required formalities.
- x. "Day" means calendar day.
- xi. "Centre" means NCRA-TIFR located at Pune and its premises.
- xii. NCRA / NCRA-TIFR / Centre Director / Purchaser represents the same entity.
- xiii. The 'Contract' means the documents forming the Tender (RFP) and acceptance thereof and the formal agreement executed between the Competent authority on behalf of the Centre Director, NCRA-TIFR and the Contractor together with the documents referred to therein including these conditions, the specifications, designs, drawings and instructions issued from time to time by the Engineer-in-charge and all these documents taken together, shall be deemed to form one contract and shall be complementary to one another.
- xiv. The expression 'Works' or 'Work' shall, unless there be something either in the subject or context repugnant to such manufacture and supply of ADU boards, be construed and taken to mean the works by or by virtue of the contract contracted to be executed, whether temporary or permanent and whether original, altered, substituted or additional.
- xv. Work Order/Contract/Purchase Order etc. in this particular document means the order issued by the competent authority of NCRA-TIFR for the Manufacture, Supply and Delivery of fully tested Integrated ADU Boards on a Build-to-Print basis for SKAO 2550 Units, having delivery at Tier-1 Company i.e. M/s. Elemaster, Lomagna, Italy, as per the drawings and design provided and the detailed Tender (RFP) document, towards India's in-kind contribution to SKAO for any part or full quantity.
- xvi. The 'Site' shall mean the land or other places on, into or through which work is to be executed under the contract or any adjacent land, path or street through which work is to be executed under the contract or any adjacent land, path or street which may be allotted or used for the purpose of carrying out the contract.
- xvii. The 'Contractor' shall mean the individual, firm or company, whether incorporated or not, undertaking the works and shall include the legal personnel representative of such individual or the persons composing such firm or company or the successors of such firm or company and the permitted assignees of such individual, firm or company.
- xviii. The 'Engineer-in-Charge' means the Engineer / Officer, who shall supervise and be in charge of the work on behalf of NCRA-TIFR, Pune.

- xix. 'Temporary Work' means all temporary works of every kind required in or about the execution, completion and maintenance of the works.
- xx. 'Market Rate' shall be the rate as decided by the Engineer-in-Charge based on the cost of materials and labour at the site where the work is to be executed, plus 15% to cover all overheads and profits.
- xxi. 'NCRA-TIFR' means National Centre for Radio Astrophysics-Tata Institute of Fundamental Research, Pune.
- xxii. 'Tendered value' means the value of the entire work as stipulated in the letter of award/acceptance.
- xxiii. "Tier-1 Company" means M/s. Elemaster, Lomagna, Italy responsible for testing and acceptance of delivered items by the Supplier. They will also be providing technical support and material as mentioned in this document. It will be referred to as a Tier-1 company in this bid document.
- xxiv. "Latent Defects" are defects that may arise after delivery, which were not detectable during standard inspection or acceptance procedures.

2. Application

These General Conditions shall apply to the extent that they are not superseded by provisions in other chapters of the Contract. All terms and conditions mentioned in this document, with proper interpretation, shall be binding on and applicable to bidders.

3. Use of Contract Documents and Information

The bidder shall not, without the Purchaser's prior written consent, disclose the Contract, or any provision thereof, or any specification, plan, drawing, pattern, sample or information furnished by or on behalf of the Purchaser in connection therewith, to any person other than a person employed by the Supplier in performance of the Contract. Disclosure to any such employed person shall be made in confidence and shall extend only so far as may be necessary for purposes of such performance.

4. Patent Rights

The bidder 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.

5. Standards

The Goods supplied under this Contract shall conform to the standards mentioned in the Technical Specifications. When no applicable standard is mentioned, the authoritative standard appropriate to the Goods' country of origin shall apply. Such standards shall be the latest issued by the concerned institution. The bidder should provide adequate information in the technical bid document.

CHAPTER - III GENERAL TERMS AND CONDITIONS

a) General Instructions:

- 1. The prospective bidder shall carefully examine and understand the specifications/conditions of the Tender (RFP) document and seek clarifications in writing, if required, to ensure that they have understood all specifications/conditions of Tender (RFP). These clarifications should be sought before submission of bids. If no such clarifications are sought in writing, it will be taken that the Bidder has read, understood and accepted all the terms, conditions and specifications in the Tender (RFP) document.
- **2.** The Bidder is required to upload a copy of this Tender (RFP) document on CPPP with all pages signed by the authorized person, to confirm that the Bidder has read and understood the conditions of this Tender (RFP) document and that the proposal is submitted in full understanding and agreement of the requirements of NCRA-TIFR.
- **3.** The Bidder shall bear all costs associated with the preparation and submission of the Bid, and NCRA-TIFR will in no case be responsible for those costs, regardless of the conduct or outcome of the bidding process.
- **4.** NCRA-TIFR reserves its rights to amend any of the terms and conditions of the Tender (RFP) document. The notice of such amendment will be published on the NCRA / CPPP website only. No separate advertisement will be issued in the newspapers for such changes/corrigenda. All the prospective bidders are therefore requested to regularly visit the NCRA/CPPP website for any such updates. The bidder has to ensure and take responsibility to submit bid documents that are inclusive of all amendments and additions made by NCRA-TIFR from time to time.
- **5.** The complete bid shall be submitted online as per the specified formats only. The bids should be without alteration or erasures, except those to accord with instructions issued by the NCRA-TIFR or as necessary to correct errors made by the bidder, in which case such corrections shall be initiated by the person or persons signing the bid.
- **6.** The bidder shall submit only one bid, which is best suitable to meet NCRA-TIFR requirements. The bids submitted with more options shall be liable to be rejected.
- **7.** Language of the Bid document The Bid prepared by the Bidder, as well as all correspondence and documents relating to the Bid exchanged by the Bidder and NCRA-TIFR, shall be in English only.
- **8.** Wherever a specific form is prescribed in the Bid document, the Bidder shall use the form to provide relevant information. If the form does not provide space for any required information, space at the end of the form and additional sheets shall be used to convey the said information in the specific format only. For all other cases, the Bidder shall design a form to convey the required information.
- **9.** Since this particular work is based on the Build-to-Print basis, there are no deviations allowed.
- **10.** Successful bidder shall perform all the obligations specified in accordance with the terms and conditions laid down in the Tender (RFP) document. All details provided by the Bidder should be specific to the requirements specified in this Tender (RFP) document. Detailed clarification may be provided by the Bidder if so desired by NCRA-TIFR.
- 11. Signing of Tender (RFP) and receipts for payments: The Tender (RFP) documents are to be signed on all pages. In the event of the Tender (RFP) being submitted by a firm, it must be signed separately by each partner thereof or in the event of the absence of any partner, it must be signed on his behalf by a person holding a power-of-attorney authorizing him to do so, such power of attorney to be produced with

the Tender (RFP), and it must disclose that the firm is duly registered under the Indian Partnership Act 1952

- **12.** Submission of a Tender (RFP) by a bidder implies that he has read this Tender (RFP) document and has made himself aware of the scope with specifications of the work to be executed along with local conditions and factors having a bearing on the execution of the work.
- **13.** Clause of Interpretation: In case of any dispute and ambiguity in the language or understanding of this bid/RFP document, the decision about the correct interpretation of all such discrepancies or ambiguity shall be resolved by the Competent Authority of NCRA, whose decision shall be final and binding.

b) Purchase Preference Policies

- a) The NCRA-TIFR intends to give product preference to local suppliers in line with the current procurement policies of the Government of India.
- b) For this purpose, a local supplier means a supplier or service provider whose product or service offered for procurement meets the minimum local content requirement as prescribed in OM No. P-45021/2/2017-PP (BE-II)-Part(4)Vol.II dated 19.07.2024 issued by the Department for Promotion of Industry and Internal Trade, Government of India, regarding the Public Procurement (Preference to Make in India) Order, 2017. Prospective bidders must submit the necessary certification of local content strictly as per Annexure-VIII attached to the Tender (RFP) document.
- c) The local supplier shall be required to provide a certificate from the statutory auditor or cost auditor of the company (in the case of companies) or from a practicing cost accountant or practicing chartered accountant (in respect of suppliers other than companies), giving the percentage of local content to avail the benefits under the Make in India policy.

Local content means the amount of value added in India, which shall—unless otherwise prescribed by the Nodal Ministry—be the total value of the item procured (excluding net domestic indirect taxes) minus the value of imported content in the item (including all customs duties), expressed as a percentage of the total value.

c) Earnest Money Deposit (EMD) / Bid Security: The Earnest Money Deposit (EMD) / Bid Security will be accepted only in the form of any one i.e. Account Payee Demand Draft, Fixed Deposit Receipt, Banker's Cheque, Bank Guarantee from any National Bank / Scheduled Bank or payment online in an acceptable form drawn in favour of Centre Director, NCRA-TIFR, Pune or Account Payee Demand Draft/Banker's Cheque should be in the name of TIFR Pune for safeguarding the Purchaser's interest in all respects.

Earnest Money Deposit (EMD) /Bid Security	Bidder has to upload a scanned copy/proof of the DD/FDR/BC/BG towards EMD along with the Technical Bid and has to ensure delivery of a hard copy directly to the NCRA-TIFR Pune within 5 days of the Bid End date, failing which the bid may be treated as incomplete and may lead to rejection of the bid by buyer without making any reference to the bidder.
EMD Amount in Figures	Rs. 20,00,000/-
EMD Amount in Words	Rupees Twenty Lacs Only

- 1. No exemption in Earnest Money Deposit (EMD) shall be given except for Micro and Small Enterprises (MSE) as defined in MSME Procurement Policy issued by the Ministry of Micro, Small & Medium Enterprises (MSME) or registered with the Central Purchase Organisation or the concerned Ministry or Department or Start-up recognized by DPIIT.
- 2. A Tender (RFP) submitted without the requisite amount of Earnest Money Deposit (EMD) shall be rejected and their techno-commercial bids shall not be opened.
- 3. Bid securities of the unsuccessful bidders should be returned to them at the earliest after expiry of the final bid validity and latest on or before the 30th day after the award of the contract. [However, in case of two packet or two stage bidding, Bid securities of unsuccessful bidders during the first stage i.e. technical evaluation etc. should be returned within 30 days of declaration of the result of the first stage i.e. technical evaluation etc
- 4. No interest will be paid on the EMD amount.
- 5. The Earnest Money Deposit / Bid Security will be forfeited if a bidder withdraws their bid during the period of bid validity specified in the Tender (RFP), or fails to furnish the Performance Guarantee within the stipulated time period mentioned in the Tender (RFP) documents, if such bidder qualifies and becomes the Supplier.
- 6. Bank Details for online payment :-

Bank A/c Name : TIFR

Name of Bank : Bank of India

Branch : Pashan Road, Pune

Bank A/c No : 051620110000508

IFS Code : BKID0000516

- 7. The bidder must indicate the bid number and the name of the bidding entity in the transaction details field at the time of the online transfer. The bidder is also required to upload a scanned copy or proof of the online payment transfer along with the technical bid.
- 8. The MSEs are exempted from payment of earnest money, subject to furnishing of a relevant, valid certificate for claiming exemption as per the prevailing rules of the Government of India. The bidder should submit the registration of Udyam Registration by the Ministry of Micro, Small and Medium Enterprises (MSME) vendors on the Central Public Procurement Portal (CPPP).
- 9. The bidders who fail to submit the Udyam Registration number shall not be able to avail the benefits available to MSEs as contained in the Public Procurement Policy for MSEs Order 2012 issued by MSME.
- 10. Micro and Small Enterprises (MSE) must, along with their offer, provide proof of their being registered as MSE (indicating the terminal validity date of their registration) for the item tendered, with any agency mentioned in the notification of the Ministry of Micro, Small and Medium Enterprises (MSME).
- d) Acceptance of Tender (RFP): The competent authority, on behalf of Centre Director, National Centre for Radio Astrophysics (NCRA), Tata Institute of Fundamental Research (TIFR), Pune, does not bind himself to accept the lowest or any other Tender (RFP), and reserves to himself the authority to reject any or all the Tenders (RFP) received, without assignment of any reason. All Tenders (RFP), in which any of the prescribed conditions is not fulfilled or any condition, including that of conditional rebates, is put forth by the Tenderer, shall be summarily rejected.

The Competent Authority, on behalf of the National Centre for Radio Astrophysics (NCRA) - Tata Institute of Fundamental Research (TIFR), Pune, reserves the right to accept the whole or any part of the Tender (RFP) and the Tenderer shall be bound to perform the same at the rates quoted. The officer inviting Tenders (RFP) shall have the right to reject all or any of the Tenders (RFP) and will not be bound to accept the lowest Tender (RFP) or any other Tender (RFP).

e) Validity of Tender (RFP): The Tender (RFP) for the services and rates offered in it shall remain open for acceptance for a period of 180 days from the last date of submission of Tenders (RFP). If any Tenderer withdraws his Tender (RFP) before the said period, or before issue of Letter of Acceptance, whichever is earlier, or makes any modifications in the terms and conditions of the Tender (RFP) which are not acceptable to the NCRA-TIFR Pune, then National Centre for Radio Astrophysics-Tata Institute of Fundamental Research (NCRA-TIFR) Pune shall, without prejudice to any other right or remedy, be at liberty to forfeit the said earnest money absolutely. Further, the Tenderer shall not be allowed to participate in the retendering process of the work.

f) Levy / Taxes payable by contractor:

GST or any other tax on materials and services in respect of this contract shall be payable by the contractor and NCRA-TIFR shall not entertain any claim whatsoever in this respect. The bidder has to specify the correct and applicable percentage of GST along with the HSN code (if applicable) in the financial / price bid format given.

g) Deduction of Income Tax: As per Section 194-C of Income tax Act 1961, as amended by letter No. 275/9/72/9-TJ (Circular No. 86) dated 19.5.72 and No. 275/14/91-IT (B) (Circular No. 593) dated 5.2.91, received from Ministry of Finance, Department of Revenue, Central Board of Direct Taxes, New Delhi, the Income tax @ 2% and Surcharge thereon @12% (or any other amended rate by Ministry of Finance from time to time), of the gross value of the work done will be recovered from the bills. A certificate for the amount recovered will be issued by the NCRA

GST TDS will be deducted, as per the Government Notification, if applicable. However, in any stage of processing the Tender (RFP) or performing the work, if the bidder gets rebate or refund of GST or any other statutory taxes, duty, etc. from the Government, for whatever reason, then the same GST amount received shall be returned to / passed on to NCRA-TIFR without delay.

h) Site visit by the Tenderer before Tendering: Interested bidders may inspect and review the sample TPM-ADU boards available at the GMRT site at Khodad for understanding the nature of work. However, it is not mandatory. Similarly, visiting any other testing sites (in India or Italy) is optional and not mandatory. Tenderers are deemed to have full knowledge of the requirements, scope of work, etc., whether they choose to inspect them or not, and no extra charges consequent on any misunderstanding or otherwise shall be allowed. The cost of these visits will be borne by the bidders.

The Tier-1 Company team (project head and one testing engineer) may plan one visit at their own cost to the successful Supplier's factory premises for on-site installation of the test bench, validation, and testing of the first prototypes at the vendor/manufacturer's premises only after placing the work order. This is only for information.

i) Canvassing, either directly or indirectly, in connection with the Tenders (RFP) is strictly prohibited and the Tenders (RFP) submitted by the contractors who resort to canvassing will be liable to rejection and may be barred from future participation in NCRA-TIFR works.

j) Responsiveness of Bid:

- Material Compliance: The bid must substantially conform to the requirements and conditions detailed in the bidding documents.
- No Material Deviations: It should not contain any significant changes or reservations from the terms and conditions set forth in the bidding documents.
- Complete Information: The bid must be complete with all the required information and duly filled-in forms as prescribed.
- Eligibility and Qualification: The bidder must fulfill the eligibility and qualification conditions, if any, specified in the bidding documents.
- Technical and Commercial Terms: The bid must respond to the technical specifications and commercial terms outlined in the document.

- **k**) **Consequences of Non-Responsiveness:** A non-responsive bid is typically considered invalid and will be rejected during the bid evaluation process.
- **l) Filling in of Rates:** All rates must be quoted by the Tenderers in the prescribed format provided in the Tender (RFP) form, both in figures and in words. The amount for each item should be clearly calculated and the corresponding totals must be furnished.
 - 1. The quoted rates shall be inclusive of all charges, considering the delivery location of the items at Lomagna, Italy, on a DDP (Delivered Duty Paid) INCOTERM basis i.e. no cost shall be borne by SKAO or any associated foreign entity.
 - 2. Rates must be quoted in rounded Indian Rupees and shall remain firm and fixed for the entire duration of the contract. Amounts should be quoted in whole rupees, with amounts below fifty paise being disregarded and those of fifty paise or more rounded up to the nearest rupee.
- m) Quoted rates to include all taxes: Bidder, while quoting per unit rate, should consider all the statutory dues, transport charges, duties and any incidental expenses required for the delivery at the location mentioned in the tender document.
- n) Action in case of unrealistic rates: In the case of any Tender (RFP) where the unit rate of any item (s) appears unrealistic, such Tender (RFP) will be considered as unbalanced and in case the Tenderer is unable to provide a satisfactory explanation, such a Tender (RFP) is liable to be disqualified and rejected.

o) Non-conformities between Figures and Words:

Sometimes, non-conformities/errors are also observed in responsive tenders (RFP) between the quoted prices in figures and words. This situation normally does not arise in the case of e-procurement. This shall be taken care of in the manner indicated below:

- 1. If, in the price structure quoted for the required goods, there is a discrepancy between the unit price and total price (which is obtained by multiplying the unit price by the quantity), the unit price shall prevail and the total price corrected accordingly
- 2. If there is an error in a total corresponding to the addition or subtraction of sub-totals, the sub-totals shall prevail and the total shall be corrected.
- 3. If there is a discrepancy between words and figures, the amount in words shall prevail.
- 4. Such a discrepancy in an offer shall be conveyed to the bidder, asking them to respond by a target date, If the bidder does not agree to the Procuring Entity's observation, the bid is liable to be rejected.

The Evaluated Cost shown in the last column of the BOQ sheet is the amount on which the Lowest bidder will be decided, subject to the bid being found technically qualified.

CHAPTER - IV SPECIAL TERMS AND CONDITIONS

1. Pre-Bid Meeting and its outcome:

As mentioned in this Tender (RFP) document, there will be a Pre-Bid meeting in both Offline and Online mode. During the Pre-bid meeting, queries raised by participating bidders will be addressed or clarified. Such queries and replies will be published as a corrigendum on the CPPP/ NCRA website and the same will be considered as an addendum to the main Tender (RFP) document and will be binding on bidders. If the queries are kind of clarifications and corrections, then the due date of submission of the tender (RFP) document will not be extended.

2. Conflict of Interest:

"Conflict of interest" (COI): any personal, financial, or business relationship between the bidder and any personnel of the procuring entity who are directly or indirectly related to the procurement or execution process of the contract, which can affect the decision of the procuring entity directly or indirectly. The bidder has to provide a declaration of Conflict of Interest stating all facts and aspects.

Bidders having a conflict of interest shall not be eligible to participate in the Tender (RFP) process unless the conflict stemming from such a relationship has been resolved in a manner acceptable to the Procuring Entity throughout the Tender (RFP) process and execution of the Contract.

The bidder shall be considered to have a conflict of interest in this Tender (RFP) process and execution of the resultant contract in the following situations:

- a. If its personnel have a close personal, financial, or business relationship with any personnel of the procuring entity or SKAO or Tier-1 company(s), who are directly or indirectly related to the procurement or execution process of the contract, which can affect the decision of the procuring entity directly or indirectly;
- b. A bidder participates in more than one bid in this Tender (RFP) process. Participation in any capacity by a Bidder (including the participation of a Bidder as a partner/ JV member or sub-contractor in another bid or vice-versa) in more than one bid shall result in the disqualification of all bids in which he is a party.
- c. In case procurement is on a Request for Proposal (RFP) basis or where procurement is restricted to pre-approved vendors, it should be especially ensured that there is no conflict of interest. And if there is any joint venture or any collaboration programme that exists between all concerned stakeholders in this Tender (RFP), the bidder has to provide a Declaration in a proper format stating the relationship and also the possible impact on the Tendering process.
- d. Neither the contractor nor its Subcontractors nor the Personnel shall engage, either directly or indirectly, during the term of this Contract, any business or professional activities that would conflict with the activities assigned to them under this Contract and after the termination of this Contract, such other activities as may be stipulated in the contract.
- e. Any bidder participating in this Tender (RFP) process shall declare any collaboration or joint venture or assignments or authorised agency of any of the stakeholders and

procuring entity, including SKAO, Tier-1 company, etc. If the declaration of conflict of interest is not accepted / nor acceptable, then such a bid will not be considered further.

CHAPTER – V ADDITIONAL TERMS AND CONDITIONS

1. Force Majeure

- 1. 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 delays in performance or other failure to perform its obligations under the Contract are the result of an event of Force Majeure.
- 2. For purposes of this Clause, "Force Majeure" means an event beyond the control of the Supplier and not involving the Supplier's fault or negligence and not foreseeable. Such events may include, but are not limited to, acts of the Purchaser either in its sovereign or contractual capacity, wars or revolutions, fires, floods, epidemics, quarantine restrictions, acts of God and freight embargoes.

2. Resolution of Disputes

- a) The Purchaser and the supplier shall make every effort to resolve amicably by direct informal negotiation any disagreement or dispute arising between them under or in connection with the Contract.
- b) If, after thirty (30) days from the commencement of such informal negotiations, the Purchaser and the Supplier have been unable to resolve amicably a contractual dispute, either party may require that the dispute be referred for resolution to the formal mechanisms. These mechanisms may include, but are not limited to, conciliation mediated by a third party, adjudication in an agreed national forum within the jurisdiction mentioned in the tender (RFP) document.
- c) In case of Dispute or difference arising between the Purchaser and the Supplier relating to any matter arising out of or connected with this agreement, such disputes or differences shall be settled in accordance with the Indian Arbitration & Conciliation Act, 1996, the rules there under and any statutory modifications or re-enactments thereof shall apply to the arbitration proceedings. The dispute shall be referred to the Director, TIFR and if he is unable or unwilling to act, to the sole arbitration of some other person appointed by him, willing to act as such Arbitrator. The award of the arbitrator so appointed shall be final, conclusive and binding on all parties to this order.
- d) In the case of a dispute between the Supplier and the Tier-1 company, the dispute shall be settled by arbitration in accordance with the provisions applicable to International Trades.
- e) NCRA-TIFR shall not be responsible for any outcome arising from any disputes between the Tier-1 Company and The Supplier, due to any kind of transactions, deals, correspondence, financial issues, customs-related, delivery-related issues, etc.

3. Indemnity Bond

In case of order, you should also indemnify us on a non-judicial Stamp Paper of **Rs. 500/-** that in the event of happenings of anything of such nature, it would neither affect the work nor us in any way in respect of all Actions, Acts, Suits, Claims and Demands brought or made against NCRA-TIFR by your workmen or any other person or persons whomsoever in connection with the works or in respect of any matter or thing done or committed to be done by you in the execution of or in connection with the works notwithstanding that all reasonable and proper precautions may have been taken by you against any loss or damage to the Owner in consequence of any action or suit being brought against NCRA-TIFR for anything done or committed to be done in connection with the execution of the work. The indemnity given by you as aforesaid shall extend to making good all claims and demands arising out of losses/damages to property of every description and kind, the infringement of any legal right as well as injury or accident to any person resulting in death or otherwise. Original Bond to be submitted directly to the Accounts Section, NCRA-TIFR, Pune, with a copy of the same to be given to the Engineer-in-charge.

4. Defect Liability Period-

The Supplier shall provide a Defect Liability for a period of eighteen months (18) months from the date of successful delivery and acceptance of the batch(es) of items/products at the Tier-1 company's premises. During the Defect Liability Period, the representatives of the Contractor may inspect at site if required. The Supplier/Contractor/Manufacturer shall repair any defect observed during the Defect Liability period, at no extra cost to the Purchaser. Such repair has to be certified by the Purchaser or authorized representative.

Responsibility for Defect Liability Period (DLP): The delivery batch (number of ADU boards) should be matching with the delivery schedule given in the Table.

Scope of Defect Liability Period: The bidder has to provide Defect Liability Period towards supply of these ADU boards for workmanship i.e. other than design, all other processes carried out at bidder's premises, including using components sourced from other agencies (other than Tier-1 company) and then onwards supplier/contractor/manufacturer is responsible for any Latent Defect that may arise after delivery, which were not detectable during standard inspection or acceptance procedures after installation at designated delivery site (Foreign Country to SKAO location).

During the Defect Liability Period, the Supplier shall be responsible for:

- i. Free repair or replacement of faulty items.
- ii. Rectification of any failures observed during functional operation or field use, including issues related to component failure, signal performance, or power integrity.
- iii. Any other process or services within the scope of the warranty and DLP.

5. Turnaround Time

The Supplier shall acknowledge Defect Liability claims within 5 working days or an appropriate reasonable time approved by NCRA-TIFR and shall resolve or replace defective items or provide solutions within **30 calendar days** from the date of notification, excluding shipment and transit period.

- **6. Applicable Law:** Jurisdiction for the resolution of any disputes or arbitration or legal issues shall be the court situated at Pune only.
- **7. Notices:** For all notices, the following shall be the address of the Purchaser:

NCRA-TIFR, Pune SP Pune University Campus, Pune – 411 007 Maharashtra, INDIA

8. Termination of Contract/Order for Default

- a) The Purchaser may, without prejudice to any other remedy for breach of contract, by written notice of default sent to the Supplier, terminate the Contract/ order in whole or part:
- b) If the Supplier fails to deliver any or all of the Goods within the period(s) specified in the order, or within any extension thereof granted by the Purchaser.
- c) If the Supplier fails to perform any other obligation(s) under the Contract.
- d) The Centre reserves the right to cancel the contract at any time by giving **one month's** written notice. Extension of the contract may be considered with mutual agreement,

- depending on the needs of the Centre and based on the past performance of the contractor.
- e) If the Supplier, in the judgment of the Purchaser, has engaged in corrupt or fraudulent practices in competing for or in executing the Contract.
 - i. "Corrupt practice" means the offering, giving, receiving or soliciting of gratification to influence the action of a public official(s) in the procurement process or in contract execution.
 - ii. "Fraudulent practice" means a misrepresentation of facts in order to influence a procurement process or the execution of a contract to the detriment of the Purchaser, and includes collusive practice among Bidders (prior to or after bid submission) designed to establish bid prices at artificial non-competitive levels and to deprive the Purchaser of the benefits of free and open competition.
- f) This kind of Termination will attract LD clause, proper financial penalty and appropriate action by NCRA-TIFR against the bidder.

9. Termination of Contract by the Purchaser

If the Contractor/Supplier commits any `Act of Insolvency' or shall be adjudged an Insolvent or shall have an order for compulsory winding up made against him or pass effective resolution for winding up voluntarily, or if the Contractor/Supplier shall suffer any payment under this contract to be attached by or on behalf of any of the creditors of the Contractor/Supplier, or shall assign the Contract without the prior consent in writing of the Engineer, or shall charge or encumber this Contract or any payments due or which may become due to the Contractor there under, or if the Engineer shall certify in writing to the Purchaser that the Contractor/Supplier

a) has abandoned the Contract,

or

 b) has failed to commence the works, or has, without any lawful excuse these conditions suspended the progress of the works for seven days after receiving from the Engineer written notice to proceed,

or

 has failed to proceed with the work with such due diligence and failed to make such due progress as would enable the works to be completed in accordance with the approved programme of work,

OI

d) has failed to remove materials from the site or to pull down and replace work for seven days after receiving from the Engineer written notice that the said materials or work were condemned and rejected by the Engineer under these conditions,

or

e) has neglected or failed persistently to observe and perform all or any of the acts matters or things by this contract to be observed and performed by the Contractor for seven days after written notice shall have been given to the Contractor/ Supplier requiring the Contractor/Supplier to observe or perform the same,

OI

f) has to the detriment of good workmanship or in defiance of the Engineer's instructions to the contrary, sublet any part of the contract.

Then and in any of the above said causes, the Purchaser with the written consent of the NCRA authorised person may, notwithstanding any previous waiver, after giving seven days' notice in writing under the provisions of this clause to the Contractor/Supplier, determine the contract but without prejudice to the powers of the Engineer or the obligations and liabilities of the Contract, the whole of which shall continue to be in force as if the contract has not been so determined and as if the work subsequently executed has been executed by and on behalf of the Contractor/Supplier.

This kind of Termination will attract LD clause, proper financial penalty and appropriate action by NCRA-TIFR against the bidder.

10. Risk Clause

NCRA-TIFR reserve the right for termination of the contract at any time by giving one month written notice, if the services are found unsatisfactory and also has the right to award the contract to any other selected Tenderers at the cost, risk and responsibilities of Contractor and excess expenditure incurred on account of this will be recovered by NCRA-TIFR from the Contractor Security Deposit or any other pending bill or by raising a separate claim.

11. Contractor's Representative

The Contractor shall employ at least one qualified representative whose name shall have previously been communicated in writing to the Engineer and approved by him to supervise the installation. Any written order or instructions given to the representative shall be deemed to have been given to the Contractor/Supplier. The Engineer shall be at liberty to object to any particular representative/or any persons employed by the Contractor/Supplier on the work and the Contractor/Supplier shall remove the person objected to, on the receipt of the Engineer, in writing, a request requiring him to do so and shall provide in his place another competent representative acceptable to the Engineer. The Contractor's/Supplier's representative shall be a qualified Electronics/Electrical engineer possessing adequate site experience in a similar nature of work. No malfunction, partial or complete failure of any part of the items supplied is expected to occur. The Supplier shall maintain the necessary log in respect of the result of the test to establish to the entire satisfaction of the Purchaser, the successful completion of the test specified.

12. Delivery Period

- a) Entire work/supply to be completed within **18 Months** from the date of issue of work/purchase order. The period may be extended if the reasons furnished are acceptable to the Centre.
- b) The delivery target of monthly numbers (batch) as per Table 1 given on page no. 41 of this tender document, for each month, should be met on or before the end date of that month. Any delay beyond the scheduled delivery date and attributable to the Supplier will attract liquidated damage, as per the LD clause mentioned in this document.
- c) Initially, the contractor has to supply 20 nos. of ADU Boards on or before 30 days from the date of issue of the work order for initial testing and validation purposes. Primary testing will be done at your works and afterwards these boards will be sent to the Tier 1 company for assembly / integrated testing. On approval and acceptance of the same from SKAO-appointed Tier 1 company/NCRA, the remaining quantity is to be supplied as per the delivery schedule given in CHAPTER-IX. If there are any changes or slight modifications required and suggested by the Tier-I company, the supplier has to incorporate these changes for subsequent supply. Test equipment required for testing at your works will be provided by the Tier-I company of the SKAO at cost (APPENDIX-D).
- d) NCRA reserves the right to change the batch-wise quantity given in Table-1 as and when required, which will be communicated to the supplier.

13. Insurance

- a) 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.
- b) For delivery of goods at the Tier-1 company premises i.e. SKA Location at Lomangana, Italy and the insurance shall be obtained by the Supplier in an amount equal to 110% of the value of

the goods from "warehouse to warehouse" (final destinations) on "All Risks" The insurance shall be valid for a period of not less than three months after installation and commissioning.

14. Transportation

The Contractor / Supplier shall be responsible for arranging the transportation of the product to the SKA location at the Tier-1 Company in Italy including insurance coverage. All costs associated with transportation and insurance shall be borne entirely by the Contractor / Supplier.

15. Logistics & Costs

All costs related to removal, packaging, transportation (including re-export/import duties if applicable), repair/replacement, import and export of items, and re-delivery of defective parts duly rectified, under the Defect Liability shall be borne by the Supplier.

16. Liquidated Damages

For all delays which violate the batch-wise delivery schedule, which do not merit any extension of time, the Contractor/ Supplier shall attract a 0.5% penalty per week or part thereof, subject to a maximum of 5% of the total contract value. The amount of liquidated damages shall be recoverable from the payment due to the Contractor/Supplier. The deduction of liquidated damages shall not, however, absolve the Contractor/Supplier of his responsibility and obligations under the contract to complete the work in its entirety and shall also be without prejudice to action by the Purchaser under clause `Termination of Contract by the Purchaser'. After that, the same shall be completed by the Institute at the Contractor's/Supplier's risk and cost. However, if the delivery date is extended by NCRA authorities for reasons beyond the control of the supplier and accepted by the NCRA, then the LD clause will be relaxed only for that batch.

17. Taxes and Duties

- i. The Supplier shall be entirely responsible for all taxes, duties, license fees, road permits, import/export duties, international transport charges and other charges incurred up to the delivery of the contracted goods to the Purchaser at the specified destination.
- ii. GST extra at actuals will be paid.
- iii. The Purchaser shall deduct GST TDS at the applicable rate at its option from the invoices, after the items are delivered at the Tier-1 company site in the presence of the supplier's representatives.

CHAPTER – VI ELIGIBILITY CRITERIA

All the documents about the eligibility conditions (techno-commercial), along with relevant documents, signed/stamped, need to be uploaded along with the technical bid on the CPPP Portal. The bids, which are found not to meet any or all the conditions, shall be declared techno-commercially disqualified and will not be eligible for the opening of their financial bids.

S. No.	Description	Details to be furnished by the bidder, enclosing relevant documents in the technical bid
1	Bidder must be a Firm / Company registered under the Indian Companies Act OR a Society registered under the Societies Act, 1860 OR a PSU / Autonomous bodies or any other venture not covered above, registered under the relevant Government Statute and authorised to carry out the services/work/business. Joint Ventures and Consortia are not permitted.	
2	The Bidder must have all relevant registrations, such as the Incorporation Certificate, MOA, PAN, TAN and GST as applicable	
3	The bidder must have been in the business for the last seven years prior to 30.09.2025	
4	The bidders should have an average annual turnover of at least Rs. 50 Crores during the last three financial years i.e. 2022-23, 2023-24, 2024-25, duly certified by a CA	
5	The bidder should not have incurred a loss in more than two financial years during the last five financial years ending 31.03.2025, duly certified by a CA.	
	 Do not enclose copies of Profit and Loss and Balance Sheets statements and IT returns. 	
6	The bidder must submit a Solvency Certificate from a Nationalised / Scheduled Bank in India where the Bidder has a working current account, for at least Rs. 46 Cr.	
7	The bidder must furnish the undertaking regarding Acceptance of Terms & Conditions of Tender and Non- Blacklisting / Debarment and a Similar nature of work has not been executed through another contractor	
8	The bidder must warrant that there is no legal action ongoing against it for any cause in any legal jurisdiction. If such an action exists and the bidder considers that it does not affect its ability to deliver the Tender (RFP) requirements, it shall provide details of the action(s).	
9	The Bidder should have executed projects of sufficiently large scale or complexity. In particular, the bidder should have executed at least one of the following during the last 7 years: a) a single large project of a total value of 40 Cr. or more with a single client, or;	

	b) two projects, each of a total value of 30 Cr. or more, with the same or different clients, or;	
	c) three projects, each of a total value of 20 Cr. or more, with the same or different clients.	
	• For arriving at the cost of work, the value of work executed shall be brought to the current costing level by enhancing the actual value of work at a simple rate of seven percent per annum, calculated from the date of completion to the date of Bid opening.	
	• Copies of work orders, together with completion certificates duly signed by the competent authority to be submitted to evidence the above without fail.	
10	The Bidder should have executed at least one project of scale or technical complexity similar to the requirements of this Tender (RFP), in the field of hardware development, carried out in India.	
11	The Bidder must have the necessary in-house infrastructure, trained personnel and expertise for meeting the technical / work requirements. No subcontracting outside India will be allowed for manufacturing, assembling and testing tasks.	
12	The Bidder must submit relevant reference documents, information and certificates from the respective clients certifying technical, delivery & execution capability of the bidder, signed by the client; and the contact names & numbers of all such clients.	
13	The Bidder should have in place the required quality standards for manufacturing, assembly and testing.	
14	Certificate of Local Content issued by a Statutory Auditor or Cost Auditor of the company	
15	Certificate of Compliance regarding Restrictions on procurement from Bidders from a country or countries or a class of countries	

Note: Kindly fill up the above details with relevant documents, signed, stamped and enclose them along with your technical bid (Cover-I); otherwise, your bid will be rejected.

CHAPTER – VII EVALUATION PROCESS

- a) The objective of the evaluation process is to evaluate first the technical bids to select suitable organisations having technical competence and capabilities for engagement for the projects mentioned in the scope of work in Chapter-IX
- b) The evaluation will be undertaken by a Technical Evaluation Committee (TEC) duly constituted by the appropriate competent authority / Centre Director, NCRA. The TEC would have external experts and officials of the Centre. The TEC has been given a mandate to carry out a thorough and transparent evaluation process.
- c) Only bids from Bidders who were technically qualified during the earlier EOI process and now meet the eligibility criteria as per Chapter-VI and submitting complete and responsive bids will be considered for evaluation.
- d) The Centre and TEC will carry out the initial scrutiny to ascertain compliance with the Eligibility criteria listed under Chapter-VI, and elimination of those bidders who do not meet the required eligibility criteria. Proposals not conforming to the eligibility criteria will be rejected.
- e) The TEC will evaluate the responses from the eligible Bidders and shortlist only those who demonstrate and sufficiently establish their competence and capability to deliver specified services, as per the scope of work mentioned in the Tender (RFP). The decision of the Centre is final and binding on all the bidders.
- f) The evaluation criteria shall be based on the requirements, stated elsewhere in this document: evaluation table (given later in this chapter) and general terms and conditions (Chapter-III). The evaluation will also take into consideration the supporting documents.
- g) TEC and the Centre are authorised to interact with the Bidders for discussions, clarifications etc. during the evaluation process. The TEC can seek more documents and information from the bidders. The responses and outcomes from these will also be taken into consideration in the evaluation process. TEC may also visit the facilities of the Bidder to evaluate the technical capabilities.
- h) Eligible Bidders would be invited to make exclusive presentations to the TEC detailing their response to the Tender (RFP). The Bidder(s) would be required to present details of their experience and expertise in handling similar projects, which would be evaluated by the TEC. It is expected that the Bidder provide the details for each of the implementations separately, covering the complete scope of work. The Bidder(s) would be required to present details of the company profile, as well as demonstrate commitment, technical competence/capability to provide the services required, over the entire duration of the work as defined in this tender document.
- i) After submitting bids online, at any point in time, there is no scope or permission to change the bid documents and rates, for whatever reason. However, any additional documents sought by TEC during the technical evaluation process will be added to the bid/Tender (RFP) document of such a bidder. The financial bid and the rates offered therein shall remain unchanged during the entire process.
- j) The decision of the TEC, as approved by the Competent Authority of the Centre, shall be considered final.

- k) The Centre, at its discretion or recommendation of the TEC, may reject the proposal of a Bidder without giving any reason whatsoever, if in the Centre's opinion, the Bidder could not present itself as detailed in the proposal/submission.
- 1) The Centre reserves the right to change the evaluation criteria and evaluation process for this Tender (RFP), before the "Due Date of submission of Tender (RFP)". Bidders are advised to keep checking for any changes at the website link: https://eprocure.gov.in
- m) The Centre reserves the right to suspend or cancel the entire process, reject one or all bids, without assigning any reasons. The Centre may stop any of the activities/processes of this Tender (RFP) for reasons beyond its control.

Evaluation Table (including, but not limited to, the following)

This shall be used by the TEC for evaluating each of the bids received, along with the detailed Technical Evaluation Report, for making the final decisions (NOT TO BE FILLED BY THE BIDDER)

Sr. No.	Evaluation criterion	Criterion met or not (to be evaluated by the TEC)
1.	Whether the bidder has fulfilled the requirement specified under Item #1 of the eligibility criteria	YES / NO
2.	Whether the bidder has fulfilled the requirement specified under Item #2 of the eligibility criteria	YES / NO
3.	Whether the bidder has fulfilled the requirement specified under Item #3 of the eligibility criteria	YES / NO
4.	Whether the bidder has fulfilled the requirement specified under Item #4 of the eligibility criteria	YES / NO
5.	Whether the bidder has fulfilled the requirement specified under Item #5 of the eligibility criteria	YES / NO
6.	Whether the bidder has fulfilled the requirement specified under Item #6 of the eligibility criteria	YES / NO
7.	Whether the bidder has fulfilled the requirement specified under Item #7 of the eligibility criteria	YES / NO
8.	Whether the bidder has fulfilled the requirement specified under Item #8 of the eligibility criteria	YES / NO
9.	Whether the bidder has fulfilled the requirement specified under Item #9 of the eligibility criteria	YES / NO
10.	Whether the bidder has fulfilled the requirement specified under Item #10 of the eligibility criteria	YES / NO
11.	Whether the bidder has fulfilled the requirement specified under Item #11 of the eligibility criteria	YES / NO
12.	Whether the bidder has fulfilled the requirement specified under Item #12 of the eligibility criteria	YES / NO
13.	Whether the bidder has fulfilled the requirement specified under Item #13 of the eligibility criteria	YES / NO
14.	Whether the bidder has fulfilled the requirement specified under Item #14 of the eligibility criteria	YES / NO
15.	Whether the bidder has fulfilled the requirement specified under Item #15 of the eligibility criteria	YES / NO

Notes:

- a) The outcome of the technical evaluation process will be communicated to all the bidding parties.
- b) Only the technically qualified bidders/organisations will be considered for further course of action such as opening Financial Bid documents, finding L1 party, negotiations if required under some circumstances, placing of work order/contract, supply of prototypes for specific work proposed based on the requirements. During these processes, the Centre may ask the shortlisted bidders (L1) to provide more information about their financial terms and conditions, including rate charts, in order to complete the awarded work/SITC contract, etc.

- c) In case of the Supplier becoming technically, legally, or otherwise disqualified / ineligible at any point in time, NCRA reserves the right to cancel /suspend/terminate the contract if it is necessary.
- d) The Supplier who has successfully completed the Tendering process and become eligible for completion of the said work, will have to sign the declaration and NDA, as per the procedures, which will be communicated later at any point in time.
- e) NCRA-TIFR reserves the right to split or not to split the order quantity, if there is more than one L1 bidder (due to the same rates in the financial bids, exactly matching with total cost or due to MSME provisions, as the case may be). Under such circumstances and in case it is decided by NCRA-TIFR, the order quantity may be split in the ratio of 60:40. However, any supplier (L1) party cannot claim this split as a matter of right, even if their financial bids match.

Information to the Supplier – Post award of work order – These may get changed once the order is placed and if required

- 1. After placing the work order, complete all procedural and financial aspects including submission of Indemnity Bond, PBG, Undertaking, Declarations etc.
- 2. Process for sourcing the material mentioned in the BOQ/BOM from the Tier-1 Company. Procure the test machines, jigs and equipment accordingly. For this trade or transactions, the Supplier is fully responsible for signing the agreement with the Tier-1 Company, as per the applicable laws, agreed terms, established procedures, legal compliances, detailed scope, payment terms, etc. covering all aspects for sourcing components, tests, delivery of final items, handling of defective items and its rectifications, NDA and IP issues, etc. NCRA-TIFR shall not be responsible for any legal, procedural, financial remedy or compensation arising due to and/or out of this agreement/trade between the Supplier and the Tier-1 Company.
- 3. Process for sourcing other material as per the makes from the authentic sources by following the Indian government rules and norms.
- 4. Inform NCRA members for the physical inspection of items once received at your works and get the inspection done from the same.
- 5. Follow all the step-wise procedures for making/manufacturing/fabricating of ADU Board assemblies Prototypes 20 Nos. as per the design, specifications, process, tests, etc. Tender (RFP) documents.
- 6. Carry out the test procedures for the Prototypes 20 numbers, as mentioned in the Tender (RFP) documents and provide its reports.
- 7. Inform NCRA representatives well in advance about tests with dates agreed for testing and carry out tests on the same dates, in the presence of NCRA teams, SKAO Teams (coming from abroad), and prepare reports. ISO 14001:2015 Environmental Management System
- 8. If the tests carried out in your premises fail or do not meet the requirements, you have to modify/rectify the same and repeat for tests. However, if the tests are not satisfactory even after giving advice and time (1-2 opportunities), then, based on the advice and directives of SKAO, NCRA reserves the right to cancel the work order at your risk and cost. NCRA or any other agency shall not be responsible for making any kind of compensation.
- 9. After all tests in your factory premises are carried out, the process for properly packing the material for dispatching to Lomagna, Italy, for assembly tests.
- 10. Your representatives may have to be present for the assembly tests in Italy to witness the test and ensure acceptance of items delivered, at your cost.
- 11. If the tests carried out at Lomagna, Italy site, fail or do not meet the requirements, you have to modify/rectify the same and produce for tests again at your own cost. However, if the tests are not satisfactory even after giving advice and time (1-2 opportunities), then, based on the advice and directives of SKAO, NCRA reserves the right to cancel the work order at your risk and cost. NCRA or any other agency shall not be responsible for making any kind of compensation.
- 12. If the material is accepted after carrying out in-house and at-site tests, then the product/items delivered will carry a Defect Liability Period as mentioned in Point No. 4 (Defect Liability Period) under Chapter-V of this document.
- 13. The bidder can submit the invoice along with the Acceptance Certificate from the Tier-1 Company, for items delivered and accepted after final tests by the Tier-1 company, for processing payment from NCRA, within 30 days from the date of receipt of the invoice, duly certified by an authorised person in NCRA. It may be noted that there is no payment to be claimed from SKAO or any other company.
- 14. If any or few or all of the items fail during the Defect Liability Period, it will be your responsibility to rectify them at your own cost and efforts, including import of failed items and export of rectified or new items to the same destination.
- 15. During the total Defect Liability Period (Total 38 months), the retention money / PBG will be kept live and shall always be with NCRA for invoking if and when required and in the event when the Supplier is not able to perform the liability of the work order.
- 16. The Supplier should ensure after-sales service, technical support, spares availability, etc. till the Defect Liability Period.

- 17. It is the sole and total responsibility of the Supplier to perform the work activities as per the Tender (RFP) terms and conditions and the bidder shall not shake away any responsibility or liability from the performance of the said works.
- 18. If there is any notification issued by the government about tax / duty exemption, for this project/works, the same will be shared with you and accordingly, the tax/duty so exempted shall be deducted from your bill OR shall not be payable.
- 19. Responsibility with regard to delivery of items: As described in this document, the delivery of completed items / products is outside India, i.e. Lomagna, Italy. The Supplier is expected to take care of all aspects related to transport, duty, customs clearance, legal compliances, required licences, etc., while sending goods from India to Italy and also from the Italian customs department to the Tier-1 Company in Italy. The concept is based on the DDP INCOTERM, inclusive of all. Bidders take note of this while submitting their bids. Secondly, whenever items delivered in Italy have to be brought back to India for some changes or modifications, it is the responsibility of the bidder to take care of all legal, procedural, customs, government norms, etc. NCRA-TIFR shall not bear any cost towards the same.
- 20. Bidder(s) are responsible for taking care of all legal compliances in regards to this work, starting from sourcing the items to the delivery of items at the Italy site. Bidder has to indemnify NCRA-TIFR for all kinds of legal or procedural complications arising out of this work, be it in India or Italy. It may be firmly noted that NCRA-TIFR shall not be held responsible for any legal and/or procedural complications and compensation thereof.

CHAPTER - VIII

PAYMENT TERMS AND CONDITIONS

Payment Terms

- 1. Payment shall be made to the Supplier by NCRA-TIFR, Pune, through NEFT/RTGS, only after successful supply, inspection and acceptance of the number of boards at the final destination on a pro-rata basis, as given below:
 - a) 95% of the agreed per-unit cost of finally delivered products, after carrying out all required tests and satisfactory acceptance of ADU boards by a Tier-1 company in Italy on a pro rata basis.
 - b) 5% will be deducted from each invoice as a security deposit and will be released after completion of the total supply, testing and acceptance of all boards (2550) at Tier-1 Company + 60 days.
 - c) Valid PBG of 5% of the total value, including taxes, shall be kept with NCRA-TIFR till completing all Defect Liability Periods + 60 days, i.e. <u>Total 38 months</u>. In case the delivery schedule is prolonged/delayed, the bidder has to renew the PBG well in advance, for the duration till the defect liability period of the last supply and accepted batch of ADU boards plus two months.

All payments will be made after deduction of Income Tax, GST, TDS and any other statutory dues applicable.

2. No Price Variation Clause: The overall prices quoted by the Supplier shall remain unchanged till the entire duration, including the Defect Liability Period and there shall be no provision for any upward revision of the prices/cost given by the Supplier. However, if the cost of the items, so procured subsequently, has a considerable reduction/downfall in purchase prices, the Supplier shall pass on such benefits to NCRA.

Conditions for Payment Release: The supplier should submit 5% PBG, including taxes, within 14 days from the date of issue of the order. Payment shall be made in accordance with the methodology above unless otherwise mutually agreed separately and written/communicated in the work order after the due approval process. The serial number and date of supply of each board must be clearly mentioned in the dispatch documents and invoices for traceability. Only boards that are accepted after inspection and found fully functional at the designated delivery site will be eligible for final payment. Defective or non-conforming boards must be replaced by the Supplier at their cost.

Contractor shall submit all bills to:

National Centre for Radio Astrophysics (NCRA)
Tata Institute of Fundamental Research (TIFR)
S.P. Pune University Campus, Pune – 411 007, INDIA

The Contractor/Supplier shall submit an invoice along with the acceptance certificate obtained from the Tier-1 company, for each batch as per the delivery schedule, separately, only after satisfactory testing and acceptance of items by the Tier-1 Company. Payment for each batch will be done only after certification from the authorised person in NCRA-TIFR, on a pro-rata basis. Payment will be made within 30 days from the receipt of a certified invoice at NCRA Pune.

Security Deposit - 5% of each invoice amount shall be deducted and kept as interest-free Security Deposit, and will be released only after completion of total supply, testing and acceptance of all boards at Tier-1 Company + 60 days of each batch.

Submission of Performance Bank Guarantee

Performance Guarantee to be furnished by the successful bidder for satisfactory performance of the contract. Satisfactory performance of the contract here means satisfactory completion of work in respect of the works.

a) Quantum of Performance Guarantee

- i. Valid PBG of 5% of the total value, including taxes, shall be kept with NCRA-TIFR till completing all Defect Liability Periods + 60 days, i.e. Total 38 months.
- ii. In case the delivery schedule is prolonged/delayed, the Bidder has to renew the PBG well in advance, for the duration till full and final supply of boards plus two months.
- iii. The successful bidder shall deposit an amount equal to 5% of the value of order value including taxes, as a Performance Guarantee within 14 days of receipt of our order and must be valid till completion of all Defect Liability Periods plus two months i.e. Total 38 Months.
- iv. In case the Performance Guarantee is not submitted within 14 days, interest @ 12% per annum will be levied till the date you submit the Performance Guarantee.
- v. If the successful bidder fails to submit the Performance Guarantee / Performance Guarantee with interest or refuses to submit the Performance Guarantee even after reminders, Centre reserves the right to cancel the order without notice and such bidder will be debarred from participating in any Tender (RFP) for a period of 2 years, in addition to other penal and legal actions.
- vi. The Performance Bank Guarantee will be returned only after satisfactory supply, testing and acceptance of all boards by Tier-1 company/SKAO, plus two months. The bidder has to give a declaration of completion of supply and demand for releasing the PBG after completing the due process.

b) Forms in which the Performance Guarantee can be submitted

i. Performance Guarantee should be in the form of Demand Draft of a Scheduled Bank in favour of "TIFR", payable at Pune or Bank Guarantee (BG) from a Scheduled Bank in favour of Centre Director, NCRA-TIFR, Pune as per the prescribed format or Fixed Deposit Receipt (FDR) of a Scheduled Bank pledged in favour of Centre Director, NCRA-TIFR, Pune. The Bank Guarantee should be from any one of the nationalized banks or a Scheduled Bank and be executed on non-judicial stamp paper of appropriate value. The Bank Guarantee should be valid up to at least 2 months beyond the contractual date for completion of the order.

c) Refund of Performance Guarantee

i. Performance Guarantee shall be released/returned to the contractor after the completion of the Defect Liability Period (38 months) plus two months without any interest.

d) Forfeiture of Performance Guarantee

- i. Performance Guarantee is taken for the due performance of the Contract and can be forfeited in the event of a breach of contract.
- ii. FDR / Bank Guarantee / Demand Draft obtained towards Performance Guarantee will be invoked when there is a specific breach on the part of the Contractor.

CHAPTER - IX

SCOPE OF WORK

This Scope of Work (SoW) defines the responsibilities of the contractor/manufacturer in the procurement, assembly, testing, integration, and delivery of ADU boards for the SKA-Low Signal Processing System (SPS) on a Built to Print basis, as per the design and drawings provided by SKAO/NCRA and for the given quantity i.e., 2550 nos. The work shall be carried out in close coordination with the Tier-1 company and under the guidance of the competent authorities.

Procurement of BOM critical components sourcing as specified, specified making process, applicable tests with desired parameters & its expected outcome and delivery of the accepted material, at the required destination involving seamless integration of delivered components with the broader system, and maintain full compliance with system requirements and specifications along with 18 months of Defect Liability Period after satisfactory acceptance of ADU boards by the Tier-1 company, for each batch.

It is important to have tracking and traceability of produced systems at work stages using appropriate software tools such as CEMAR.

Out-of-Scope Items: The following items fall outside the supplier/contractor/manufacturer production scope:

- The supplier/contractor/manufacturer is prohibited from procuring critical components from any source other than the designated Tier 1 company
- Technical support provided by the Tier 1 company cannot be substituted.

The document presents the following details for supplying the ADU board build to print work:

9.1. Introduction

- 9.1.a. Background
- 9.1.b. Overview of the SKA-Low Systems
 - i. SPS
 - ii. FEM
- iii. ADU (Build to Print Circuit Board)
- 9.2. ADU Bill of Materials
- 9.3. ADU Component Procurement and Sourcing of PCBs
- 9.4. Prototype Supply and Procedures
- 9.5. Required Process Standards
 - 9.1.a. Standards and Certifications
 - 9.1.b. Environmental and Reliability Testing
 - 9.1.c. Tolling and Control Plan
 - 9.1.d. Quality Management System
 - 9.1.e. Electrostatic Discharge (ESD) Control Plan
 - 9.1.f.Defect Control Plan
- 9.6. Manufacturing
- 9.7. Test Facilities and Test-Jig Equipment
 - 9.1.a. Inspection and Testing
 - 9.1.b. First Article Inspection (FAI)
 - 9.1.c. Test Documentation
 - 9.1.d. Test Reviews (TRR Test Readiness Review)
 - 9.1.e. Factory Acceptance Tests (FAT)
- 9.8. Production Roll-Out and Delivery
- 9.9. Packing
- 9.10. Delivery
- 9.11. Insurance

- 9.12. Transportation
- 9.13. Logistics & Costs
- 9.14. Delivery & Logistics
- 9.15. APPENDIX (DRAWING)

9.

9.1. **INTRODUCTION:** The National Centre for Radio Astrophysics (NCRA) of the Tata Institute of Fundamental Research (TIFR) is a leading Centre for research in a wide range of areas in astronomy and astrophysics (www.ncra.tifr.res.in). The National Centre for Radio Astrophysics (NCRA) has set up a unique facility for radio astronomical research using the meter wavelength range of the radio spectrum, known as the Giant Metrewave Radio Telescope (GMRT), located at a site about 80 km north of Pune, Maharashtra, India. GMRT consists of 30 fully steerable gigantic parabolic dishes of 45m diameter each spread over distances of up to 25 km. GMRT is one of the most challenging experimental programs in basic sciences undertaken by Indian scientists and engineers. The Square Kilometer Array (SKA) (see also https://www.skao.int/ for more extensive information) is a science mega-project that aims to build the world's largest next-generation radio telescope to be constructed jointly by an international consortium of countries involving participants from both

The Square Kilometer Array (SKA) (see also https://www.skao.int/ for more extensive information) is a science mega-project that aims to build the world's largest next-generation radio telescope to be constructed jointly by an international consortium of countries, involving participants from both academia and industry. The SKA will be a revolutionary telescope, both in terms of expected science output as well as the engineering challenges in building it. The telescope will be located in radio-quiet regions in South Africa and Australia, with operational headquarters near Manchester, UK. Construction of Phase 1 of the SKA, which started in early 2022, has a total cost of about 2000 million Euros, spread out over a 8-year period (2022-2030): 5-6 years of construction, followed by 2-3 years of commissioning, early science, and stabilization towards routine operations. The construction of the SKA is being overseen by the SKA Observatory (SKAO), which is an intergovernmental treaty organization with individual countries as members. India has worked extensively with the SKA project since its early years, including during the design phase (2014-2019), as well as during the prototyping and bridging phase (2019-2021).

India has joined the SKAO as a member country and participated in the construction phase through the development and delivery of various software and hardware components. Through the design and prototyping phases, India has established its position as one of the lead countries for participation in the building of the Observatory Management & Control (OMC) system during the construction phase, with active participation from the Indian industry.

India is now looking to establish its role in the building of the digital Signal Processing Sub-System (SPS) - Analog to Digital Unit (ADU) during the SKA construction phase, with primary focus on the SKA-Low telescope. NCRA-TIFR, as a *Contribution Partner*, is eligible to perform this Agreement in fulfilment of India's agreed in-kind contribution to the SKAO Project.

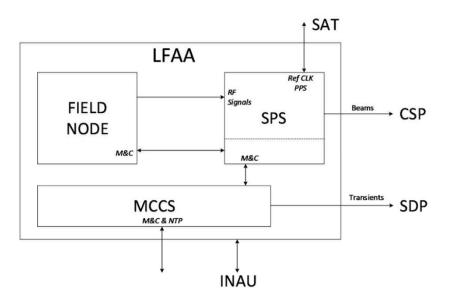
- **9.1.a.** BACKGROUND: The Square Kilometre Array (SKA) Observatory is a global collaboration of Member States. The mission of this newly established Inter-Governmental Organisation (IGO) is "to build and operate cutting-edge radio telescopes to transform our understanding of the Universe, and deliver benefits to society through global collaboration and innovation". The headquarters of the SKA Observatory is co-located with the site of the University of Manchester's Jodrell Bank Observatory near Manchester in the United Kingdom. See www.skatelescope.org and www.skao.int The SKA is a next-generation radio astronomy-driven Big Data facility that will revolutionize our understanding of the Universe and the laws of fundamental physics. Enabled by cutting-edge technology, it promises to have a major impact on society, in science and beyond. The observatory will consist of two world-class complementary telescopes, one with an array of mid-frequency dishes and one with an array of low-frequency log-periodic antennas, both operating in the radio regime of the electromagnetic spectrum:
 - SKA MID: An array of 197 dishes, comprising 64 dishes (currently forming the MeerKAT telescope) and 133 15-m diameter dishes, the greatest distance between two dishes being 150km, located in South Africa. The MID Telescope covers a frequency range of 0.35 15.4 GHz over 5 bands

• SKA LOW: An array of 131,072 antennas grouped in 512 stations, the greatest distance between two antenna stations being 65km, located in Western Australia. The LOW telescope covers a frequency range from 50 –350 MHz

During the detailed design phase of the SKA, which concluded about 5 years ago, the work done covered different technical aspects of the SKA, ranging from the receptors (e.g. dishes, dipole arrays) to the signal transport sub-systems, the signal processing sub-systems, the data processing sub-systems, the infrastructure sub-systems etc. One such major sub-system is the SKA-Low Signal Processing Sub-System (SPS), which is designed to receive the Radio Frequency (RF) signals generated by the SKA-Low dipole antennas in the field nodes (or stations), and deliver the beamformed digital signals to the SKA-Low Correlator and Beamformer sub-system for further processing. The SPS reference design was developed by the Low Frequency Aperture Array (LFAA) Consortium during the pre-construction era of the SKA project. The reference design was critically reviewed at the LFAA Element Critical Design Review (CDR). Work on the reference design has continued in the "bridging" period between LFAA CDR and the award of this contract. The digital processing modules in the SPS will make use of the state-of-the-art ADCs, complex FPGAs, memory, multi-gigabit QSFP, and several SMD components housed in 100s of multilayer (16 to ~24) PCBs.

9.1.b. Overview of the SKA-Low Systems:

i. Signal Processing Sub-system (SPS): Figure 1 provides a block diagram for the SPS external interfaces. The Signal Processing Sub-System (SPS) receives the Radio Frequency (RF) signals generated by the antennas in the field node, and delivers beamformed signals to the SKA Low Correlator and Beamformer (CBF LOW). The received RF signals are converted to optical signals. Then the signals are transmitted over RFoF and the received optical signals are converted to electric signals. These signals are, then, amplified and filtered to select the required RF band. Then the RF signals are digitised. The resulting RF samples are associated with precise timing information derived from the reference clock and the distributed Pulse Per Second (1PPS) signal. The SPS then combines these signals into one, or more, station beams, for 512 stations.



From one station, the signals of one or more substations, up to 256 antennas in total, are beamformed into one or more beams. This beamforming generates signals that are logically equivalent to those of single radio receptors, steered to the regions of interest in the sky.

The SPS performs frequency channelisation of the received signal to provide the CBF with channels of specified bandwidth. The SPS also calibrates these signals according to the Monitor, Control and Calibration Sub-System (MCCS) calibration information. The SPS transmits the generated station beam signals to the CBF LOW.

ii. The FEM:

Figure 2 provides a block diagram showing the context of the FEM in the Analogue Receiver Chain

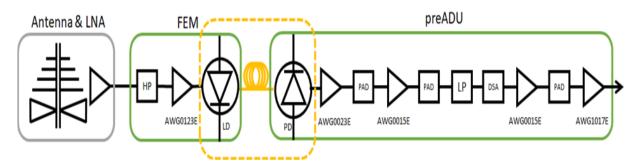


Figure 2: Analogue Receiver Chain

The analogue receiver chain for LFAA amplifies the antenna signals to levels suitable for ADC conversion, filters the band to prevent aliasing while rejecting out-of-band RFI, and transports the conditioned signals from the field node to the digital processing equipment.

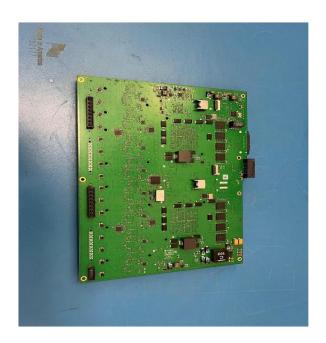
The analogue receiver chain comprises a dual-polarization antenna with LNAs, followed by short coaxial links to a SMARTbox housing the Front-End Modules (FEM) for 10–11 antennas. Each FEM integrates a high-pass filter to suppress low-frequency RFI, a Bias-T for LNA power, amplification, and optical transmitters that modulate two polarization signals onto 1270 nm and 1330 nm lasers multiplexed onto a single fibre per antenna. These optical signals are routed to the processing facility, where the PREADU converts them back to RF using photodiode receivers, applies anti-alias filtering, further amplification, and digital step attenuation to set the correct levels for ADC conversion.

In the updated design, 32 signal chains will be assembled in two "receiver module" boards, each carrying 16 channels. Receiver modules are mounted on the SPS processing boards (ADU board), containing the ADCs and the digital components. One ADU board and two PREADU modules compose a Tile Processing Module (TPM).

Each station includes 16 TPM modules and supporting systems, hosted in a temperature-controlled and screened facility: the Central processing facility, for all the core stations, or Remote Processing Facilities, for stations in the array arms, to limit maximum fibre length.

iii. ADU (Build to Print Circuit Board):





The ADU board is part of the TPM (Tile Processor Module). The TPM is the Tile Processor Board of the Square Kilometre Array. It is a 32-channel 1GHz 8/12-bit Analog to Digital conversion/pre-processing board, equipped with management functions to support the integration into the rack structure.

Best-in-class 14-bit AD converters, latest 16 nm FPGA, 40 Gbit Ethernet optical link have been selected, focusing on the best commercial compromise between quality, performance and power consumption.

Compact board size, low noise clock network, advanced 14-layer board build-up, complete Ethernet-based management features (including health monitoring capability), high efficiency and low noise power distribution system complete the main board features.

The TPM also provides external synchronization signals and high-speed DDR4 memory banks to allow RAW data buffering.

An on-board 32-bit microprocessor and large flash memories allow high-level management operations including online multiple configuration selection and structured communication with infrastructure management applications.

The ADU board is provided with a low-level management firmware to perform board configuration and monitoring through the Ethernet interface, exploiting a UDP-based protocol.

The following list sums up the remarkable ADU characteristics and features:

- Compact size, 6U format, designed for backplane installation
- Thirty-two analogue inputs capability with high quality and high isolation stackable RF 50 Ohm input connectors
- Sixteen dual-channel 14-bit 1GHz AD converters
- High-quality clock distribution system with full JESD204B Subclass 1 capability on all inputs, with deterministic latency between the channels and the user-configurable low noise PLL
- Two Xilinx Ultrascale XCKU9P 16 nm FPGA devices dedicated to data processing, implementing the same functionality, managing 16 channels each

- Two DDR4, 64-bit memory banks, up to 16+16 GByte total size
- Two 40G Ethernet interfaces (QSFP), one for each FPGA
- High-speed internal bus to connect the 2 FPGAs, up to 75 Gbit + 75 Gbit bidirectional
- Low-level Ethernet gigabit management interface with instant ON flash-based Lattice CPLD
- Complete system monitor interface with power, voltage and temperature monitoring
- On board two 256 Mbit SPI user flashes for multiple FPGA configuration options. Second-level management microprocessor (ARM Cortex M0+, 32-bit, 48 MHz) for high-level remote board control
- High efficiency multistage Power Distribution system, with configurable start-up and power sequence. Compatible with Xilinx JTAG Virtual cable for complete remote debugging based on the Ethernet gigabit management link.

9.2. ADU Bill of Materials:

The detailed Bill of Materials for one board is given in the **APPENDIX-B: BoM**. The CRITICAL COMPONENTS list is mentioned in **APPENDIX-A: Critical Component List**. Components listed where the vendor is a Tier-1 Company and "BODY CORP" can be termed as CRITICAL COMPONENTS.

9.3. ADU Component Procurement and Sourcing of PCBs: ADU Component Procurement and Sourcing of PCBs:

The contractor/manufacturer shall procure and supply all components required for the assembly of ADU boards, including BoM items, FPGA components, and necessary spares for all ADU TPMs.

- a) Critical components including ADU PCB boards, must be sourced from the Tier-1 company at a cost provided in the BOM. This cost does not include any taxes, transport, and/or duties. This has to be taken care of by the Supplier.
- b) The rest of the components need to be sourced from approved market vendors listed as pref/alt. Alternate components (Alt) mentioned in the BoM can ONLY be used if preferred (Pref) components are not available. These components can not be sourced from countries sharing land borders with India. Any deviation from the component specifications in **APPENDIX-B: BoM** by the supplier/contractor/manufacturer is not permitted.
- c) Procurement must follow the approved supplier list to ensure quality, traceability, and compliance with the project specifications. The supplier/contractor/manufacturer will coordinate all purchases and timely delivery of manufactured ADU boards.
- d) Any defects or discrepancies identified upon receipt of critical BoM components must be promptly reported to the competent authorities, and corrective action should be taken in coordination with the Tier-1 company.
- e) Fully compliant components only should enter the assembly workflow, maintaining the integrity of the ADU manufacturing process.
- f) Inform a competent technical team for physical inspection of critical components once they are received at the supplier/contractor/manufacturer's factory to get the inspection done for the same.
- g) All procured components and PCBs must be accompanied by certificates of conformity and test reports, where applicable, to validate compliance with the design specifications.
- h) **Procurement of Test Jigs:** (**APPENDIX-D** and **APPENDIX-E**) At the end of manufacturing of each batch of ADUs, it will also have to be tested using the Electrical/RF test jigs provided by the Tier-1 company. The test jig needs to be procured by the supplier/contractor/manufacturer from the Tier-1 company. The Electrical/RF test jig cost details (**APPENDIX-D**), user manuals and test procedures are provided in the **APPENDIX-E**. The test jig is self-contained with an industrial pc, all instrumentation needed to make it work and a Golden sample ADU for reference.

- i) The supplier/contractor/manufacturer must coordinate with the Tier-1 company for technology transfer and any on-site training if required on the use of these jigs. All test results must be documented with test reports, deviation logs, and conformity certificates. These test jigs and the suggested test procedures are needed to ensure that the ADU boards meet the high reliability and compliance standards necessary in the project.
- j) The supplier /contractor/ manufacturer is responsible for periodic calibration of all inspection, measuring and test equipment which are part of the test jig setup.
- **9.4. PROTOTYPE SUPPLY AND PROCEDURES:** The supplier/contractor/manufacturer has to initially make a provision of manufacturing / making 20 ADU Boards as per the Build-to-print design, drawings, detailed technical specifications about parts, sourcing of components as specified, required accessories, etc.
 - a. The supplier/contractor/manufacturer will carry out the required tests in their premises using test jigs and, as specified in the Tender (RFP) document, in the presence of the NCRA technical team and other authorised officials from the Tier-1 company/SKAO. After successful testing in the bidder's premises in India, these 20 prototype boards have to be delivered at the Tier-1 Company for assembly/integrated tests, which will be carried out by a Tier-1 agency/company.
 - b. If tests, carried out by a Tier-1 company, are satisfactory, the Supplier may get go go-ahead for further supply of ADU boards. If there are any minor changes and modifications suggested by a Tier-1 company, the Supplier has to carry out those modifications / minor changes in the next batch of supply.
 - c. It is expected that the boards meet the test parameters for the continued making of the remaining boards by the supplier/contractor/manufacturer. In the event that any test results fail or do not meet the specified requirements, the contractor shall, at their own cost, modify or rectify the deficiencies and resubmit the material for testing. If the results remain unsatisfactory despite advice and sufficient time being provided (1–2 opportunities), NCRA, on the advice and directives of SKAO, reserves the right to cancel the work order at the contractor's risk and cost.
 - d. Neither the factory acceptance test nor provisional acceptance of the Deliverables will relieve the supplier of its responsibility for meeting the Scope.
 - e. Cost the Supplier has to bear the following costs just for information, please
 - i. Cost towards procuring test jigs from the Tier-1 company and its periodic maintenance/calibration. Details provided in **APPENDIX-D** and **APPENDIX-E**
 - ii. Cost towards procuring critical components, ADU boards from the Tier-1 company (Import). Component details provided in section 9.2.
 - iii. Cost towards procuring other components, accessories, etc. Component details provided in section 9.2.
 - iv. Cost of manufacturing/making ADU board assembly
 - v. Cost for carrying out in-house tests suggested by NCRA / Tier-1 company / SKAO
 - vi. Cost for exporting these final products to Lomagna, Italy
 - vii. Any other cost required for the supply of prototype boards and their satisfactory acceptance.
 - f. NCRA will not pay or reimburse costs towards any travel, material, incidental expenses, etc.

9.5. Process standards

9.5.1. Standards and Certifications:

The supplier/contractor/manufacturer shall ensure compliance with international standards and certifications relevant to manufacturing, testing, and delivery. Minimum ISO Certification compliance:

- ISO 9001:2015 Quality Management System
- Desired Environmental Management System

• Desired Health & Safety Management System

Valid certificates shall be provided as part of the bid submission.

Process mechanisms to adhere to IPC Standards (Class 3 Requirements):

- IPC-A-610: Acceptability of Electronic Assemblies
- IPC J-STD-001: Requirements for Soldered Assemblies

Any additional standards that are subsequently identified as necessary for the successful delivery of the Works.

The processes, equipment, and quality controls that support a manufacturing environment capable of meeting IPC Class 3 requirements include:

- FINE pitch placement up to 12 mil
- ±25-micron placement accuracy with 3-Sigma capability
- RoHS SMT assembly in a class and dust-free zone
- Solder Paste Inspection (SPI) Machines
- N2-enabled reflow soldering machines to produce high reliable solder joints
- 3D Automatic Optical Inspection (AOI)
- 3D X-ray Inspection Systems
- Washing process machines
- Climatic chamber
- Solder paste viscosity meter & height measurement
- BGA repair station
- **9.5.2. Environmental and Reliability Testing:** Beyond functional validation, the supplier/contractor/manufacturer must perform environmental stress tests to ensure long-term reliability as detailed in **APPENDIX-G**
- 9.5.3. Tooling and Control Plan:
 - 1) **Tooling:** The supplier/contractor/manufacturer must maintain advanced tools and equipment, including Component Counter, Baking Oven, Stencil Printer, Pick & Place Machine, Reflow Oven, AOI Machine, ICT Tester, Selective Soldering, Functional Test Simulator, Cable Scan Machine, etc.
 - 2) **Control Plan:** The supplier/contractor/manufacturer must provide their control plan, which shall define working phases, documentation, tooling, controls, instructions, frequency, and responsibilities. It shall include inspection points such as silk-screen printing, glue dispensing, SMT placement, reflow soldering, AOI, X-ray, manual soldering, washing, burn-in tests, functional tests, labelling, and final inspection.
 - 3) The supplier/contractor/manufacturer is encouraged to refer *suggested Tooling and Control Plan* (**APPENDIX-H**) as a guideline provided by the Tier-1 company to ensure alignment with quality standards and best practices
- **9.5.4. Quality Management System:** The supplier/contractor/manufacturer must produce, maintain and implement a Quality plan based on ISO 9001 Quality Management System, Industry Standards, Certification and Compliance, which is specific to this contract and complies with the requirements stated in the Scope. The supplier/contractor/manufacturer must submit their quality plan. The supplier/contractor/manufacturer identifies a Quality Manager within their team or a designated representative who will be responsible for implementing their quality plan on behalf of their organisation.
- **9.5.5. Electrostatic Discharge (ESD) Control Plan:** The supplier/contractor/manufacturer must establish and maintain an ESD protection programme during the manufacture, test and storage/transport of the hardware. The manufacturer provides an ESD control plan document in conformance with EN 61340-5-1 (ANSI-ESD S20.20). The supplier/contractor/manufacturer shall submit the ESD protection plan for review.

9.5.6. Defect Control: The supplier/contractor/manufacturer should deliver a Defect Control Plan detailing their defect control procedures and how they will be implemented for this contract. The supplier/contractor/manufacturer must submit the Defect Control Plan to the NCRA for review. The defect report must be submitted to NCRA.

9.6. Manufacturing:

- A. General: The supplier/contractor/manufacturer should use a suitable manufacturing plan for manufacturing the ADU boards. All drawings will be provided in DWG/DXF and PDF formats for production and verification. These files will be provided to prospective suppliers/contractors/manufacturers in a digital format on request. The supplier/contractor/manufacturer must ensure that such documents as identified and included or refer to:
 - Identification of the item to be manufactured or the equipment to be used.
 - Configuration data, including parts lists, drawings, changes and specifications.
 - Identification of the production and inspection equipment to be used for the manufacturing, assembly and integration of the item.
 - Identification of critical items and control measures.
 - Detailed definition, by description or reference, of manufacturing, assembly, integration, inspections and test operations to be performed, and special conditions to be maintained.
 - Provisions for inspections and tests to be witnessed by the Tier-1 company representative/ NCRA Technical Team/ SKAO representative.
 - Accept or reject criteria (with tolerances) and workmanship standards.
 - Details of sampling inspection procedures to be used, if any.
 - Detailed procedures for the activities to be performed by the Tier-1 company.
- **B.** Control of processes: NCRA technical team/the Tier-1company/SKAO representative will monitor all processes used for manufacturing, assembly and integration, and enforce all applicable process requirements. Process specifications include methods for inspection and test, the number of samples, and acceptance or rejection criteria. Process witness samples are stored in controlled conditions. Statistical methods for process control are used for early detection of significant variations in manufacturing processes, in order to determine, analyse and eliminate the causes of undesirable variations.
- **C. Workmanship standards:** The supplier/contractor/manufacturer will employ workmanship standards throughout all phases of manufacturing, assembly and integration, to ensure acceptable and consistent workmanship quality levels. Workmanship standards identify acceptance or rejection criteria. Physical samples or visual aids are reviewed and agreed upon by the NCRA technical team, the SKAO or a Representative from the Tier-1 company when they are used for the purpose of acceptance or rejection of items.
- **D. Materials and parts control:** The supplier/contractor/manufacturer ensure that only conforming items are released and used, and that those not required for the operation involved are removed from Working Areas. Items having limited life or definite characteristics of quality degradation or drift with age or use are marked to indicate the dates, test times or cycles at which life was initiated and at which the useful life expires. Sensitive items are processed or manufactured, inspected and tested in a controlled environment to prevent any degradation.

E. Equipment Control:

1. Tooling: The supplier/contractor/manufacturer must make provisions for accountability, identification and maintenance of manufacturing, assembly and integration tooling. Manufacture, Assembly and Integration tooling must be checked for its dimensional accuracy, regarding the product drawings, and correct function. Tools must be properly stored to prevent misuse, damage and deterioration. Records must be kept of all manufacturing equipment. The manufacturer shall define or reference in their Product Assurance Plan the processes for calibration of all inspection, measuring and test equipment in order to ensure all equipment is appropriately calibrated and maintained.

- **2. Equipment for computer-aided manufacturing:** The supplier / contractor / manufacturer ensures that computer-aided techniques and data for processing and machining are validated before use and controlled during their use in manufacturing.
- 3. Cleanliness and contamination control: The supplier/contractor/manufacturer must establish controls for the cleanliness of the manufactured products and the limitation of sources of contamination. The required cleanliness levels for the product should be indicated on drawings, specifications, procedures, or other documents controlling the manufacture, assembly, integration and test of the items. Specific protection measures, such as protective dust covers, should be implemented to protect contamination-sensitive items when they are integrated into a higher level of assembly. Fabrication, assembly and integration of contamination-sensitive items must be conducted in facilities that provide cleanliness levels compatible with the specified product cleanliness.
- **4. Failure Mode and Effect Analysis:** The supplier/contractor/manufacturer needs to document their procedure and plans for conducting a Failure Mode and Effect Analysis (FMEA) of the assembled product.
- **5. Special Processes:** When the resulting output cannot be verified by subsequent monitoring or measurement, these processes will be called special processes. Subject to approval, carried out by qualified personnel, and documented fully.
- **6. Documentation and Traceability:** Maintain full traceability of all components, processes, and test results. Provide detailed compliance and integration reports.
- **7.** Coordination with Tier-1 and SKAO: Follow integration guidelines, test procedures, and quality standards of the Tier-1 company. Participate in reviews and provide progress updates.
- **9.7. Test Facilities and Test-Jig Equipment:** To ensure the validity of test results, all test facilities and equipment must be compliant with defined requirements and properly calibrated. The Tier 1 company will provide a full testing Bench BOM for required testing and will provide a turn-key solution with training in the proposal according to **APPENDIX-D** and **APPENDIX-E**. The supplier/contractor/manufacturer must ensure that test equipment is set up as per the Tier 1 company's instructions, such that their correct operation can be verified without having to apply them to the test item.

The individual test durations are as follows:

- Electrical Test: ~ 20 minutes
- RF Test: ~ 45 minutes
- Burn-In (Unpowered): 12 hours, conducted in accordance with the attached thermal/environmental cycle in **APPENDIX-G**

9.7.a. Inspection and Testing: (APPENDIX-E):

1. Mandatory Inspection Points (MIP): The supplier/contractor/manufacturer must define MIPs based on process criticality, risk, and quality assurance needs. These must be reviewed and approved by NCRA/ SKA and the Tier-1 company.

When MIPs are Required:

- When maximum visibility of quality is needed.
- At critical processes (e.g., SMT placement, soldering, burn-in).
- When further steps make inspection costly, difficult, or impossible.
- Where past failure history indicates the need for closer monitoring.
- When destructive tests are required for verification.
- Execution: Each MIP must be formally documented with inspection results, including acceptance criteria, no deviations, corrective measures, and sign-off by responsible authorities.
- Examples of MIPs in ADU Production:
 - o Material Receiving (datasheet verification, visual checks, validation).

- Stencil Printing (automatic/manual).
- SMT Pick-and-Place & Reflow Soldering.
- Automated Optical Inspection (AOI).
- X-ray Inspection of BGAs and hidden joints.
- Manual THT Component Mounting and Soldering.
- Washing Process & Solvent Cleaning.
- o Burn-in Testing.
- o Functional Testing & Final Inspection.
- 2. Inspection Stages: The supplier/contractor/manufacturer shall be required to comply with the following stages of inspection and validation throughout the lifecycle of production and delivery of ADU boards and associated assemblies:

a. Initial Stages of Inspections:

- i. After sourcing the material (boards and components) from a Tier-I company, Italy, the material will be inspected by our team at your premises.
- ii. Similarly, there will be an inspection by our team when the non-critical components and material is sourced from other sources, if needed.
- iii. If there are any rejections, the same shall be replaced by the supplier/contractor/manufacturer at no extra cost.
- iv. The Inspection team will also inspect production lines, processes, test setups, workmen involved in manufacturing, etc. and can suggest any improvements/changes if required.
- v. Report or outcome of inspections carried out by our team jointly with your team will be binding.

After successful supply and acceptance of Prototype boards, the following inspection will be carried out from time to time.

b. **In-Process Quality Inspection:**

- o Periodic inspection and quality audits shall be conducted during mass production to ensure consistent adherence to design, layout, soldering, component placement, and assembly standards.
- Any deviation detected shall lead to the stoppage of production until corrective actions are implemented and verified.

c. Functional and Environmental Testing:

- All ADU boards shall undergo functional tests, including but not limited to signal validation, power cycling, temperature stress testing, and electrical integrity.
- These tests shall be performed using computer-based semi-automated test jigs operated by qualified technical personnel.

d. Final Inspection and Validation before Dispatch:

- o A final inspection shall be performed on completed batches before dispatch.
- This will include verification of documentation, compliance with the approved Bill of Materials (BoM), and performance testing.
- Before the shipment, test reports need to be sent via email to SKAO and/or the Tier-1 Company for approval.
- Only boards that pass all specified tests will be accepted for shipment.
- e. **Stage-wise and Milestone-based Clearance:** Inspection and validation may be carried out at the following production milestones:
 - o Completion of first 50 boards post-FAI clearance
 - o Upon completion of every additional 500 boards
 - o Completion of the final batch of the total quantity ordered

f. Overseas Shipment Compliance:

All deliverables for the international SKA-Low project shall meet the applicable industrial testing and quality standards as required by the project guidelines.

• The Supplier must ensure all inspections and validations are aligned with international delivery timelines.

g. Rejection and Re-inspection:

- o In case of rejection at any inspection stage, the Supplier shall be responsible for corrective action, repair/re-manufacture, and re-inspection at their cost.
- Repaired units must be shipped back to the inspection location, as instructed, and pass all tests before being accepted.
- **9.7.b. First Article Inspection (FAI)**: First Article (first assembled ADU board) by the supplier/contractor/manufacturer will be inspected to validate that the manufacturing and assembly processes, as well as the produced boards, comply fully with design specifications before mass production begins.
 - **Standards:** Conducted in accordance with EN 9102 requirements.
 - **Scope:** Includes verification of materials, solder joints, electrical performance, and compliance with IPC Class 3 workmanship.
 - **Witnessing:** SKAO/NCRA and the Tier-1 company will participate in FAI for the first production batch.
 - **Deliverables:** FAI report including test results, no deviations, corrective actions, and final approval to proceed with volume production.
 - The initial batch of ADU boards manufactured by the Supplier shall undergo First Article Inspection (FAI).
 - FAI will include complete validation against design specifications, quality benchmarks, and performance standards and assembled board-level testing.
 - Only upon formal clearance of FAI by the Purchaser's inspection authority, the Supplier will be permitted to commence mass production of the remaining boards.

9.7.c. Test Documentation:

Test Procedures: Written, approved procedures must be followed at all times. These include step-by-step instructions, acceptance criteria, and references to applicable standards.

Test Reports: Each test must generate a formal report capturing test procedure, reference, test logs and raw data, evaluation of results and summary of compliance/non-compliance.

Traceability: Reports must link to specific serial numbers of ADU boards, ensuring full unit-level traceability.

Deviations: Any departure from standard test procedures must be justified, documented, and approved by the Project Manager. No deviations are accepted.

9.7.d. Test Reviews (TRR – Test Readiness Review):

Test Readiness Reviews ensure that all preconditions for testing are satisfied before execution.

Scope: TRRs must be conducted before major testing milestones (FAI, Factory Acceptance Test).

Approval: Testing may only proceed upon TRR approval, ensuring readiness in terms of test environment, procedures, trained staff, and equipment.

9.7.e. Factory Acceptance Tests (FAT):

Factory Acceptance Tests confirm that fully assembled ADU boards and sub-systems meet contractual specifications before delivery to Lomagna, Italy. FAT tests shall initially be carried out at the supplier/contractor/manufacturer's premises.

Procedure: FATs shall be performed on completed ADU boards following approved test plans.

Deliverables: FAT must result in formal deliverables, including FAT Reports (detailing results for each tested board), End Item Data Package (EIDP) identifying delivered items and their compliance, Non-Compliance Reports, Waivers, or Concessions (if applicable).

Witnessing: FATs may be witnessed directly by SKAO/NCRA or remotely via bench outputs and reporting systems.

Readiness Review: A FAT Readiness Review must be completed, reviewed before the scheduled FAT, ensuring all procedures, equipment, and documentation are in place.

If any test results don't meet the required standards, the contractor will need to fix the issues and resubmit the material for testing, all at their expense.

If the results still aren't satisfactory after receiving advice and a couple of opportunities to correct them, NCRA, following SKAO's guidance, may decide to cancel the work order, with the contractor bearing the costs.

The contractor's representatives may be requested to be present in Lomagna, Italy, during assembly tests, as needed.

9.8. Production Roll-Out and Delivery: The production of ADU boards will be executed in a phased manner to ensure consistent quality and reliability.

Timeline	Fin V m V m V m V									Delivery to be made at	Total										
Months@ →	Year 2025			Year 2026						Year 2027			NCRA (India)								
	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4		
ADU Delivery Schedule	0	0	0	20				50	100	100	150	200	200	200	250	300	330	320	310	20	2550

Table 1: ADU Production Roll-Out Plan

- NPI Batch (20 Units): Early 2026 pilot run, fully tested and validated to be delivered within 30 days of getting the order. Minimum order quantity for 20 New Product Inspection (NPI) is mentioned in the BoM.
- **Progressive Ramp-Up**: Incremental deliveries of 50–100 units/month and delivery in 12 tranches in 12 months after NPI verification (a tentative period of 2-3 months).
- Final Production: Completion of all 2550 ADU boards with optimised workflows.
- Traceability: Documentation for each batch shall be available for audit.
- @The delivery target of monthly numbers (batch) as per Table 1 above, for each month, should be met on or before the end date of that month. Any delay beyond the scheduled delivery date and attributable to the Supplier will attract liquidated damage, as per the LD clause mentioned in this document.

NOTE - 2530 ADU Boards to be delivered at the Tier-1 company location and 20 ADU boards duly completed in all aspects, should be delivered at NCRA-TIFR Pune.

9.9. Packing:

Preparation for Delivery:

The total weight of each ADU board with full assembly is 1,060 grams, with dimensions (~ 235 x 225 x 30 mm) and the supplier/contractor/manufacturer must ensure that packaging, handling, storage and transportation complies with contractual requirements and suggested to refer "SKA1 PACKAGING, MARKING, HANDLING, STORAGE &

TRANSPORTATION (PMHS&T) STANDARD" as mentioned in APPENDIX-F

- a) The Supplier shall ensure all goods are securely packed as per international export standards, suitable for air/sea shipment to Europe and SKAO, Australia. Packaging must protect items from damage, moisture, corrosion, static, and temperature variations during transit and storage.
- b) All electrostatic-sensitive devices must be packed using ESD-safe materials and clearly labelled. Each package shall be marked with item details, quantity, PO number, handling instructions, and destination address.
- c) The supplier/contractor/manufacturer must ensure that appropriate marking and labelling for packaging, storage, transportation and shipping of items are performed in accordance with the contractual requirements. The supplier/contractor/manufacturer must ensure that the preparation of the items for delivery is performed in such a way that degradation is prevented.
- d) The NCRA / SKAO representative must be allowed to oversee packaging materials, methods, procedures, and instructions to provide adequate protection of the items while at the facility, during transportation, and upon arrival at the destination.
- e) Shipping documents (Packing List, Commercial Invoice, Air Waybill/Bill of Lading, Certificates, and Test Reports) must be enclosed both inside the package and in a waterproof pouch on the outer surface.
- f) Wooden packaging must comply with ISPM-15 norms. Any damage due to inadequate packing will be the Supplier's responsibility and may lead to rejection of goods.
- g) The Supplier shall provide such packing of the Goods as is required to prevent their damage or deterioration during transit to their final destination as indicated in the Contract.
- h) The packing, marking and documentation within and outside the packages shall comply strictly with such special requirements as shall be provided for in the Contract, including additional requirements, if any, specified in SCC and in any subsequent instructions ordered by the Purchaser.
- i) Packing Instructions: Each package will be marked on three sides with proper paint/indelible ink, the following: Item Nomenclature

Order/Contract No.

Country of Origin of Goods

Supplier's Name and

Packing list reference number

9.10. Delivery: Entire work/supply to be completed within 18 Months from the date of issue of work/purchase order. The period may be extended if the reasons furnished are acceptable to the Centre. Accordingly, the associated terms and conditions shall apply till the date of completion of the entire supply satisfactorily.

Initially, the contractor has to supply 20 nos. of ADU Boards on or before 30 days as prototypes from the date of issue of the work order for initial testing and validation purposes. Further supply of ADU boards will be as per the delivery schedule Table given in this document. Primary testing will be done at your works and afterwards these boards will be sent to the Tier 1 Company for final acceptance. On approval and acceptance of the same from SKAO-appointed Tier 1 company/NCRA, the remaining quantity is to be supplied as per the delivery schedule given in

Part-F. If there are any changes or slight modifications required and suggested by the Tier-I company, the supplier/contractor/manufacturer has to incorporate these changes for subsequent supply. Test equipment required for testing at your works will be provided by the Tier-1 company engaged by SKAO at cost. These test equipment details can be found in **APPENDIX-D**.

1. Delivery of Material:

- a) Packing: The supplier/contractor/manufacturer shall be held responsible for loading/unloading of all shipments and for the stores being sufficiently and properly packed for transport by rail, road, sea or air to ensure their being free from any loss or damage on arrival at the destination. The packing and marking of packages shall be done by and at the expense of the Manufacturer/Supplier. Each package shall contain a packing note quoting the purchase order number and details of the contents.
- b) All the materials must be delivered at the site of the Tier-1 Company. The unloading & positioning of all equipment at the designated locations specified by the Chief Engineer will be in the scope of the supplier. The supplier shall arrange for handling shipment labour for rigging etc. as required.
- c) Material must be delivered at the site in all respects as mentioned in the Purchase Order.

2. Inspection and Final Tests:

The acceptance will involve trouble-free operation and ascertaining conformity with the ordered specifications and quality. There shall not be any additional charges for carrying out acceptance tests.

Acceptance by the Tier-1 company at Lomangana, Italy: Upon receipt at Lomangana, Italy, the boards will undergo re-testing on the project's dedicated test bench for final acceptance. Following successful re-testing, the boards shall be integrated with the TPM system, including the SFP adapter and Pre-ADU modules. If the integrated system passes all functional checks, it will subsequently be integrated into the Remote Processing Facility (RPF) Simulator setup for run-in and prototype validation.

The total duration expected for this end-to-end testing and validation activity at the Tier-1 company, including re-testing, integration, and run-in, shall be ~8 weeks for NPI batch and 2-4 weeks for subsequent batches (Excluding month of August due to vacations in Italy).

In the event of the ordered goods failing to pass the acceptance test, a period not exceeding 30 days will be given to rectify the defects and clear the acceptance test, failing which the Purchaser reserves the right to get the goods supplied replaced by the Supplier at no extra cost to the Purchaser.

Successful conduct and conclusion of the acceptance test for the installed goods shall also be the responsibility and at the cost of the supplier/contractor/manufacturer.

3. **Intimation about Delivery**: If the Purchaser shall have notified the contractor/supplier in writing that the former is not ready to take delivery, no equipment or materials shall be forwarded until an intimation in writing shall have been given to the Contractor/Supplier by the Purchaser that he is ready to take delivery.

9.11. 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.

- 2. For delivery of goods at the purchaser's premises i.e. SKA Location at Lomangana, Italy and the insurance shall be obtained by the Supplier in an amount equal to 110% of the value of the goods from "warehouse to warehouse" (final destinations) on "All Risks" The insurance shall be valid for a period of not less than three months after installation and commissioning.
- **9.12. Transportation:** The Contractor / Supplier shall be responsible for arranging the transportation of the product to the Tier-1 Company including insurance coverage. All costs associated with transportation and insurance shall be borne entirely by the Contractor / Supplier.
- **9.13. Logistics & Costs:** All costs related to removal, packaging, transportation (including reexport/import duties if applicable), repair/replacement, and re-delivery of defective parts under Defect Liability shall be borne by the Supplier.
- **9.14. Delivery & Logistics:** Transportation to Lomagna, Italy, to the Tier-1 Company premises as per contractual requirements. Maintenance and operational procedures supplied by the Tier-1 company. Compliance with international standards for shipping and handling is ensured.

9.15. APPENDIXS (DRAWING)

1. APPENDIX-A: Critical Component List

2. APPENDIX-B

Sheet-1: Per board component list

https://drive.google.com/file/d/1bAyv5LXW67YpLarboJRcMba6cZ1whYyW/view

Sheet-2: Minimum order quantity

https://drive.google.com/file/d/1bOHf73yum27NZxstH1UOYeYYLKyxTerm/view

- 3. APPENDIX-C: ADU Top & Bottom (.dxf) (will be provided separately in the digital format on request)
- 4. APPENDIX-D: The cost of test jigs
- 5. APPENDIX-E: <u>User Manual ADU Functional Test Jig (.pdf)</u> User Manual ADU Electrical Test Jig (.pdf)
- 6. APPENDIX-F: SKA1 PACKAGING, MARKING, HANDLING, STORAGE & TRANSPORTATION (PMHS&T) STANDARD
- 7. APPENDIX-G: Environmental and Reliability Testing
- 8. APPENDIX-H: Suggested Tooling and Control Plan (.pdf)

CHAPTER-X

FORMS AND FORMATS

Annexure-1	APPLICATION FORM
Annexure-2	BIDDER'S DETAILS
Annexure-3	SOLVENCY CERTIFICATE
Annexure-4	CERTIFICATE OF COMPLIANCE
Annexure-5	AVERAGE ANNUAL FINANCIAL TURNOVER
Annexure-6	EXPERIENCE OF COMPLETION OF PROJECTS OF
	SIMILAR NATURE & COMPLEXITY
Annexure-7	LITIGATION DETAILS
	(COURT CASES / ARBITRATION)
Annexure-8	TECHNICAL MANPOWER DETAILS
Annexure-9	UNDERTAKING
Annexure-10	CERTIFICATE OF LOCAL CONTENT
Annexure-11	FORM OF AGREEMENT
Annexure-12	PROFORMA FOR PERFORMANCE BANK GUARANTEE
Annexure-13	FORMAT OF INDEMNITY BOND

APPLICATION FORM

[On the letterhead of the applicant, including full postal address, email address and telephone no.]

Bid Ref. No.:	Date:
To,	
The Centre Director	
National Centre for Radio Astrophysics (NCRA)	
Tata Institute of Fundamental Research (TIFR)	
Savitribai Phule Pune University Campus	
Ganeshkhind, Pune – 411007, Maharashtra, INDIA	
Sir,	

Being duly authorized to represent and act on behalf of (hereinafter referred to as "the Applicant") and having reviewed and fully understood all the pre-qualification information (eligibility criteria) provided, the undersigned hereby applies to be pre-qualified by yourselves as a tenderer for award of work(s) for Manufacture, Supply and Delivery of fully tested Integrated ADU Boards on a Build-to-Print basis for SKAO - 2550 Units

- 1. Attached to this letter are copies or original documents defining:
 - A. the applicant's legal status
 - B. the principal place of business
 - C. the place of incorporation (for applicants who are corporations) or the place of registration and the nationality of the owners (for applicants who are partnerships or individually owned firms)
 - D. All Annexure.
- 2. Your agency and its authorized representatives are hereby authorized to conduct any inquiries or investigations to verify the statements, documents and information submitted in connection with this application, and to seek clarification from our bankers and clients regarding any financial and technical aspects. This letter of application will also serve as authorization to any individual or authorized representative or any institution referred to in the supporting information, to provide such information deemed necessary and requested by you to verify statements and information provided in this application, or with regard to the resources, experience, and competence of the Applicant.
- 3. Your agency and its authorized representatives may contact the following persons for further information on general, personnel, technical and financial enquiries.

Contact 1: Name, email and Phone no.

Contact 2: Name, email and phone no.

- 4. This application is made with the full understanding that:
 - A. Bids submitted by applicants will be subject to verification of all information submitted at the time of bidding
 - B. Your agency reserves the right to:
 - amend the scope and value of the contract/bid under this project; in such event, bids will only be called from pre-qualified bidders who meet the revised requirements; and

- reject or accept any application, cancel the pre-qualification process, and reject all applications without assigning reasons or incurring any liability thereof; and
- C. Your agency shall not be liable for any such actions and shall be under no obligation to inform the applicant.

The undersigned declares that statements made and the information provided in the duly completed application are true and correct in every detail.

Authorized Signatory (signature in full):
Name:
Designation:
Seal of the Firm/Company:

BIDDER'S DETAILS

(To be printed on letterhead)

1	Name of the Firm/ Company	
2	Address of the Firm/ Communication Address:	
3	Name and Designation of Authorised Signatory	
4	Mobile No.:	
5	Telephone No.:	
6	E-Mail ID:	
7	Website:	
8	GST Registration Number:	
9	PAN Number:	
		Bank Account No.:
10	Firm's Bank Account details	Name of the Bank:
10	FIFTH S Dank Account details	IFSC Code No:
		Name of Branch:
11	Communication details of the conshall be made regarding this tende	cerned contact person to whom all references er enquiry
a)	Name of Person:	
b)	Designation:	
c)	Mobile No:	

d)	E-Mail ID:	
Autl	norized Signatory (signature in full)	<u> </u>
Nam	ne:	
Desi	gnation:	
Seal	of the Firm/Company:	

SOLVENCY CERTIFICATE

Bankers' Certificate from A Nationalized / Scheduled Bank

This is to certify that, to the best of our knowledge and information, that M/s
having a marginally noted address, a customer of our bank are/is respectable and can be treated as good for
any engagement up to a limit of Rs(Rupees)
Signatory (signature in full):
Name:
Designation of Official:
Seal of the Bank:

NOTE:

- 1. Bankers' certificates should be on the letterhead of the Bank, sealed in a cover addressed to the tendering authority.
- 2. In the case of a partnership firm, the certificate should include the names of all partners as recorded with the Bank.

CERTIFICATE OF COMPLIANCE

[On the letterhead of the applicant, including full postal address, email address and telephone no.]

Bid Ref. No.:	Date:
To, The Centre Director National Centre for Radio Astrophysics (NCR Tata Institute of Fundamental Research (TIFR Savitribai Phule Pune University Campus Ganeshkhind, Pune – 411007, Maharashtra, IN	3)
Sub.: Restrictions on procurement from B under Rule 144(xi) of the General Financia	sidders from a country or countries or a class of countries l Rules 2017.
Sir,	
land border with India; and solemnly certify t	ons on procurement from a Bidder of a country which shares a that we are not from such a country or, if from such a country, hority (copy enclosed). We hereby certify that we fulfil all be considered."
Penalties for false or misleading declarations:	
undertake to advise of any future changes to t	above are factually correct and nothing is concealed and also the above details. We understood that any wrong or misleading the Code of Integrity and would attract penalties as mentioned
Authorized Signatory (signature in full):	
Name:	
Designation:	
Seal of the Firm/Company:	

AVERAGE ANNUAL FINANCIAL TURNOVER

OF THE BIDDER'S FIRM/COMPANY

(To be printed on the letterhead of Statutory Auditor / Chartered Accountant)

Annual Financial Turnover details of the bidder's firm/company (insert relevant details)

#	Financial Year	Annual Financial Turnover (in INR)	Profit / Loss (in INR)
A	FY 2020-21	Not required	
В	FY 2021-22	Not required	
С	FY 2022-23		
D	FY 2023-24		
Е	FY 2024-25		
1	Average Annual Financial Turnover =>		

	D	FY 2023-24							
	E	FY 2024-25							
	F	Average Annual Financial Turnover =>							
Sign	ature of S	tatutory Auditor / Chartere	d Accountant						
Nam	ne:								
Desi	gnation:								
Date	Date:								
Plac	e:								
Seal	Seal of the Firm:								

EXPERIENCE OF COMPLETION OF PROJECTS OF SIMILAR NATURE & COMPLEXITY

(During the last seven years i.e. prior to 30.09.2025)

Sl. No.	Name of work / project and location	Owner or sponsoring organization	Cost of work in Lakhs	Date of commence ment as per contract	Stipulated date of completion	Actual date of completion	Name and address / telephone number of officer to Whom reference may be made	Remarks

NOTE:	Please attach su	pporting documer	nts (complet	ion certificates ald	ong with order co	ppies) for the abo	ve information.	
				_				
Autho	rized Signator	ry (signature in	full):					
Name:	:							
Design	nation:							
Seal of the Firm/Company:								

LITIGATION DETAILS

(COURT CASES / ARBITRATION)

Year	Name of the work	Name of the Client, with Address	Title of the court Case / Arbitration	Details of the Court/ Arbitrator	Status Pending / Decided	Disputed Amount (Current Value, the equivalent) in case of Court Cases / arbitration	Actual Awarded Amount (Rs) in decided Court Cases / arbitration

Authorized Signatory (signature in full):
Name:
Designation:
Seal of the Firm/Company:

TECHNICAL MANPOWER DETAILS

Sl. No.	Name of Staff	Qualification	Designation	Years of Experience / Specialisation	Remarks
					_

Authorized Signatory (signature in full):
Name:
Designation:
Seal of the Firm/Company:

UNDERTAKING

(On the letterhead of the applicant, incl	luding full postal address, email address and telephone no.)
Bid Ref. No.:	Date:
1. We have studied the complete tender and conditions.	r document including corrigenda, if any and accept all the terms
Departments / Autonomous Institutions / India or Government of Maharashtra or	/ company has never been blacklisted / debarred by any of the Universities / Public Sector Undertakings of the Government of any other State Government or Public Sector Banks or Local ase is pending against the said firm/agency as on date of bidding.
3. The eligible similar Work(s) have no on back to back by basis.	ot been executed through another contractor (or by third parties)
	-
Authorized Signatory (signature in full):	
Name:	
Designation:	

Seal of the Firm/Company:

CERTIFICATE OF LOCAL CONTENT

(Certification under the preference to Make in India Order)

[On the letterhead of a **Statutory Auditor or Cost Auditor** including full postal address, email address etc.] To, The Centre Director National Centre for Radio Astrophysics (NCRA) Tata Institute of Fundamental Research (TIFR) Savitribai Phule Pune University Campus Ganeshkhind, Pune – 411007, Maharashtra, INDIA Manufacture, Supply and Delivery of fully tested Integrated ADU Boards on a Build-to-Print basis for SKAO - 2550 Units. Sir. In line with the Public Procurement (Preference to Make in India) Order No. P-45021/2/2017-PP (BE-II)-Part(4)Vol.II dated 19.07.2024 and its amendments issued by the Department for Promotion of Industry and Internal Trade, Government of India, we hereby certify that we, M/s. _are local supplier meeting the requirement of minimum local content i.e., % excluding transportation, insurance, installation, commissioning, training and after sales service support like AMC/CMC etc. as defined in above orders for the material against NCRA-TIFR, Pune Enquiry / Tender No. ______dated_____. Details of the location at which local value addition will be made are as follows: We also understand, false declarations will be in breach of the code of integrity under rule 175(1) (i) (h) of the General Financial Rules for which a bidder or its successors can be debarred for up to two years as per Rule 151(iii) of the General Financial Rules along with such other actions as may be permissible under law. Thanking You, Signature of Statutory Auditor or Cost Auditor of the Company Name: Designation:

Mobile No.

Seal of the auditor

Email Address:

NOTE:

The 'Class-I local supplier' / 'Class-II local supplier' shall provide a certificate from the statutory auditor or cost auditor of the company (in the case of companies) or from a practicing cost accountant or practicing chartered accountant (in respect of suppliers other than companies), giving the percentage of local content.

FORM OF AGREEMENT

(To be executed at the time of awarding the contract)

This Agreement made on theday of Astrophysics-Tata Institute of Fundamental Research (NCRA-Tata Manufacture, Supply and Delivery of fully tested Integrated SKAO - 2550 Units (hereinafter called "The Centre") who enter M/s (hereinafter called "The	IFR), Pune for the entering into work(s) for ADU Boards on a Build-to-Print basis for ers into this Agreement of the one party and
Whereas the Employer is desirous that certain works should be end ("the Works") and has accepted a Bid by the Contractor for the the remedying of any defects therein.	•
Now this Agreement is witnessed as follows:	
 In this Agreement, words and expressions shall have assigned to them in the Conditions of Contract hereinafter. The following documents shall be deemed to form and Agreement, viz. A. The Letter of Award B. The said Bid C. The General Conditions of Contract D. Prequalification document E. Instructions to Tenderers and Specific Conditions F. The Specification G. The Drawings H. The Financial Bid I. Any other relevant documents referred to in documents 	r referred to. d be read and construed as part of this of Contract
3. In consideration of the payments to be made by the Employer to the Contractor hereby covenants with the Employer to execute a defects therein in conformity with all respects with the provisions 4. The Employer hereby covenants to pay the Contractor in consist the Works and the remedying of defects therein the Contract Price of the Contract Price o	and complete the Works and remedy any s of this work. ideration of the execution and completion of
payable under the provisions of the Contract at the times and in the	
In Witness whereof, the parties hereto have caused this Agreeme first before written.	ent to be executed on the day and year
Signed, Sealed, and Delivered by the Said	
Binding Signature for and on behalf of NCRA-TIFR, Pune. In the presence of: Witness (1):	Binding Signature of Contractor

Witness (2):

PROFORMA FOR PERFORMANCE BANK GUARANTEE

(To be executed by the successful bidder on a stamp paper of Rs. 500 from any Nationalised Bank or Scheduled Bank)

In consideration of the NATIONAL CENTER FOR RADIO ASTROPHYSICS - TATA INSTITUTE OF

FUNDAMENTAL RESEARCH (hereinafter called "		
conditions of Work Order No	dated	made
between NCRA-TIFR and M/s.	11 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	(hereinafter called
"the said Contractor(s)") for the work (hereinafter production of an irrevocable bank GuaranteeOnly		
only), as a security/guarantee from the contractor(s) with the terms and conditions in the said Work Ordename of the Bank) (hereinafter referred to as "the Banan amount not exceeding Rs (Rs TIFR.	er, wenk") hereby undertake to pay to the	(Indicate the ne NCRA-TIFR
2. We (indicate the name of Bank) do hereby undertake guarantee without any demur, merely on a demand claimed is required to meet the recoveries due or likely demand made on the bank shall be conclusive as regard this guarantee. However, our liability under this guarantee. (Rupees only).	from the NCRA-TIFR stating the state of the	hat the amount or(s). Any such the Bank under
3. We, the said bank, further undertake to pay to notwithstanding any dispute or disputes raised by the before any Court or Tribunal relating thereto, our unequivocal. The payment made by us under this bor payment thereunder and the Contractor(s) shall have n	Contractor(s) in any suit or procliability under this present being and shall be a valid discharge of	eeding pending g absolute and our liability for
4. We(indicate the name of Bank) shall remain in full force and effect during the period said Work Order and that it shall continue to be enforced by virtue of the Work order have been fully paid a Officer on behalf of the NCRA-TIFR certifies that the table been fully and properly carried out by the said Contraction.	I that would be taken for the perforceable till all the dues of the NCF and its claims satisfied or discharge terms and conditions of the said W	Formance of the RA-TIFR under ged or Purchase Fork Order have
5. We	consent and without affecting in a nditions of the said Work Order or time or to postpone for any time R against the said Contractor(s) and he said Work Order and we shall	any manner our r to extend time or from time to nd to forbear or not be relieved

to sureties would, but for this provision, have effect of so relieving us.
6. This guarantee will not be discharged due to the change in the constitution of the Bank or the Contractor(s).
7. We,(indicate the name of Bank) lastly undertake not to revoke this guarantee except with the previous consent of the NCRA-TIFR in writing.
8. This guarantee shall be valid up to unless extended on demand by NCRA-TIFR. Notwithstanding anything mentioned above, our liability against this guarantee is restricted to Rs (Rupees only) and unless a claim in writing is lodged with us within six months of the date of expiry or the extended date of expiry of this guarantee, all our liability under this guarantee shall stand discharged.
Signed and sealed
Dated the day of for
(indicate the name of Bank
* * (Note: The Letter of Intent shall form part of the Agreement)

or for any forbearance, act of omission on the part of the NCRA-TIFR or any indulgence by the NCRA-TIFR to the said Contractor(s) or by any such matter or thing whatsoever which under the law relating

FORMAT OF INDEMNITY BOND

(To be executed by the successful bidder on Rs. 500/- Non-Judicial Stamp Paper duly notarized)

Work	Order No	dated
(NCRA hereina meanir	sideration of the National Centre for Radio Astrophysics - Tata Institute of Funda/TIFR) having office at Savitribai Phule Pune University Campus, Ganeshkhir after referred to as "The Institute", which expression shall, unless it be repugnang thereof, include its successors and assignors having awarded to M/shaving registered office at	nd, Pune 411 007, ant to the context or
a firm (herein meanir	carrying in such name and style the business of	nant to the context or ng partner(s) or its ntract for
contrac	-	
We M/	/sbeing the contractor shall save harmless and i ect of:	ndemnify the Institute
2)3)4)5)6)	Any expenses arising from any injury or accident or death of workers hired for to the property of any third party. Any claim made under any Act of Government or otherwise in respect of injury aforesaid. Any award of compensation or damages upon any claim as above. Any claim against the Institute by any member of the public or other third part anything which may arise in respect of the works or in consequence thereof. Any claim which may be made upon the Institute, whether under the Workman or any other statute in force during the currency of this contract or of common worker of the contractor/or their family member(s) or of his sub-contractor(s). Any costs, charges or expenses arising out of any claim or proceeding and in recompensation or damages arising therefrom. Any outcome of disputes/issues arising out of the trade/transaction agreement bidder (The Supplier) and the Tier-1 company,	ry or damage as ry in respect of n's Compensation Act law in respect of any espect of any award of
For an	d on behalf of M/s	
Date:		
SEA	L	
Accept	ted By	

for and on behalf of NCRA-TIFR, Pune

CHAPTER - XI INSTRUCTIONS FOR ONLINE BID SUBMISSION

The bidders are required to submit soft copies of their bids electronically on the CPP Portal, using valid Digital Signature Certificates. The instructions given below are meant to assist the bidders in registering on the CPP Portal, prepare their bids in accordance with the requirements and submitting their bids online on the CPP Portal

More information useful for submitting online bids on the CPP Portal may be obtained at: https://eprocure.gov.in/eprocure/app.

REGISTRATION

- 1) Bidders are required to enroll on the e-Procurement module of the Central Public Procurement Portal (URL: https://eprocure.gov.in/eprocure/app) by clicking on the link "Online bidder Enrolment" on the CPP Portal which is free of charge.
- 2) As part of the enrolment process, the bidders will be required to choose a unique username and assign a password for their accounts.
- 3) Bidders are advised to register their valid email address and mobile numbers as part of the registration process. These would be used for any communication from the CPP Portal.
- 4) Upon enrolment, the bidders will be required to register their valid Digital Signature Certificate (Class III Certificates with signing key usage) issued by any Certifying Authority recognized by CCA India (e.g. Sify / nCode / eMudhra etc.), with their profile.
- 5) Only one valid DSC should be registered by a bidder. Please note that the bidders are responsible to ensure that they do not lend their DSC's to others which may lead to misuse.
- 6) Bidder then logs in to the site through the secured log-in by entering their user ID / password and the password of the DSC / e-Token.

SEARCHING FOR TENDER (RFP) DOCUMENTS

- 1) There are various search options built in the CPP Portal, to facilitate bidders to search active Tenders (RFP) by several parameters. These parameters could include Tender (RFP) ID, Organization Name, Location, Date, Value, etc. There is also an option of advanced search for Tenders (RFP), wherein the bidders may combine a number of search parameters such as Organization Name, Form of Contract, Location, Date, Other keywords etc. to search for a Tender (RFP) published on the CPP Portal.
- 2) Once the bidders have selected the Tenders (RFP) they are interested in, they may download the required documents / Tender (RFP) schedules. These Tenders (RFP) can be moved to the respective 'My Tenders' folder. This would enable the CPP Portal to intimate the bidders through SMS / e-mail in case there is any corrigendum issued to the Tender (RFP) document.
- 3) The bidder should make a note of the unique Tender (RFP) ID assigned to each Tender (RFP), in case they want to obtain any clarification / help from the Helpdesk.

PREPARATION OF BIDS

- 1) Bidder should take into account any corrigendum published on the Tender (RFP) document before submitting their bids.
- 2) Please go through the Tender (RFP) advertisement and the Tender (RFP) document carefully to understand the documents required to be submitted as part of the bid. Please note the number of covers in which the bid documents have to be submitted, the number of documents including the names and content of each of the document that need to be submitted. Any deviations from these may lead to rejection of the bid.
- 3) Bidder, in advance, should get ready the bid documents to be submitted as indicated in the Tender (RFP) document / schedule and they can be in PDF / XLS formats, as the case may be. Bid documents may be scanned with 100 dpi with black and white option which helps in reducing size of the scanned document.
- 4) To avoid the time and effort required in uploading the same set of standard documents which are required to be submitted as a part of every bid, a provision of uploading such standard documents (e.g. PAN card copy, annual reports, auditor certificates etc.) has been provided to the bidders. Bidders can use "My Space" or "Other Important Documents" area available to them to upload such documents. These documents may be directly submitted from the "My Space" area while submitting a bid, and need not be uploaded again and again. This will lead to a reduction in the time required for bid submission process.

Note: My Documents space is only a repository given to the Bidders to ease the uploading process. If Bidder has uploaded his Documents in My Documents space, this does not automatically ensure these Documents being part of Technical Bid.

SUBMISSION OF BIDS

- 1) Bidder should log into the site well in advance for bid submission so that they can upload the bid in time i.e. on or before the bid submission time. Bidder will be responsible for any delay due to other issues.
- 2) The bidder has to sign and upload the required bid documents one by one as indicated in the Tender (RFP) document.
- 3) Bidder has to select the payment option as "offline" to pay the Tender (RFP) fee / EMD as applicable and enter details of the instrument.
- 4) Bidder should prepare the EMD as per the instructions specified in the Tender (RFP) document. The original should be posted/couriered/given in person to the concerned official, latest by the last date of bid submission or as specified in the Tender (RFP) documents. The details of the DD/any other accepted instrument, physically sent, should tally with the details available in the scanned copy and the data entered during bid submission time. Otherwise the uploaded bid will be rejected.
- 5) Bidders are requested to note that they should necessarily submit their financial bids in the format provided and no other format is acceptable. If the price bid has been given as a standard BoQ format with the Tender (RFP) document, then the same is to be downloaded and to be filled by all the bidders. Bidders are required to download the BoQ file, open it and complete the white coloured (unprotected) cells with their respective financial quotes and other details (such as name of the bidder). No other cells should be changed. Once the details have been completed, the bidder should save it and submit it online, without changing the filename. If the BoQ file is found to be modified by the bidder, the bid will be rejected.

- 6) The server time (which is displayed on the bidders' dashboard) will be considered as the standard time for referencing the deadlines for submission of the bids by the bidders, opening of bids etc. The bidders should follow this time during bid submission.
- 7) All the documents being submitted by the bidders would be encrypted using PKI encryption techniques to ensure the secrecy of the data. The data entered cannot be viewed by unauthorized persons until the time of bid opening. The confidentiality of the bids is maintained using the secured Socket Layer 128 bit encryption technology. Data storage encryption of sensitive fields is done. Any bid document that is uploaded to the server is subjected to symmetric encryption using a system generated symmetric key. Further this key is subjected to asymmetric encryption using buyers/bid opener's public keys. Overall, the uploaded Tender (RFP) documents become readable only after the Tender (RFP) opening by the authorized bid openers. The uploaded Tender (RFP) documents become readable only after the Tender (RFP) opening by the authorized bid openers.
- 8) Upon the successful and timely submission of bids (i.e. after Clicking "Freeze Bid Submission" in the portal), the portal will give a successful bid submission message & a bid summary will be displayed with the bid no. and the date & time of submission of the bid with all other relevant details.
- 9) The bid summary has to be printed and kept as an acknowledgement of the submission of the bid. This acknowledgement may be used as an entry pass for any bid opening meetings.

ASSISTANCE TO BIDDERS

- 1) Any queries relating to the Tender (RFP) document and the terms and conditions contained therein should be addressed to the Tender (RFP) Inviting Authority for a Tender (RFP) or the relevant contact person indicated in the Tender (RFP).
- 2) Any queries relating to the process of online bid submission or queries relating to the CPP Portal in general may be directed to the 24x7 CPP Portal Helpdesk.

+91 0120-4711508 +91 0120-4200462 +91 0120-4001002

+91 0120-4001005

The Bidder shall ensure that all scanned / soft copies of documents, duly signed and sealed, are uploaded with the Technical Bid. Please do not mention any prices, costs, financial values etc. in the Technical Bid document; otherwise, the bid will be summarily rejected. Technical Bid shall include, inter alia, the original or scanned copies of duly signed or digitally signed copies of the requisite documents in PDF format. PDF documents should not be password-protected. The bidder should ensure the clarity/legibility of the scanned documents uploaded by them. No price details should be given or hinted at in the technical bid. All Bids uploaded by Bidder to the portal shall get automatically encrypted. The encrypted bid can only be decrypted/opened by the authorised persons on or after the due date and time. The Bidder should ensure the correctness of the bid before uploading and take a printout of the system-generated submission summary to confirm successful bid upload.

Technical Bid: - in *Cover-1* should contain the following documents:

- I. Copy of DD / BG / FDR / towards EMD
- II. Copy of PAN (Permanent Account Number) card
- III. Copy of GST Registration Certificate
- IV. List of similar works in hand & works carried out by them for the last 7 years, indicating
 - A. Agency for whom executed
 - B. Value of work
 - C. Completion time as stipulated and actual, or present position of the work
 - D. Experience details along with work orders and completion certificates.
- V. Bank solvency certificate
- VI. List of infrastructure facilities possessed by the bidder.
- VII. List of Technical staff/Professionals available with the bidder for carrying out this kind of work.
- VIII. List of Machinery, number of skilled officials etc.
 - IX. Certificate of Local Content issued by Statutory Auditor or Cost Auditor
 - X. Certificate of Compliance regarding restrictions on procurement from a country or countries or a class of countries
 - XI. Undertaking regarding Acceptance of Terms & Conditions of Tender and Non-Blacklisting / Debarment and a Similar nature of work has not been executed through another contractor.
- XII. Other documents specified in the Eligibility Criterion are mentioned in this document.
- XIII. All undertakings/declarations requested under any part of the Tender (RFP) document.

Financial / Price Bid: - in *Cover-2* should contain the following documents:

The Financial / Price Bid BOQ template in Excel format should not be modified/replaced by the Bidder; otherwise, the Tender submitted is liable to be rejected. Although the software on the Portal shall convert quantities/ rates/ amounts in numerical digits in Bids to words, the Bidders are advised to ensure that there is no ambiguity in this regard. Financial Bid must be quoted in INR only. The Bidder shall bear all the taxes, like GST, Income Tax or any other taxes & duties levied by the Government of India as per the prevailing laws. The bidders, while quoting per unit rate, must consider all the statutory dues, transport charges, duties and any incidental expenses required for the delivery of ADU boards at the Tier-1 company, for testing and acceptance.

There are 8 appendices (Appendix A to H) mentioned in this tender document for which a link/hyperlink is provided. The bidder has to click on these links/hyperlinks to read, refer to, or understand all of them while submitting a technical and financial bid, as they are an integral part of this tender document.

APPENDICES (DRAWING)

APPENDIX-A: Critical Component List

APPENDIX-B: BoM (sheet-1: Per board component list & sheet-2: Minimum order quantity)

APPENDIX-C: ADU Top & Bottom (.dxf) (will be provided separately in the digital format on request)

APPENDIX-D : The cost of test jigs

APPENDIX-E: User Manual ADU Functional Test Jig (.pdf) User Manual ADU Electrical Test Jig (.pdf)

APPENDIX-F : SKA1 PACKAGING, MARKING, HANDLING, STORAGE & TRANSPORTATION (PMHS&T) STANDARD

APPENDIX-G: Environmental and Reliability Testing

APPENDIX-H: Suggested Tooling and Control Plan (.pdf)