

भारत सरकार/GOVERNMENT OF INDIA
अंतरिक्ष विभाग/DEPARTMENT OF SPACE
विक्रम साराभाई अंतरिक्ष केंद्र/VIKRAM SARABHAI SPACE CENTRE
तिरुवनंतपुरम/THIRUVANANTHAPURAM – 695 022

NO. VSSC/SPRE-PUR/17-1

05/08/2021

दिनांक 16.10.2017 के विज्ञापन सं. वीएसएससी/पी/विज्ञापन/233/2017 का शुद्धि-पत्र
CORRIGENDUM TO ADVT. NO. VSSC/SPRE-PUR/17-1 DT. 29/07/2017

क्रम सं. Sl. No.	निविदा सं. Tender No.	वर्णन Description
		Being Domestic Public Tenders, the following conditions in the tender may be read as follows:
01	VSSC/PURCHASE UNIT III (SPRE)/ASOE/2021001703 [लोक निविदा – दो भाग/PUBLIC TENDER- TWO PART]	1. Mode of Despatch: By Road only. 2. Packing: Roadworthy packing adequate to ensure safe delivery of the items.
02	VSSC/PURCHASE UNIT III (SPRE)/ASOE/2021001630 [लोक निविदा – दो भाग/PUBLIC TENDER- TWO PART]	3. Port of Entry: VSSC, Trivandrum 4. Delivery Term: FOR VSSC, Trivandrum Further, in case of any contradiction of any other commercial conditions between RFP and Instructions to Vendors (1. PPP Make in India : Non-Divisible Items Class-I and II Local Suppliers only) arises, then the terms and conditions mentioned in the latter will prevail.

मूल निविदा सूचना की सभी अन्य निबंधन एवं शर्तें अपरिवर्तित रहेंगी।

All other terms and conditions of the original tender notice shall remain unchanged

हस्ताक्षरित/Sd/-

वरि. प्रधान, क्रय एवं भंडार/Sr. Head, Purchase & Stores

भारत सरकार/GOVERNMENT OF INDIA
अंतरिक्ष विभाग/DEPARTMENT OF SPACE

क्रय यूनिट-III/PURCHASE UNIT-III

विक्रम साराभाई अंतरिक्ष केंद्र/VIKRAM SARABHAI SPACE CENTRE

तिरुवनंतपुरम/THIRUVANANTHAPURAM – 695 022

विज्ञा. सं. वीएसएससी/एसपीआरई-क्रय/17-1 दि. 29/07/2021

ADVT. NO. VSSC/SPRE-PUR/17-1 DT. 29/07/2021

भारत के राष्ट्रपति के लिए तथा उनकी ओर से वरिष्ठ प्रधान, क्रय एवं भंडार, विक्रम साराभाई अंतरिक्ष केंद्र (वीएसएससी), तिरुवनंतपुरम, निम्नलिखित के लिए ई-प्रापण के माध्यम से (क्रम सं. 1 के लिए) निविदाएं आमंत्रित करता है:-

For & on behalf of the President of India, the Sr. Head Purchase & Stores, Vikram Sarabhai Space Centre (VSSC), Thiruvananthapuram invites Tenders **through e-procurement (for Sl. No. 1 thru 3)** for the following :-

क्रम सं. Sl. No	निविदा सं. Tender No.	वर्णन / Description	मात्रा Qty.	निविदा शुल्क Tender Fee
1	VSSC/PURCHASE UNIT III (SPRE)/ASOE/2021001703 [लोक निविदा – दो भाग/PUBLIC TENDER- TWO PART]	एकीकृत 450 के वी एक्स रे मशीन, फ्लैट पैनल संसूचक (एफपीडी) एवं मैनिपुलेटर की आपूर्ति, संस्थापना, कमीशनिंग व प्रशिक्षण। Supply, Installation, Commissioning and Training of Integrated 450 kV X-Ray Machine, Flat Panel Detector (FPD) and Manipulator.	1 सेट./Set.	लागू नहीं / NA
2	VSSC/PURCHASE UNIT III (SPRE)/ASOE/2021001630 [लोक निविदा – दो भाग/PUBLIC TENDER- TWO PART]	द्वि ऊर्जा(3.5/6 MeV) रेखिक त्वरण(लिनैक) एवं 450 के वी एक्स रे मशीन, फ्लैट पैनल संसूचक (एफपीडी) एवं मैनिपुलेटर की आपूर्ति, संस्थापना, कमीशनिंग व प्रशिक्षण। Supply, Installation, Commissioning and Training of X-Ray Equipment with Dual Energy (3.5/6 MeV) Linear Accelerator (LINAC) and 450 kV X-Ray Machine, Flat Panel Detector (FPD) and Manipulator.	1 सेट./Set.	लागू नहीं / NA
3	VSSC/PURCHASE UNIT III (SPRE)/ASOE/2021001854 [लोक निविदा – दो भाग/PUBLIC TENDER- TWO PART]	सहायक सामग्लेरियों के साथ लेसर डायोड प्रणाली की आपूर्ति, संस्थापना एवं कमीशनिंग। Supply, Installation and Commissioning of Laser Diode System with Accessories.	1 सेट./Set.	लागू नहीं / NA

विशेष टिप्पणी/Special Note:-

विदेशी विक्रेताओं को निविदा प्रस्तुत करने की अनुमति नहीं है। मेक इन इंडिया नीति के अनुसार केवल श्रेणी-I और श्रेणी-II के स्थानीय आपूर्तिकार इस बोली में भाग लेने हेतु पात्र हैं। विदेशी ओईएम से सीधे प्राप्त उद्धरणों/या विदेशी ओईएमओं की ओर से उद्धरण प्रस्तुत कर रहे एजेंटों को इस निविदा में भाग लेने की अनुमति नहीं है।

Foreign vendors are not permitted to quote. Only Class-I and Class-II Local suppliers as per Make in India Policy are eligible to participate in the bid. Quotations directly from foreign OEM/ or from agents quoting on behalf of foreign OEMs are not allowed to participate in this tender.

क्रम सं. Sl. No.	बोली प्रस्तुत करने की समय-सीमा Time limit for submission of Bid	बोली खोलने की तिथि Bid Opening date
01.	दिनांक 19.08.2021 [11:00 बजे तक] Upto 19.08.2021 [11:00 Hrs.]	दिनांक 19.08.2021 [11:01 बजे] 19.08.2021 [11:01 Hrs.]
02.	दिनांक 20.08.2021 [14:00 बजे तक] Upto 20.08.2021 [14:00 Hrs.]	दिनांक 20.08.2021 [15:00 बजे] 20.08.2021 [15:00 Hrs.]
03.	दिनांक 30.08.2021 [10:00 बजे तक] Upto 30.08.2021 [10:00 Hrs.]	दिनांक 30.08.2021 [11:00 बजे] 30.08.2021 [11:00 Hrs.]

क्रम सं. 01 से 03 के लिए, ब्यौरे इसरो ई-प्रापण पोर्टल <https://eproc.vssc.gov.in> पर उपलब्ध हैं।

For Sl. No. 01 to 03., details are available on ISRO e-procurement portal <https://eproc.vssc.gov.in>.

शुद्धिपत्र, यदि कोई हो तो, हमारे वेबसाइट www.vssc.gov.in / www.isro.gov.in में मात्र प्रकाशित किया जाएगा।

Corrigendum, if any will be published in our websites : www.vssc.gov.in / www.isro.gov.in only.

हस्ताक्षरित/Sd/-

वरि. प्रधान, क्रय एवं भंडार / Sr. Head, Purchase & Stores

E-Procurement No. VSSC/PURCHASE UNIT III(SPRE)/ASOE/2021001703 Dt. 20/07/2021 and Website Advertisement ref. No. VSSC/SPRE-PUR/17-1 DT. 29/07/2021. E-Tenders are invited for ***Supply, Installation, Commissioning and Training of Integrated 450 kV X-Ray Machine, Flat Panel Detector (FPD) and Manipulator***, through our E-procurement site <https://eproc.vssc.gov.in>. Bids can be submitted **upto 19.08.2021 [11:00 Hrs.], Technical Bid Opening date : 19.08.2021 [11:01 Hrs.].**

Only online tenders will be accepted. No manual / Postal / e-mail / fax offers will be entertained. No manual tender document will be issued. Parties interested to participate in this e-Tender are required to register themselves as vendors, if not already registered, in our e-procurement portal <https://eproc.vssc.gov.in> by downloading plugins and help demos listed on the home page of the e-procurement link mentioned above to complete the vendor registration process. They can seek help from help desk 0471-2565454 also as provided in the home page of e-procurement portal in case of any problem for registration and subsequent process. Vendors may please note that without registering in our e-procurement portal, they will not be able to quote for this e-tender.

Important Notice : Tender will be automatically closed on the due date [ie. **19.08.2021 11:00 Hrs**], if at least one offer is received. If the tender could not be opened on the first day due to any technical snag, it will be opened on the subsequent day as per the schedule.

This being a Two Part Tender, Cost shall be mentioned in the Price Bid Only. All the documents being uploaded like quote split up details, AMC cost etc should not contain the rates/costs. **However a copy of your PRICE BID,AMC Quote etc WITHOUT PRICE SHALL BE UPLOADED in the Documents Solicited from the Vendor Field [available in Bid forms] TO KNOW THE PATTERN OF QUOTE. [ENSURE NOT TO MENTION ANY PRICE, OTHERWISE THE QUOTE WILL BE INVALID].**

THE TECHNICAL DOCUMENTS NEED TO BE ATTACHED ONLINE AS PER REQUIREMENT WITHOUT ANY PRICE INFORMATION, TECHNICAL BID CONTAINING PRICE DETAILS WILL BE TREATED AS REJECTED. PLEASE REFER TENDER DOCUMENTS FOR DETAILS.

Tender Details

Tender No :	VS202100170301
Tender Date :	20-07-2021
Purchase Entity :	PURCHASE UNIT III (SPRE)
Centre :	VSSC

Procurement of Integrated 450 kV X-ray machine with Flat Panel Detector and Manipulator

This tender is for the Procurement of Integrated 450 kV X-ray machine with Flat Panel Detector and Manipulator.

This tender is proposed as a DOMESTIC PUBLIC TENDER. This tender is restricted only to Class-I and Class-II Local Suppliers as defined under DPIIT Order dtd 04/06/2020- Preference to Make in India Order-2017 Revision. Non-Local Suppliers need not quote.

Foreign OEMs/Agents quoting on behalf of Foreign OEMs are not permitted to quote. High Sea Sales Quotes not permitted. The bids shall be in INR only.

This is a TWO-PART tender i.e. Techno-Commercial Bid (Part-I) and Price Bid (Part-II) shall be submitted separately. All technical and commercial terms and conditions shall be furnished in the Techno-Commercial Bid while price shall be indicated only in the Price Bid. Uploading price details anywhere else other than the price-bid shall lead to unconditional rejection of the tender. Please make note of the same.

Tenderers are advised NOT TO UPLOAD any documents revealing the price of the main equipment, accessories, spares or AMC. They are however, requested to upload UNPRICED BIDS (i.e. Price details masked) showing appropriate break-up of components of main equipment, individual accessories and spares as desired.

Purchase preference to eligible vendors are applicable as per extant notifications issued by the Government of India.

The Class-I/Class-II Local suppliers, at the time of submitting their offer, shall also indicate percentage of local content and provide self-certification that the item (s) offered meets the local

content requirement for Class-I/Class-II Local Suppliers as the case may be. They shall also give details of location (s) at which the local value addition is made.

In cases if the item(s) offered exceed Rs. 10 Crores, the Class-I/Class-II Local Suppliers shall provide a Certificate from the statutory auditor or cost auditor of the company (in 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.

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.

Technical Bids will be opened at the scheduled due date & time. No further intimation will be sent in this regard. The schedule for price bid opening shown is only indicative. Price bids will only be opened in the case of parties who have been techno-commercially accepted, the details of which will be communicated at a later stage.

**GOVERNMENT OF INDIA
DEPARTMENT OF SPACE
VIKRAM SARABHAI SPACE CENTRE (VSSC)
THIRUVANANTHAPURAM**

**Tender for Integrated 450 kV X-ray machine with Flat panel detector
and manipulator**

Bids to be submitted online

Tender No.: VSSC/PURCHASE UNIT III (SPRE)/VS202100170301 dated 20-07-2021

A. Tender Details

Tender No :	VSSC/PURCHASE UNIT III (SPRE)/VS202100170301
Tender Date :	20-07-2021
Tender Classification:	GOODS
Purchase Entity :	PURCHASE UNIT III (SPRE)
Centre :	VIKRAM SARABHAI SPACE CENTRE (VSSC)

Procurement of Integrated 450 kV X-ray machine with Flat Panel Detector and Manipulator

This tender is for the Procurement of Integrated 450 kV X-ray machine with Flat Panel Detector and Manipulator.

This tender is proposed as a DOMESTIC PUBLIC TENDER. This tender is restricted only to Class-I and Class-II Local Suppliers as defined under DPIIT Order dtd 04/06/2020- Preference to Make in India Order-2017 Revision. Non-Local Suppliers need not quote.

Foreign OEMs/Agents quoting on behalf of Foreign OEMs are not permitted to quote. High Sea Sales Quotes not permitted. The bids shall be in INR only.

This is a TWO-PART tender i.e. Techno-Commercial Bid (Part-I) and Price Bid (Part-II) shall be submitted separately. All technical and commercial terms and conditions shall be furnished in the Techno-Commercial Bid while price shall be indicated only in the Price Bid. Uploading price details anywhere else other than the price-bid shall lead to unconditional rejection of the tender. Please make note of the same.

Tenderers are advised NOT TO UPLOAD any documents revealing the price of the main equipment, accessories, spares or AMC. They are however, requested to upload UNPRICED BIDS (i.e. Price details masked) showing appropriate break-up of components of main equipment, individual accessories and spares as desired.

Purchase preference to eligible vendors are applicable as per extant notifications issued by the Government of India.

The Class-I/Class-II Local suppliers, at the time of submitting their offer, shall also indicate percentage

of local content and provide self-certification that the item (s) offered meets the local content requirement for Class-I/Class-II Local Suppliers as the case may be. They shall also give details of location (s) at which the local value addition is made.

In cases if the item(s) offered exceed Rs. 10 Crores, the Class-I/Class-II Local Suppliers shall provide a Certificate from the statutory auditor or cost auditor of the company (in 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.

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.

Technical Bids will be opened at the scheduled due date & time. No further intimation will be sent in this regard. The schedule for price bid opening shown is only indicative. Price bids will only be opened in the case of parties who have been techno-commercially accepted, the details of which will be communicated at a later stage.

A.1 Tender Schedule

Bid Submission Start Date :	20-07-2021 11:00
Bid Clarification Due Date :	05-08-2021 11:00
Bid Submission Due Date :	19-08-2021 11:00
Bid Opening Date :	19-08-2021 11:01
Price Bid Opening Date :	23-08-2021 12:00

B. Tender Attachments

NA

Instructions To Vendors

1. PPP Make in India(Non- Divisible Items-Class I & II Local Suppliers Only)

1. In line with Public Procurement (Preference to Make in India), Order 2017 & its amendments issued by Govt. of India from time to time with a view to support the Indian industries, ISRO has implemented "Purchase Preference Policy". The "Purchase Preference" is applicable for the "Class-I Local Supplier" for the goods/ services/ works covered in this tender, subject to the following terms & conditions:-

2. a) The subject item falls under Non-divisible category. b) The offers sought only from Class-I & Class-II local suppliers

3. Definitions: A supplier or service provider, whose goods, services or works offered for procurement, has local content: i. Equal to or more than 50%: Class-I local supplier. ii. More than 20% but less than 50%: Class-II local supplier. iii. Less than or equal to 20%: Non-local supplier.

4. 'Local content' means the amount of value added in India (i.e. indigenous items/services added in the offered products/ services/ works) be the total value of the item offered (excluding net domestic indirect taxes) minus the value of imported content in the item (including all customs duties/IGST) as a proportion of the total value (excluding net domestic indirect taxes), in percent.

5. The margin of Purchase Preference shall be up to 20%.

6. 'Margin of purchase preference' means the maximum extent to which the price quoted by the "Class-I local supplier" above the L1 (landed cost).

7. 'L1' means the lowest technically accepted tender / bid / quotation (i.e. lowest landed cost including duties, taxes and freight & Insurance).

8. Works means all works as per Rule 130 of GFR- 2017, and will also include 'turnkey works'. Works includes Engineering, Procurement and Construction (EPC) contracts and services include System Integrator (SI) contracts.

9. Purchase Preference Policy:- Goods/Works which are not divisible (ie., required quantity is 1 or as a package) and Services:

a)If L1 is from a 'Class-I local supplier, the contract will be awarded to L1 bidder.

b) If L1 is not from a 'Class-I local supplier', the lowest bidder among the 'Class-I local supplier' will be invited to match the L1 price subject to local supplier's quoted price falling within the margin of purchase preference (i.e. 20%) and the contract shall be awarded to such 'Class-I local supplier' subject to matching the L1 price (inclusive of duties, taxes and freight & insurance).

c) In case such lowest eligible 'Class-I local supplier' fails to match the L1 price, the 'Class-I local supplier' with the next higher bid within the margin of purchase preference shall be invited to match the L1 price and so on, and order/contract shall be awarded accordingly. In case where none of the 'Class-I local supplier' within the margin of purchase preference agree to match the L1 price, then the order/contract shall be awarded to the original L1 Bidder.

10. The 'Class-I & II local supplier' should provide a "Self Certification" along with technical offer indicating that the item offered meets the minimum local content [as per Sl. No.(3)] as called for in the tender and provide the percentage of local content along with details of the location(s) at which the local value addition is made. In case of two bid tenders, it is mandatory to indicate compliance to MLC(minimum Local Content) in technical bid zone.

11. In cases the quoted price is in excess of Rs.1000 Lakhs (including duties, taxes and freight & Insurance) the 'Class-I & 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 case of suppliers other than companies) giving the percentage of local content.

12. A committee (with an external expert from a practicing cost accountant or practicing chartered accountant, if required) constituted for independent verification shall verify the self-declarations & auditor's / accountant's certificates on random basis, as per the requirements.

13. The ink-signed certificate shall be provided on vendors letter head along with the offer (in case of online tender, copy of ink-signed certificate shall be uploaded along with your offer under concerned tab. Original in Hard copy shall be produced on request). In case of non-submission of certificate, the purchase preference shall not apply.

14. In case of a complaint received from any local supplier indicating a need for review / verification of Local content of successful vendor / awarded vendor, for accepting a complaint from such complainant (w.r.t the false declaration given by the successful vendor on the local content), a complaint fee of Rs.2Lakhs or 1% of the locally manufactured items being procured (subject to a maximum Rs. 5Lakhs), whichever was higher, to be paid by demand draft by the complainant. In case, the complaint is found to be incorrect, the complaint fee shall be forfeited. In case, the complaint is upheld and found to be substantially correct, deposited fee of the complainant would be refunded without any interest.

15. False declarations will be in breach of code of the integrity for which a bidder or its successor's will not be eligible/debarred for purchase preference from further tenders / pending tenders for two years

along with other actions as may be applicable.

16. The Public Procurement (Preference to Make in India), Order 2017 issued by Govt. of India indicates that if there are any general or specific restrictive clauses to restrict participation of Indian companies in those countries procurement tenders, reciprocity clause need to be invoked as per the order. Hence, if ISRO or Govt. of India come across that Indian suppliers of an item are not allowed to participate and / or compete in procurement by your government, the bid submitted by you will be not be considered and excluded from eligibility for procurement. Please note this point.

2. PROFORMA FOR INSTRUCTIONS TO TENDERERS AND TERMS & CONDITIONS OF TENDER where the indent value is Rs. 2.00 lakhs & above for indigenous stores items

1. Preference will be given to those tenders offering supplies from ready stocks and on the basis of FOR destination/delivery at site.

2. REJECTED STORES:

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

3. The term 'Stores' shall mean what the Contractor agrees to supply under the Contract as specified in the Purchase Order including erection of plants & machinery and subsequent testing, should such a condition is included in the Purchase Order.

4. SECURITY DEPOSIT: Wherever, the Purchase Order value is Rs. 5.00 Lakhs or more, on acceptance of the tender, the Contractor shall, at the option of the Purchaser and within the period specified by him, deposit with him, in cash or in any other form as the Purchaser may determine, security deposit not exceeding ten percent of the value of the Contract as the Purchaser shall specify. If the Contractor is called upon by the Purchaser to deposit, 'Security' and the Contractor fails to provide the security within the period specified, such failure shall constitute a breach of the Contract, and the Purchaser shall be entitled to make other arrangements for the re-purchase of the stores Contracted at the risk of the Contractor in terms of Sub-Clause (ii) and (iii) of clause regarding Delivery. (b) hereof and/or to recover from the Contractor, damages arising from such cancellation.

5. Sales Tax and/or other duties/levies legally leviable and intended to be claimed should be mentioned in the price bid template. If nothing is mentioned, then it will be presumed that the rate quoted is inclusive of all taxes/duties.

6. TERMS & CONDITIONS OF TENDER

7. TEST CERTIFICATE: Wherever required, test certificates should be sent along with the despatch documents.

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

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

10. The purchaser shall be under no obligation to accept the lowest or any tender and reserves the right of acceptance of the whole or any part of the tender or portions of the quantity offered and the tenderers shall supply the same at the rates quoted.

11. (a) All available technical literature, catalogues and other data in support of the specifications and details of the items should be furnished along with the offer.

(b) Samples, if called for, should be submitted free of all charges by the tenderer and the Purchaser shall not be responsible for any loss or damage thereof due to any reason whatsoever. In the event of nonacceptance of tender, the tenderer will have to remove the samples at his own expense.

(c) Approximate net and gross weight of the items offered shall be indicated in your offer. If dimensional details are available the same should also be indicated in your offer.
(d)

Specifications: Stores offered should strictly confirm to our specifications. Deviations, if any, should be clearly indicated by the tenderer in his quotation. The tenderer should also indicate the Make/Type number of the stores offered and provide catalogues, technical literature and samples, wherever necessary, along with the quotations. Test Certificates, wherever necessary, should be forwarded along with supplies. Wherever options have been called for in our specifications, the tenderer should address all such options. Wherever specifically mentioned by us, the tenderer could suggest changes to specifications with appropriate response for the same.

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

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

14. The term Purchaser shall mean the President of India or his successors or assigns.

15. (a) All available technical literature, catalogues and other data in support of the specifications and details of the items should be furnished along with the offer.

(b) Samples, if called for, should be submitted free of all charges by the tenderer and the Purchaser shall not be responsible for any loss or damage thereof due to any reason whatsoever. In the event of

nonacceptance of tender, the tenderer will have to remove the samples at his own expense.

(c) Approximate net and gross weight of the items offered shall be indicated in your offer. If dimensional details are available the same should also be indicated in your offer.

(d) Specifications: Stores offered should strictly confirm to our specifications. Deviations, if any, should be clearly indicated by the tenderer in his quotation. The tenderer should also indicate the Make/Type number of the stores offered and provide catalogues, technical literature and samples, wherever necessary, along with the quotations. Test Certificates, wherever necessary, should be forwarded along with supplies. Wherever options have been called for in our specifications, the tenderer should address all such options. Wherever specifically mentioned by us, the tenderer could suggest changes to specifications with appropriate response for the same.

16. ACCEPTANCE OF STORES:

(a) The stores shall be tendered by the Contractor for inspection at such places as may be specified by the purchaser at the Contractor's own risk, expense and cost.

(b) It is expressly agreed that the acceptance of the stores Contracted for, is subject to final approval by the purchaser, whose decision shall be final.

(c) If, in the opinion of the purchaser, all or any of the stores do not meet the performance or quality requirements specified in the Purchase Order, they may be either rejected or accepted at a price to be fixed by the purchaser and his decision as to rejection and the prices to be fixed shall be final and binding on the Contractor.

(d) If the whole or any part of the stores supplied are rejected in accordance with Clause No. (c) above, the purchaser shall be at liberty, with or without notice to the Contractor, to purchase in the open market at the expense of the Contractor stores meeting the necessary performance and quality Contracted for in place of those rejected, provided that either the purchase, or the agreement to purchase, from another supplier is made within six months from the date of rejection of the stores as aforesaid.

17. As a Government of India Department, this office is exempted from payment of Octroi and similar local levies. Tenderers shall ensure that necessary Exemption Certificates are obtained by them from the Purchase Officer concerned to avoid any payment of such levies.

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

19. GUARANTEE & REPLACEMENT:

(a) The Contractor shall guarantee that the stores supplied shall comply fully with the specifications laid down, for material, workmanship and performance.

- (b) For a period of twelve months after the acceptance of the stores, if any defects are discovered therein or any defects therein found to have developed under proper use, arising from faulty stores design or workmanship, the Contractor shall remedy such defects at his own cost provided he is called upon to do so within a period of 14 months from the date of acceptance thereof by the purchaser who shall state in writing in what respect the stores or any part thereof are faulty.
- (c) If, in the opinion of the purchaser, it becomes necessary to replace or renew any defective stores such replacement or renewal shall be made by the Contractor free of all costs to the purchaser, provided the notice informing the Contractor of the defect is given by the purchaser in this regard within the said period of 14 months from the date of acceptance thereof.
- (d) Should the Contractor fail to rectify the defects, the purchaser shall have the right to reject or repair or replace at the cost of the Contractor the whole or any portion of the defective stores.
- (e) The decision of the Purchaser notwithstanding any prior approval or acceptance or inspection thereof on behalf of the Purchaser, as to whether or not the Stores supplied by the Contractor are defective or any defect has developed within the said period of 12 months or any other period or as to whether the nature of defects requires renewal or replacement, shall be final, conclusive and binding on the Contractor.
- (f) To fulfill guarantee conditions outlined in (a) to (e) above, the Contractor shall, at the option of the Purchaser, furnish a Bank Guarantee (as prescribed by the Purchaser)

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

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

22. a) Your offer should be valid for 90 days from the date of opening of the tender.

b) Prices are required to be quoted according to the units indicated in the annexed tender form. When quotations are given in terms of units other than those specified in the tender form, relationship between the two sets of units must be furnished.

23. d) The term 'Purchase Order' shall mean the communication signed on behalf of the Purchaser by an Officer duly authorised intimating the acceptance on behalf of the Purchaser on the terms and conditions mentioned or referred to in the said communication accepting the tender or offer of the Contractor for supply of stores or plant, machinery or equipment or part thereof.

3. Specific Terms and Conditions to Tender (MII Compliant)

1. (VIII) Please upload the Technical Details / Catalogue / Data Sheets (whereever applicable)
2. (IX) The offer should be valid for a period of minimum 90 days from the date of opening of Tender and 180 Days for PT Two Part (120 Days for Technical Bid and 60 Days for Price Bid from the date of opening).
3. (X) In order to avail of the benefits extended to by Govt. of India to the Micro and Small Sectors, please submit attested copy of the valid Entrepreneur Memorandum Part-II signed by the General Manager, District Industries Centre / Udyog Adhar / NSIC Registration Certification along with your offer.
4. (XI) If any bidder submits forged / false document along with the tender, offer of such vendors will be summarily rejected and such bidders will be blacklisted for all future tenders.
5. (XII) Wherever samples are required to be submitted along with the quotation, offer without sample will not be considered.
6. (XIII) The other attached forms are our standard terms and conditions, which are to be complied with. If any conflict arise between the specific terms and standard terms, then in those cases, the specific terms will prevail over the standard terms.
7. (XIV) This tender is restricted only to Class-I and Class-II Local Suppliers as defined under DPIIT Order dtd 04/06/2020- Preference to Make in India Order-2017 Revision. Non-Local Suppliers need not quote.
8. (XV) Foreign OEMs/Agents quoting on behalf of Foreign OEMs are not permitted to quote. High Sea Sales Quotes not permitted. The bids shall be in INR only.
9. (XVI) Definitions: A supplier or service provider, whose goods, services or works offered for procurement, has local content: a)Equal to or more than 50% : Class-I local supplier. b)More than 20% but less than 50% : Class-II local supplier. c)Less than or equal to 20% : Non-local supplier.
10. (XVII) Local content means the amount of value added in India (i.e. indigenous items/services added in the offered products/services/works) be the total value of the item offered (excluding net domestic indirect taxes) minus the value of imported content in the item (including all customs duties/IGST) as a proportion of the total value (excluding net domestic indirect taxes), in percent. Indicate extent of Minimum Local Content in offered product/service and location of such value additions.

11. (XVIII) The Class-I & II local supplier should provide a Self Certification along with your offer in PDF format indicating that the item offered meets the minimum local content as called for in the tender as mentioned above and provide the % of local content along with details of the location(s) at which the local value addition is made. In case of two part tenders, it is mandatory to indicate compliance to MLC(minimum local content) in technical bid itself.

12. (XIX) Purchase preference to eligible vendors are applicable as per extant notifications issued by the Government of India.

13. (XX) The Class-I/Class-II Local suppliers, at the time of submitting their offer, shall also indicate percentage of local content and provide self-certification that the item (s) offered meets the local content requirement for Class-I/Class-II Local Suppliers as the case may be. They shall also give details of location (s) at which the local value addition is made.

14. (XXI) In cases if the item(s) offered exceed Rs. 10 Crores, the Class-I/Class-II Local Suppliers shall provide a Certificate from the statutory auditor or cost auditor of the company (in 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.

15. (I) Please quote applicable GST separately.

(a)We are eligible for partial exemption of IGST vide Notification No: 47/2017-Integrated Tax (Rate) dtd 14/11/2017 and 45/2017-Central Tax (Rate) dtd 14/11/2017 issued by Dept. of Revenue, Ministry of Finance. Necessary Exemption Certificates will be issued on demand.

(b)We are eligible for partial exemption of CGST and SGST vide Notification No: 45/2017 dtd 14/11/2017 and No: 169/2017/TAXES dtd 15/11/2017 respectively. Necessary Exemption Certificates will be issued on demand.

16. (II) Our standard delivery term is FOR, VSSC. In case any vendor offers delivery term of Ex-works, Packing and Forwarding charges if any should be indicated separately either as a percentage of the quoted rate or as a Lumpsum amount.

17. (III) Our standard payment term is 100% within 30 days after receipt and acceptance of the items at our site (after installation and commissioning in cases where installation and commissioning is required).

18. (IV) Liquidated Damages: The delivery period quoted should be realistic. The delivery period so quoted and mentioned in the order is the essence of the order/contract. In case of delay in delivery of material as per the delivery schedule, Liquidated Damage @ 0.5% per week or part thereof on the undelivered portion subject to a maximum of 10% of the contract value shall be levied. Wherever, installation and commissioning is also involved, the supply will be deemed to have been completed only when the entire Stores is supplied, installed and accepted.

19. (V) Performance Bank Guarantee: Wherever products offered carry warranty, the warranty should be for one year or as per manufacturers standard warranty term. Against such cases, please confirm submission of Performance Bank Guarantee. The Performance Bank Guarantee should be for 3% of the order value covering the warranty period obtained from any Scheduled Bank on Rs.200/- Non Judicial Stamp Paper and should be valid beyond 2 months from the completion of the warranty period. Alternately vendors can request for withholding 3% payment till completion of the warranty period.

20. (VI) Security Deposit: Wherever the offer value is Rs. 5.00 Lakhs or above, the successful tenderer should submit Security Deposit @ 3% of the order value by way of Bank Guarantee / FD Receipt. The Bank Guarantee shall be obtained from any Scheduled Bank on Rs.200/- Non Judicial Stamp Paper and should be valid beyond 2 months from the completion of all contractual obligations. If the Contractor is called upon by the Purchaser to deposit, Security and the Contractor fails to provide the security within the period specified, such failure shall constitute a breach of the Contract, and the Purchaser shall be entitled to make other arrangements for the re-purchase of the stores Contracted at the risk of the Contractor. In case if Security Deposit is submitted and the contractor fails to execute the order, then the security deposit will be forfeited.

21. (VII) Note: SD, LD and PBG clauses are mandatory and offers of the vendors who have not agreed for the above conditions will be excluded from the procurement process. Micro and Small Vendors are not exempted from the submission of Security Deposit. Only Govt Departments/PSUs/PSEs can submit Indemnity Bond instead of Bank Gurantee towards SD/PBG.

22. (XXII) 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.

4. Instructions to Vendors

1. This is an E Tender. Hence Postal/Fax/Email tenders will not be accepted.

2. Last minute clarification on tenders will not be entertained.

C. Bid Templates

C.1 Technical Bid - Integrated 450 kV X-ray machine with Flat panel detector and manipulator

1. X RAY UNITS OR EQUIPMENT

Integrated 450 kV X- ray machine , Flat panel detector and manipulator

Document : Request for Proposal -450 kV

Common Specifications (Applicable for all items)

Sl No	Specification	Value	Compliance	Offered Specification	Remark
1	Specification as per attachment		-		

Supporting Documents required from Vendor

1. Commercial and technical documents

2. UNPRICED BID in Format as mentioned in Annexure-II

3. Declaration regarding the percentage of local content (or value addition) in the item offered

4. Detailed Compliance Matrix vis-a-vis the item specification in tender

5. Detailed Techno-Commercial Offer (without Price Details)

6. UNPRICED AMC Quote in Split-Up format for each year required.

7. UNPRICED LIST of Essential/Optional Spares for 7 years Maintenance

5 additional documents can be uploaded by the vendor

C.2 Commercial Terms / Bid

Sl. No.	Description	Compliance	Vendor Terms
1	Training	Yes / No / Explain	
2	Warranty	Yes / No / Explain	
3	All items must be supplied as a single unit	Yes / No / Explain	
4	Taxes and other costs, if any . [Note: VSSC is a Public Funded Research Institution under the administrative control of Department of Space and is eligible for partial exemption of IGST @5% vide Notfn No. 45/2017, 47/2017 dt 14.11.2017 respectively. Necessary IGST EXEMPTION CERTIFICATE shall be issued.]	Yes / No / Explain	
5	Security Deposit (Applicable if Offer Value is Rs. 5 Lakhs or above. MSME/NSIC Units are NOT EXEMPTED from the payment of SD. Bank Guarantee @ 3% of Order Value valid till 60 days from the date of supply to be submitted. Mandatory compliance required. Only Government Bodies/PSUs/PSEs can submit Indemnity Bond in lieu of BG. In the event of non-performance of contractual obligations, SD will be forfeited).	Yes / No / Explain	
6	Delivery Terms.	Yes / No / Explain	
7	Delivery Period	Yes / No / Explain	
8	Liquidated Damages (Applicable beyond the delivery period mentioned in this tender @ 0.5% per week or part thereof on the undelivered portion subject to a maximum of 10% of the contract value. Mandatory compliance required).	Yes / No / Explain	
9	Comprehensive Warranty (min. 36 months from the date of installation and commissioning of the system at our site).	Yes / No / Explain	

10	Performance Bank Guarantee (PBG) Bank Guarantee @ 3% of Order Value valid till the completion of warranty period plus 2 months claim period to be submitted. Mandatory compliance required. Only Government Bodies/PSUs/PSEs can submit Indemnity Bond in lieu of BG. In the event of non-performance of warranty obligations, PBG will be forfeited).	Yes / No / Explain	
11	Payment Term: Our Default Payment Term: 100% within 30 days after receipt, installation, commissioning and acceptance of item at our site. NOTE: CONSEQUENT TO COVID 19 PANDEMIC AND AS PER EXTANT GUIDELINES FROM DEPARTMENT OF SPACE, NO ADVANCE PAYMENT IS PAYABLE TO THIS TENDER).	Yes / No / Explain	
12	Definitions: A supplier or service provider, whose goods, services or works offered for procurement, has local content: a)Equal to or more than 50% : Class-I local supplier. b)More than 20% but less than 50% : Class-II local supplier. c)Less than or equal to 20% : Non-local supplier. Mention your category.	Yes / No / Explain	
13	Local content means the amount of value added in India (i.e. indigenous items/services added in the offered products/services/works) be the total value of the item offered (excluding net domestic indirect taxes) minus the value of imported content in the item (including all customs duties/IGST) as a proportion of the total value (excluding net domestic indirect taxes), in percent. Indicate extent of Minimum Local Content in offered product/service and location of such value additions.	Yes / No / Explain	

14	The Class-I & II local supplier should provide a Self Certification along with your offer in PDF format indicating that the item offered meets the minimum local content as called for in the tender as mentioned above and provide the % of local content along with details of the location(s) at which the local value addition is made. In case of two part tenders, it is mandatory to indicate compliance to MLC(minimum local content) in technical bid itself. Confirm attachment of Self declaration along with the offer.	Yes / No / Explain	
15	PO Placement Address (with Name and Contact Details of sales person concerned).	-	
16	Any Other Terms	-	
17	Acceptance to Provide NonComprehensive AMC for a period of 7 years for the systems as mentioned in Table-2 after the completion of warranty period. AMC cost may be mentioned only in the Specific slot in the Price Bid	Yes / No / Explain	
18	List of Essential Spares for the trouble free operation of the equipment for a period of 7 years after warranty period to be uploaded (without price details). Details of optional spares may also be provided.	Yes / No / Explain	
19	Please upload a detailed compliance matrix vis-a-vis the technical specification of the tender. (failing to which the offer will be rejected)	Yes / No / Explain	
20	Please ensure no documents with price details are uploaded. Only unpriced bids (prices masked) shall be uploaded. Price details shall be mentioned only in the price bid. Uploading price bid documents will lead to rejection of tender.	Yes / No / Explain	
21	Based on the offer value, you are supposed to provide a declaration of local content. Details in Tender Notice.	Yes / No / Explain	

22	Please note: Only Class-I Local Supplier/Class-II Local Suppliers are permitted to quote. The offer shall be in INR only. Bids from Foreign OEMs/Agents of behalf of OEMs and offers on High Sea Sales basis are not allowed. Please mention the category of the bidder.	Yes / No / Explain	
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C.3 Price Bid

Sl. No.	Item	Quantity	Unit Price	Currency	Total Price	Remark
1	X RAY UNITS OR EQUIPMENT	1.00 Sets		-		

Common charges (Applicable for all items)

Annual Maintenance Contract Charges	
Optional Spares Cost (lumpsum)	
Any Other Charges	
Essential Spares Cost (lumpsum)	
Packing and Forwarding Charges	
Freight charge	
Installation & Commissioning Charges	

**REQUEST FOR PROPOSAL
FOR
SUPPLY, INSTALLATION, COMMISSIONING AND TRAINING OF
INTEGRATED 450 kV X- RAY MACHINE, FLAT PANEL DETECTOR
(FPD) AND MANIPULATOR**

1. INTRODUCTION

Vikram Sarabhai Space Centre (VSSC), is one of the major units of Indian Space Research Organization (ISRO), Govt. of India. VSSC pioneers in rocket research and launch vehicle projects of ISRO. The Centre also pursues research and development activities in associated areas like propellants, solid propulsion technology, aerodynamics, aero structural and aero thermal fields, avionics, polymers and composites, guidance, control & simulation, computer and information, mechanical engineering, aerospace mechanisms, vehicle integration and testing, space ordnance, chemicals and materials. Systems reliability and quality assurance of all aspects of engineering and operations are studied and evaluated to the levels of perfection required in each field.

Aerospace Ordnance Entity (ASOE) carries out design, development, testing, production and supply of aerospace ordnance devices and systems for sounding rockets, launch vehicles and spacecraft applications. In order to meet the NDT requirements of Pyro devices, it has been decided to establish the NDT Facility herewith low energy Radiography systems. The request for proposal (RFP) in this respect deals with all aspects of tendering including detailed technical specifications of the items to be realized such as a 450 kV X-machine, Flat Panel Detector (FPD) for X-Ray imaging and manipulators. The schematic sketch of the total integrated system is as shown in Annexure-III

2. SCOPE OF WORK

The scope of the supplier includes Design, Fabrication, Supply, installation, commissioning and performance demonstration of the complete integrated system at VSSC site

The complete integrated system is required for Non-Destructive testing of Pyro devices to check defects, general assembly and interface gap if any of following configurations:

Length of object: Maximum of 12000 mm.

Diameter of the object: Maximum of 500 mm

Mass of the object: 500 Kg (Maximum)

The complete integrated system shall consist following main subsystems:

1. 450 kV X-ray machine
2. Flat Panel Detector system
3. Gantry based manipulator.

The specifications of Integrated X-ray equipment with 450 kV X-ray machine, FPD and manipulator are given in Annexure- I

The total systems will be commissioned in the Radiation Exposure Hall or building at VSSC Thiruvananthapuram.

The supplier shall submit offers separately for individual systems and combined for the systems in the prescribed price bid format.

Any further clarifications required will be provided on request.

3. RESPONSIBILITIES

3.1 RESPONSIBILITY OF VSSC, ISRO

- VSSC, ISRO will supply necessary consumables like X-Ray films and Film processing chemicals for carrying out the Acceptance testing of the 450 kV X-RAY system.
- No accommodation will be provided at VSSC, ISRO. Accommodation, Local conveyance and other logistics shall be the responsibility of supplier.
- Import license for 450 kV from AERB if applicable.

3.2 RESPONSIBILITY OF SUPPLIER

- Supplier shall provide all supervision, labor, tools, machines, cranes, slings, wire rope, D-shackle etc., equipment, scaffolding, rigging material and incidental material such as bolts, wedges, anchors, concrete inserts, grout material etc. required to complete the works.
- Design, Manufacture, Testing & demonstration at Shop floor, supply, Erection at our site, Testing and commissioning of 450 kV X-ray machine, Flat Panel Detector and manipulator system as per tender document.
- Transportation of total system along with all accessories & sub-systems to VSSC ISRO for commissioning.
- Testing and Evaluation of the systems at VSSC ISRO and demonstrate the performance of the 450 kV, FPD and Manipulator systems as per the tender document.
- Supplier shall submit the GA drawing and other design details for clearance by Department before commencing the fabrication of handling system.
- Providing Acceptance test & measurement procedures and test certificates for the acceptance tests at SUPPLIER's site prior to dispatch of equipment to VSSC ISRO.
- Training of VSSC ISRO Engineers during testing and commissioning at VSSC ISRO site.
- The equipment shall have warranty of three years from the date of commissioning and the SUPPLIER shall be responsible for attending snags or major breakdowns during this period at no additional cost.
- Providing two sets of operation and maintenance manuals with schematic wiring diagrams, layout and troubleshooting details.
- Supplier shall mention or identify an Indian agent for extending the post sales service of equipment for a period of 7 years after warranty period, on chargeable basis.
- Type approval from AERB for 450 kV X-ray machine.

4. GENERAL TERMS AND CONDITIONS

4.1 VALIDITY OF OFFER

The offer shall be valid for 4 months from the date of opening of the bids. In case of any delay in obtaining technical clarifications from the supplier due to incomplete bid, the validity shall be extended accordingly.

4.2 TIME SCHEDULE (DELIVERY PERIOD)

- SUPPLIER shall deliver, commission and demonstrate the rated outputs of the equipments as per the tender document, **within 14 months from the date of acceptance of Purchase Order.**
- Delivery date is the essence for this contract. Party shall adhere to the delivery date mentioned in this tender and same shall be confirmed along with the offer.
- In case Party is unable to meet the delivery schedule, the offer will be liable for rejection.
- If VSSC ISRO takes some more time for accepting the equipment for carrying out additional trials, the time taken by VSSC ISRO will not be accounted as a delay by supplier.

5 PRICE

Price shall be quoted in the format enclosed in Annexure-II

6 PACKING

- The Contractor wherever applicable shall pack and crate all stores for Sea / Air shipment as applicable in a manner suitable for export to a tropical humid climate, in accordance with internationally accepted export practices and in such a manner so as to protect it from damage and deterioration in transit by road, rail or sea for space qualified stores. The Contractors shall be held responsible for all damages due to improper packing.
- The Contractor shall ensure that each box unit of shipment is legible and properly marked for correct identification. Any failure to comply with this requirement shall make the contractor liable for additional expenses involved.

- The Contractor shall notify the Purchaser of the date of shipment from the port of embarkation as well as the expected date of arrival of such shipment at the designated port of arrival.
- The Contractor shall give complete shipment information concerning the weight, size, content of each packages etc.
- Transshipment of equipment shall not be permitted except with written permission of the Purchaser.
- Apart from the dispatch documents negotiated through Bank, the following documents shall also be airmailed to the Purchaser within 7 days from the date of shipment by sea and within 3 days in case of air-consignments.
 - (i) Commercial Bill of Lading/Airway Bill (two non-negotiable)
 - (ii) Invoices (3 copies)
 - (iii) Packing lists (3 copies)
 - (iv) Test Certificates (3 copies)
 - (v) Certificates in original
 - (vi) Contractor shall also ensure that one copy of the packing lists is enclosed in each case.

7 TERMS OF DESPATCH

- Generally, stores shall be dispatched by the Indian Flagged Vessel / Air India or through any other Agency nominated by the Purchaser. A copy of the invoice and packing list shall invariably be kept inside each of the package.
- By Sea upto Kochi/Chennai Sea Port
- Delivery of the ordered material is F.O.R VSSC ISRO, Thiruvananthapuram by the supplier.
- Safe transportation of material from ex-works to Sea port, Kochi/Chennai is the responsibility of supplier.
- The Supplier shall be responsible for transporting all the equipment to site, unloading and storage. No equipment shall be delivered without obtaining dispatch clearance from Purchaser.
- Insurance charges during transportation from Manufacturer's site to Chennai port and Chennai port to VSSC is the responsibility of the supplier.

- All the equipment shall be properly packed to avoid any damage during transportation / handling / storage.

8 **PORT OF ENTRY:** Kochi/Chennai (India)

9 **PORT OF CONSIGNEE:** Purchase and Stores Officer, VSSC ISRO, Thiruvananthapuram.

10 **ULTIMATE CONSIGNEE:**

Purchase and Stores Officer,
ASOE
VSSC ISRO
Thiruvananthapuram 695029
Kerala

❖ **SHIPPING MARKS:**

The marks on the shipping documents such as invoice, bills of lading and on the packages shall be as follows:

PURCHASE ORDER No
DATE
GOVERNMENT OF INDIA
DEPARTMENT OF SPACE
DESTINATION
PORT OF ENTRY

11 DEMURRAGE

Supplier shall bear demurrage charges if any incurred due to delayed presentation of shipping documents for clearance.

12 INSTALLATION & COMMISSIONING

- The entire commissioning and testing shall be completed within 30 days for each system.
- The acceptance of the system is as per the Acceptance Test Plan stipulated in the specification document.

- The exact date of commissioning shall be indicated to VSSC ISRO and commissioning shall be planned based on the mutual agreement at a convenient date after the items are received at VSSC ISRO.

13 TESTING, EVALUATION& ACCEPTANCE

Supplier shall submit all the test certificates of individual sub-systems tested at supplier's site along with the equipment

Acceptance Testing will be conducted at VSSC ISRO as per mutually agreed Acceptance Test Plan (ATP). Supplier shall submit the ATP document along with the offer in line with the Acceptance criteria proposed in the specification document.

14 TRAINING

Suitable training is to be imparted to sufficient number of Engineers and technicians on basic operation and general maintenance of all subsystems of 450 kV X-ray machine, FPD and Manipulator.

Similarly, suitable training programme for operation and maintenance of Manipulator system shall be provided.

The content of training and training kits shall be mutually agreed and finalized.

15 GUARANTEE & REPLACEMENT

- The Contractor shall guarantee that the Stores supplied shall comply fully with the specifications laid down, for material, workmanship and performance.
- For a period of **36 months** after the commissioning and acceptance of the systems, if any defects are discovered therein or any defects therein are found to have developed under proper use arising from faulty materials, design or workmanship, the contractor shall rectify such defects at his own cost provided he is called upon to do so within a period of 36 months from the date of acceptance thereof by the Purchaser who shall state in writing in what respect the Stores or any part thereof are faulty.
- If in the opinion of the Purchaser, it becomes necessary to replace or renew any defective Stores, such replacement or renewal shall be made by the supplier free of all costs to the Purchaser provided the notice informing the supplier of the defect is given by the Purchaser in this regard within the said period of 36 months from the date of acceptance.

- To fulfill the guarantee condition as stated above, the supplier shall furnish Performance Bank Guarantee (as prescribed by the Purchaser) from a reputed international Bank for an amount equivalent to 10% of the supply value of the Contract along with first shipment documents. On the performance and completion of the Contract in all respects, the Bank Guarantee will be returned to the Contractor without any interest.
- All the replacement stores shall also be guaranteed for a period of 36 months from the date of the arrival of stores at Purchaser's site.

16 ANNUAL MAINTENANCE

Supplier shall quote for annual non comprehensive maintenance charges per year for the period of **7 years** for the total integrated system including 450 kV, FPD and Manipulator. A separate contract shall be released after completing the warranty period.

17 LIST OF CRITICAL SPARES

The list of essential spares for at least 7 years' maintenance of 450kV X ray machine, FPD and Manipulator system shall be indicated. Supplier shall quote the cost of individual item as an optional item. VSSC ISRO reserves the right to order the items as per the requirement along with the equipment.

18 TECHNICAL DOCUMENTS

SUPPLIER shall deliver, two copies of the Technical Manual, consisting of Operation Instructions, Preventive Maintenance procedures & Trouble Shooting procedures etc. **in English** along with the equipment. Any changes or modifications that may be found necessary at the time of test and evaluation shall be incorporated and the documents shall be amended suitably.

19 LANGUAGE AND MEASURES

All documents pertaining to the contract including specifications, schedule notices, correspondence, operating and maintenance instructions, drawings or any other writings shall be written in English Language. Metric system of measurement shall be used exclusively in this contract.

20 GENERAL SPECIFICATIONS RELATED TO FABRICATION

- a) All welds shall be ground.
- b) 100% DP test for root and final weld pass shall be carried out.
- c) 100% Ultrasonic test for plates of thickness above 20mm.
- d) 100% Radiography test for all butt welds for plate thickness 20mm and above.
- e) The entire fabrication activity shall be performed in a planned / sequential manner to achieve desired dimensional/ geometrical tolerance specified in the drawing or functional requirement mentioned in this document. It is suggested to add sufficient number of fixtures and tools to control the distortion during welding process.
- f) Dimensions shown in the drawing are final acceptance dimensions. Allowances for machining and thinning due to fabrication process shall be added to arrive at material sizes. Party is wholly responsible for realizing the finished product. Allowances mentioned in the drawing are indicative. Party shall study the requirement and provide proper machining allowances required based on the fabrication procedure adopted.
- g) Dimensional tolerance wherever not specified shall follow the standard open dimension tolerances provided in the drawing. Wherever welded attachments are used to facilitate fabrication, same shall be removed carefully by cutting or chipping and surface of material shall be finished smooth by grinding. As far as possible, hammering shall be avoided.
- h) Edge preparation shall be carried out for all joints as mentioned in the drawing or as per standard fabrication procedure.

21 PAINTING

All the exposed carbon steel surfaces shall be painted as per following: -

- a) Surface Preparation: Cleaning by wire brush or power tools to remove any loose dirt or mill scales from the surface.
- b) Sand blasting shall be carried out to clean the surfaces before painting operation.
- c) Spray painting shall be carried out for primer and paint.
- d) Primer: One coat of zinc rich primer with red oxide and zinc phosphate pigments to achieve total DFT of 70 to 75 micron.
- e) Final Coat: Two coats of epoxy paint of total 125-micron DFT.
- f) Color – On outer and inner surface shall be Blue. Party shall get approval prior to

painting.

- g) Total DFT shall be 175 microns (min.)
- h) Any intermediate cleaning required between successive coats of paint shall also be carried out as per manufacturer's standard.
- i) Final coat of paint shall be applied after erection at our site. However, final coat shall be applied to surfaces that become accessible after erection.
- j) Necessary tools like compressor, spray gun and consumables shall be provided by the party.
- k) Proper masking shall be carried out where ever required.

Annexure- I

TECHNICAL SPECIFICATIONS FOR 450 kV X-RAY MACHINE, FLAT PANEL DETECTOR (FPD) AND MANIPULATOR

Detail Technical Specification for individual main sub system are as

1.1 450 kV X-ray Machine:

S.No.	Requirement	Detail
1.	Tube Voltage range	50-450 kV for both focal spot sizes
2.	Steps of change in Voltage	In steps of 1 kV or lesser
3.	Tube type	Metal ceramic
4.	Focus	Dual focus
5.	Focal Spot Size (As per EN 12543)	a. 0.4 mm for small focus b. 1.0 mm for large focus
6.	Current at Maximum kV	a. ≥ 1.6 mA for small focus b. ≥ 3.3 mA for large focus Tube current shall be variable in steps of 0.1 mA or lesser.
7.	Window	Be/Al/Cu
8.	Emerging X-ray beam angle	30° X 40°
9.	HV Power supply cable	20 m long cable to connect X-ray tube
10.	Cooling System	Oil cooled with secondary water/air cooling system.
11.	Temperature range	0 to 40° Safety alarm for temperature shall be provided with system.

12.	Safety feature	System must have following personnel & equipment safety features a. Door interlock switches b. Radiation ON indication with glowing lamp c. Emergency OFF d. Interlock for buzzers and warning lamps e. Audio and Visual indication for beam ON
13.	Leakage radiation	As per AERB guidelines
14.	Collimator	1. Motorized shutters or jaws for operation from Control console. 2. Number of independent jaws shall be four and each jaw shall be controllable independently. 3. Thickness of lead (Pb) for each jaw shall be around 20 mm. 4. Each jaw shall have a movement provision of 50 mm such that an opening of 100 mm is ensured in perpendicular directions when all four jaws are fully opened.
15.	Laser centering device	Laser pointer shall have a power rating 1 mW and satisfy class 2 as per revised IEC 60825 standard.
16.	Operation of collimator	a. Jaw movements should be operated from the remote computer for control of all the manipulators and collimator controls. Corresponding opening of collimator shall be seen on monitor screen by means of motion animation b. A local control for jaws movement of collimator shall also be provided near X-Ray source.
17.	Generators	Bipolar generators of 225 kV of appropriate rating that will meet X-ray tube power requirement.
18.	Interface of console for operation of X-ray tube	a. Provision for setting of parameters like kV, Current, time of exposure b. Provision of switching ON and OFF of X-ray source c. Display of error status (if any) d. Emergency OFF switch
19.	Voltage Stabilizer	A suitable voltage stabilizer shall be provided for complete system
20.	Radiation Safety Interlock	a. 3 nos. doors interlocks b. 4 nos. buzzers c. 5 Warning lamps (red) d. These shall be installed at designated places and shall be connected with X-ray machine.

1.2 Specification of IQI Indicators

- a) Penetrameters Wire Type (IQI) as per (ASTM-E747) Material: SS Set 02A (2") Each, Set 02B (2") Each, Set 02C (2") each
- b) ASTM Hole Type penetrameters (Material: SS) as per ASTM E-1025
- c) IQI ASTM Hole Type Pentameters - from 5 to 20
- d) IQI ASTM Hole Type Pentameters - from 25 to 50
- e) IQI ASTM Hole Type Pentameters- from 60 to 100

Calibration Certificate for Each Individual Penetrameter with dimensions for 'U' stamp

2. Flat Panel Detector System :

2.1 General

- a) The Flat Panel X-ray Detector shall be based on amorphous silicon sensor and operating as a two dimensional photodiode array.
- b) The Detector shall be suitable for real time digital X-ray imaging of objects.
- c) The Detector shall also be a standard production item of a firm. Offer shall be from Original Equipment Manufacturer (OEM) or Authorised dealers of OEM.
- d) The party should have supplied Flat Panel X-ray Detectors anywhere in INDIA in the recent past and the same should be satisfactorily working.
- e) Details of the Organisations in which the system has been commissioned and testimonials shall be furnished along with the offer.
- f) The images shall be captured at a frame rate suitable to demonstrate real time imaging of components.
- g) The Detector should have provision for synchronization between it and manipulator by using an external trigger signal.
- h) Test certificates giving full details of FPD including underperforming pixels of FPD shall be furnished. FPD with two adjacent underperforming lines of pixels is not acceptable.
- i) At the time of installation and commissioning if it is observed to have two adjacent underperforming lines of pixels, the item will be rejected.
- j) The electronics part of FPD should have adequate shielding provision to protect against X-ray radiation (450 kV X-ray source) and other adequate cooling mechanisms to dissipate the heat generated during exposures.

k) The Detector shall have Fibre optics interface for communication with computer.

2.2 Technical Specifications:

S.No.	Requirement	Detail
1.	Detector	a-Si (Amorphous Silicon) Flat panel detector
2.	Scintillator screen	DRZ plus or equivalent
3.	Pixel matrix	2048 x 2048
4.	Pixel pitch	$\leq 200 \mu\text{m}$
5.	Active pixel area	$\geq 400 \text{ mm} \times 400 \text{ mm}$
6.	ADC	16 bit or better
7.	Data communications	Fibre optics
8.	Dynamic range	$\leq 77 \text{ dB}$
9.	Response non-uniformity	$\pm 2\%$
10.	Image Resolution	$\geq 2.5 \text{ lp/mm}$
11.	Frame rate per second	15 fps @ $200 \mu\text{m}$
12.	X-ray Radiation energy range	40 KeV – 6 MeV
13.	Cable length from Detector to computer	$\geq 60 \text{ m}$
14.	Shielding and Protection	<ul style="list-style-type: none"> a. Mechanical shielding and protection of flat panel to mechanical damage b. Radiation shielding of electronics areas of flat panel from X-rays corresponding to maximum power of tube (450 kV, rated maximum current) c. Radiation shielding of flat panel shall not obstruct while removing of flat panel
15.	Collimator for active area of detector	<ul style="list-style-type: none"> a. Motorized movements (both symmetric and asymmetric) of four jaws system. b. Jaws movements should be operated from the remote computer for control of all the manipulators and collimator control. Corresponding opening of collimator shall be seen on monitor screen by means of motion animation. c. A local control for jaws movement of collimator shall also be provided near X-ray source. d. Detector collimator shall be removable so that it can be completely detached as and when required. e. Leakage radiation through collimator should not be more than 1% of the intensity of primary beam at maximum power

2.3 Image acquisition and processing

a) PC-based software for image acquisition and processing shall be in basic scope of supply.

- b)** The software shall support for
 - i.** acquisition of a single frame
 - ii.** sequence of frames
 - iii.** selection of integration times
 - iv.** selection of gain setting, selection of trigger modes
 - v.** calibration procedures to acquire offset and gain correction files
 - vi.** provisions for dimensional measurement of features and defects from digital images
 - vii.** provision to confirm the details of underperforming pixels as furnished in the Test certificate for FPD
- c)** Additional software library / SDK (Software Development Kit) shall be provided to facilitate interfacing with any modular programming software (like VB, VC etc.)
- d)** The imaging software shall have Acquisition module and Analysis module which includes the following capabilities:
 - 1). Acquisition module shall be compatible with standard Flat-Panel X-ray Detector (FPD) available in the market. Other provisions shall include (a) configuration and storage of scan settings for given imaging setup (b) real time imaging (c) storage of acquisition parameters and projections for post processing & analysis.
 - 2) Analysis module shall have provisions for
 - i.** All standard and user defined filtering functions
 - ii.** Gray scaling functions
 - iii.** Local Gray scaling within a Region of Interest (ROI)
 - iv.** Additional window for reference image with interlinked functions
 - v.** Zooming/Flip/ Rotate functions
 - vi.** Noise reduction through integration / frame averaging
 - vii.** Arithmetic linking of two images including min/ max values
 - viii.** Image improvement by normalisation
 - ix.** Histogram for complete image / ROI
 - x.** Line profile (Gray value profile along a line in any direction)
 - xi.** Length and area measurement, calibration of length & area measurement, graphic marking of error regimes, storing and recalling of calibration etc.,
 - xii.** Export of radiographic image (processed / unprocessed)
 - xiii.** Image format conversion to all conventional image formats including JPEG, TIFF, BMP etc.,
 - xiv.** Installation copy of image acquisition and processing software shall be

provided

- xv. All the software provided shall have perpetual license.
- xvi. All the software shall be compatible with the hardware supplied.
- e) For Detector calibration and qualification viz., bad pixel map, image lag, gain-offset correction, the Flat Panel X-ray Detector shall comply with ASTM E2597, ASTM E2736 standards.
- f) Software shall have features in compliance with ASTM E2699, E2339 standards for image tag and storage, image archival, sharing, etc.,

2.4 Computer and Display System Requirements

- a) Computer configuration (Computer shall be of reputed brand and compatible with the supplied software with following nominal specifications):
 - i) Processor: i7 or latest
 - ii) RAM: 4 x 16 GB DDR4 or better
 - iii) Graphics card: 12GB DDR5 or better
 - iv) Hard disk space: 2 TB or better
- b) Display system for X-ray images (High Resolution monitor)
5 Megapixel, 24" TFT display system or better
- c) Latest model of Printer cum scanner (MFP laser jet).

3 Gantry based Manipulator:

3.1 General:

1. X-ray tube and flat panel detector should be mounted on a gantry based mechanism consists of a carriage assembly that contains X-ray generators, cooling unit, controller and other peripherals essential for the operation of the system.
2. Central carriage assembly also houses the X-ray tube and Flat panel detector manipulators, enabling vertical movements and alignments with the object table.
3. The carriage assembly shall be securely mounted on a pair of tracks laid out in the floor; a positive locking transmission mechanism enables the carriage assembly to move across the entire length of the tracks, that is 13000 mm.
4. Gantry based manipulator is to be operated remotely for the purpose of radiographic imaging, the instrumentation and the control systems shall include PLC of suitable capacity and related accessories apart from necessary SCADA

pages for operation and control of individual system as well as for the combined operation of all the three system via MMI. These systems shall be programmable with pre-set inspection routines to be selectable via SCADA pages in MMI.

5. Flame proof manual pendant control with emergency stop switch should be provided near to the manipulator in the exposure room to operate all the manipulators for alignment/adjustment
6. Program shall be there to set carriage (X-Ray tube and FPD) at any position on the track by giving predefined distance on the computer.
7. It should have necessary safety limit switches for all movement's limits and should be properly enclosed / protected against X-ray energy and for additional safety separate mechanical stopper to be provided to stop the movement in each direction also.
8. The Horizontal movement of the manipulator for X ray source and imaging system should be synchronized.
9. The beam centre line should be always aligned with centre of active imaging area of FPD.
10. All the motors shall be flameproof Ex-tc and confirm to hazardous area classification i.e. zone 2 with IP65 (Dust tight 6 and water jet 5).
11. Software for manipulator control should be made in consultation and software backup should be provided on DVD. The source code for this control should also be provided.
12. Before starting Fabrication of manipulators supplier is required to get design and drawing approval.
13. Manipulator should be inspected at suppliers site for its desired movement accuracy and control.

3.2 Technical Specifications:

Manipulator – X-ray tube

1. X-ray tube should move vertically up/down and rotated through 90 degrees in both clockwise and anticlockwise direction with accuracy of 5%.
2. Total movement in horizontal axis should be 13000 mm.
3. Total movement in vertical axis should be 1750 mm from the object.
4. The speed in both axes should be 5-10 mm/sec.
5. Movement accuracy: ± 1 mm
6. Motion animation should be provided where one can see on the monitor the actual movements taking place on the monitor and it should be remotely operated from a distance of 50 meters.

Manipulator – Flat Panel detector

1. It should move vertically up/down and horizontal axis, along with X ray machine.
2. Movement accuracy: ± 1 mm
3. Suitable provision to be provided for film radiography with proper shielding.
4. Distance between front face of the FPD and object should be less than 150 mm.
5. Fixture for film cassette holding should be provided for film radiography.
6. The fixture should be an arrangement, which can be detached when not in use. It should be placed on the flat panel detector manipulator in line with beam centreline of X-ray source.
7. It should be designed in such way that it will be move in synchronization with X-ray head along horizontal axis during radiography inspection.
8. Motion animation should be provided where one can see on the monitor the actual movements taking place on the monitor and it should be remotely operated from a distance of 50 meters.

Object Holding Assembly

1. It should hold objects as indicated in the schematic sketch in horizontal position with suitable fixture.
2. The manipulator should hold the object in horizontal position at a height of 800 mm from the finished floor level.
3. The object holding assembly should accommodate object over the length of 13000 mm and allow the Flat panel detector to move underneath the object without any hindrance while maintain minimum distance from the object as possible to provide minimum magnification.
4. The object holding system should be securely mounted on the wheel and provision for locking at the position when it is required.
5. Before starting Fabrication of manipulators supplier is required to get design and drawing approval.
6. Manipulator should be inspected at suppliers site for its desired movement accuracy and control.

4. Accessories:

1. Phantom: One Phantom (size 8" x 10" or better) meeting ASTM E 2445 OR ASTM E 2737 OR EN 14784-1 or DDA manufacture designed specification, to be supplied to check detector performance using 5 groove wedge light metal made of Aluminium/duplex plates/step wedges. The manufacture certificates shall be provided for Phantom.
2. Voltage stabilizer and Isolation transformer of suitable rating for real time X ray

inspection system should be provided.

3. UPS for PC with minimum 30 minutes' backup time.

5. Commissioning, testing and training for 450 KV X-Ray system

1. Supplier shall demonstrate performance of the system as per the scope and PO specifications at the site (RID/HRAG/ASOE, VSSC Thiruvananthapuram).
2. X-Ray system shall be operable at maximum voltage (450 KV) and maximum tube current (at 450 KV) for both small focus (0.4 mm) and large focus (1 mm) for 45 minutes continuously. The same operation shall be repeated after a cooling time of 15 minutes for 5 times.
3. Radiographic sensitivity of 1-2T shall be demonstrated on steel and aluminium samples using ASTM plaque type IQIs.
4. The focal spot sizes shall be measured as per EN 12543 and ink signed certificate shall be provided from the manufacturer.
5. The supplier shall provide training in the operation, maintenance and troubleshooting of X-Ray system to VSSC Personnel.

General Terms & Conditions:

1. The offer for the integrated 450kV x- ray machine, flat panel detector and manipulator and other accessories System shall be from original equipment manufacturers (OEM) or authorized dealers of OEM.
2. The authorized dealers shall submit ink signed dealership certificate from OEM 450kV x- ray machine and flat panel detector.
3. The offered X-ray system shall be from the reputed manufacturers or authorized dealers of OEM, who have supplied at least one, 450kV x- ray machine, flat panel detector and manipulator and other accessories X-Ray system in India and the same shall be satisfactorily working for the last 3 years.
4. All the Servo motors (Siemens/SEW make) for rotation/axial movement with suitable servo drive, low backlash gear boxes, Resolver/Encoder, PLD, DI, DO and programming to ensure specified indexing/movement accuracy
5. The supplier shall have after sales service facility and trained manpower in India to promptly attend preventive or breakdown maintenance of the X-Ray system, flat panel detector system and manipulators subsequent to commissioning of the same.
6. Manufacturers 450 KV X-ray system or their authorized dealers only can participate in this bid.
7. The address of such government / reputed institutions should be given whom they have supplied identical X-ray systems. Purchaser reserves the right to evaluate the equipment performance at the shop floor.
8. The lowest technically qualified bid will be selected for purchase order placement.

9. Bidder who have dedicated after sales service facilities will be given preference.
10. Bidders shall provide price break-up for 450kv x- ray machine, flat panel detector and manipulator and other accessories.
11. Detailed user manual in English shall be provided for all the systems. Detailed circuit diagrams shall be included in the manual for trouble shooting.
12. Datasheet of Radiation dose versus kV of X-Ray system shall be provided.
13. Warranty shall be provided for minimum period of **three years** for the total integrated system including X-ray machine, Flat panel Detector, manipulator and the accessories from the date of commissioning.
14. 450 KV X-ray unit shall have type approval of AERB (if applicable) and shall satisfy AERB norms with respect to leakage radiation.
15. The supplier shall provide after sales service with factory trained engineers in case of any breakdown. Service during warranty period shall be free of charge. The supplier shall also be willing to enter into service contract after the warranty period.
16. The bidder shall indicate the location and details of servicing facility available for carrying out repair or servicing of the integrated 450kv x- ray machine, flat panel detector and manipulator
17. All relevant technical information shall be provided along with the quotation.
18. Party shall provide assured support for maintenance and service for at least **seven years** after the Warranty period. (The scope of AMC like number of preventive visits and number of breakdown visits shall be clearly mentioned).
19. Separate quotation shall be given for essential spares for trouble free operation of the system for seven years minimum after the warranty.
20. Heritage of supplying similar machines to ISRO centres/ other units shall be provided along with proof such as P.O copy/Installation report, Contact person etc.

Annexure-II

SCHEDULE OF PRICES
Price Bid Format (without customs duty)

S.No.	Description	Unit	Cost (in Rs/foreign currency as applicable.)
2.	Supply of a bifocal 450 KV X-Ray system as per the specifications.	Lump sum	
3.	Supply of a Flat Panel detector system as per the specifications.	Lump sum	
4.	Supply of gantry based manipulator systems (450 kV Manipulator FPD Manipulator, and Object manipulator) as per the specifications.	Lump sum	
5.	Transportation charges	Lump sum	
6.	Installation, Testing and Commissioning charges	Lump sum	
7.	GST	%	
Total Cost			

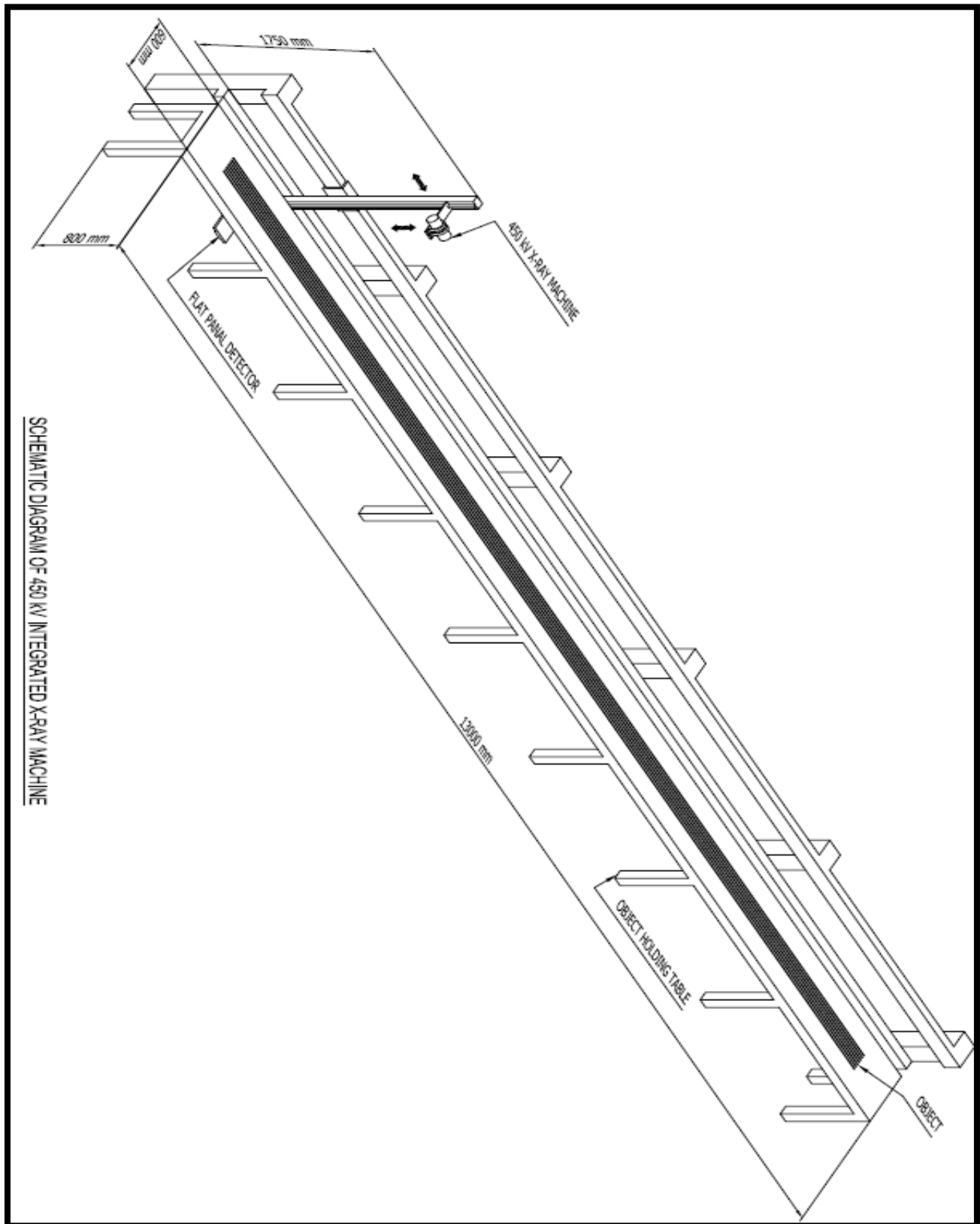
Table-2

S.No.	Description	Unit	Cost in Rs.
1.	Annual Maintenance Contract of integrated X-ray equipment with 450 kV system, FPD and manipulators for 7 years (Starting from after warranty period) (Non-comprehensive)		
2.	GST		
Total cost			

The cost of spares and AMC will not be considered for evaluation of price bid.

(SIGNATURE OF SUPPLIER)

Schematic sketch of Integrated 450 kV, FPD and Manipulator



E-Procurement No. VSSC/PURCHASE UNIT III(SPRE)/ASOE/2021001630 Dt. 16/07/2021 and Website Advertisement ref. No. VSSC/SPRE-PUR/17-1 DT. 29/07/2021. E-Tenders are invited for ***Supply, Installation, Commissioning and Training of X-Ray Equipment with Dual Energy (3.5/6 MeV) Linear Accelerator (LINAC) and 450 kV X-Ray Machine, Flat Panel Detector (FPD) and Manipulator***, through our E-procurement site <https://eproc.vssc.gov.in>. Bids can be submitted **upto 20.08.2021 [14:00 Hrs.], Technical Bid Opening date : 20.08.2021 [15:00 Hrs.].**

Only online tenders will be accepted. No manual / Postal / e-mail / fax offers will be entertained. No manual tender document will be issued. Parties interested to participate in this e-Tender are required to register themselves as vendors, if not already registered, in our e-procurement portal <https://eproc.vssc.gov.in> by downloading plugins and help demos listed on the home page of the e-procurement link mentioned above to complete the vendor registration process. They can seek help from help desk 0471-2565454 also as provided in the home page of e-procurement portal in case of any problem for registration and subsequent process. Vendors may please note that without registering in our e-procurement portal, they will not be able to quote for this e-tender.

Important Notice : Tender will be automatically closed on the due date [**ie. 20.08.2021 14:00 Hrs**], if at least one offer is received. If the tender could not be opened on the first day due to any technical snag, it will be opened on the subsequent day as per the schedule.

This being a Two Part Tender, Cost shall be mentioned in the Price Bid Only. All the documents being uploaded like quote split up details, AMC cost etc should not contain the rates/costs. **However a copy of your PRICE BID,AMC Quote etc WITHOUT PRICE SHALL BE UPLOADED in the Documents Solicited from the Vendor Field [available in Bid forms] TO KNOW THE PATTERN OF QUOTE. [ENSURE NOT TO MENTION ANY PRICE, OTHERWISE THE QUOTE WILL BE INVALID].**

THE TECHNICAL DOCUMENTS NEED TO BE ATTACHED ONLINE AS PER REQUIREMENT WITHOUT ANY PRICE INFORMATION, TECHNICAL BID CONTAINING PRICE DETAILS WILL BE TREATED AS REJECTED. PLEASE REFER TENDER DOCUMENTS FOR DETAILS.

Tender Details

Tender No : **VS202100163001**

Tender Date : **16-07-2021**

Purchase Entity : **PURCHASE UNIT III (SPRE)**

Centre : **VSSC**

Procurement of Integrated X-Ray Equipment with Dual Energy (3.5/6 MeV) LINAC and 450 kV X-ray Machine, Flat Panel Detector and Manipulator

This tender is for the Procurement of Integrated X-Ray equipment with Dual Energy (3.5/6 MeV) LINAC and 450 kV X-ray Machine, Flat Panel Detector and Manipulator.

This tender is proposed as a DOMESTIC PUBLIC TENDER. This tender is restricted only to Class-I and Class-II Local Suppliers as defined under DPIIT Order dtd 04/06/2020- Preference to Make in India Order-2017 Revision. Non-Local Suppliers need not quote.

Foreign OEMs/Agents quoting on behalf of Foreign OEMs are not permitted to quote. High Sea Sales Quotes not permitted. The bids shall be in INR only.

This is a TWO-PART tender i.e. Techno-Commercial Bid (Part-I) and Price Bid (Part-II) shall be submitted separately. All technical and commercial terms and conditions shall be furnished in the Techno-Commercial Bid while price shall be indicated only in the Price Bid. Uploading price details anywhere else other than the price-bid shall lead to unconditional rejection of the tender. Please make note of the same.

Tenderers are advised NOT TO UPLOAD any documents revealing the price of the main equipment, accessories, spares or AMC. They are however, requested to upload UNPRICED BIDS (i.e. Price details masked) showing appropriate break-up of components of main equipment, individual accessories and spares as desired.

Purchase preference to eligible vendors are applicable as per extant notifications issued by the Government of India.

The Class-I/Class-II Local suppliers, at the time of submitting their offer, shall also indicate

percentage of local content and provide self-certification that the item (s) offered meets the local content requirement for Class-I/Class-II Local Suppliers as the case may be. They shall also give details of location (s) at which the local value addition is made.

In cases if the item(s) offered exceed Rs. 10 Crores, the Class-I/Class-II Local Suppliers shall provide a Certificate from the statutory auditor or cost auditor of the company (in 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.

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.

Technical Bids will be opened at the scheduled due date & time. No further intimation will be sent in this regard. The schedule for price bid opening shown is only indicative. Price bids will only be opened in the case of parties who have been techno-commercially accepted, the details of which will be communicated at a later stage.

**GOVERNMENT OF INDIA
DEPARTMENT OF SPACE
VIKRAM SARABHAI SPACE CENTRE (VSSC)
THIRUVANANTHAPURAM**

**Tender for Integrated X-Ray equipment with dual energy(3.5/6 MeV)
LINAC and 450 kV X-ray machine, Flat Panel Detector and Manipulator**

Bids to be submitted online

Tender No.: VSSC/PURCHASE UNIT III (SPRE)/VS202100163001 dated 19-07-2021

A. Tender Details

Tender No :	VSSC/PURCHASE UNIT III (SPRE)/VS202100163001
Tender Date :	19-07-2021
Tender Classification:	GOODS
Purchase Entity :	PURCHASE UNIT III (SPRE)
Centre :	VIKRAM SARABHAI SPACE CENTRE (VSSC)

Procurement of Integrated X-Ray Equipment with Dual Energy (3.5/6 MeV) LINAC and 450 kV X-ray Machine, Flat Panel Detector and Manipulator

This tender is for the Procurement of Integrated X-Ray equipment with Dual Energy (3.5/6 MeV) LINAC and 450 kV X-ray Machine, Flat Panel Detector and Manipulator.

This tender is proposed as a DOMESTIC PUBLIC TENDER. This tender is restricted only to Class-I and Class-II Local Suppliers as defined under DPIIT Order dtd 04/06/2020- Preference to Make in India Order-2017 Revision. Non-Local Suppliers need not quote.

Foreign OEMs/Agents quoting on behalf of Foreign OEMs are not permitted to quote. High Sea Sales Quotes not permitted. The bids shall be in INR only.

This is a TWO-PART tender i.e. Techno-Commercial Bid (Part-I) and Price Bid (Part-II) shall be submitted separately. All technical and commercial terms and conditions shall be furnished in the Techno-Commercial Bid while price shall be indicated only in the Price Bid. Uploading price details anywhere else other than the price-bid shall lead to unconditional rejection of the tender. Please make note of the same.

Tenderers are advised NOT TO UPLOAD any documents revealing the price of the main equipment, accessories, spares or AMC. They are however, requested to upload UNPRICED BIDS (i.e. Price details masked) showing appropriate break-up of components of main equipment, individual accessories and spares as desired.

Purchase preference to eligible vendors are applicable as per extant notifications issued by the Government of India.

The Class-I/Class-II Local suppliers, at the time of submitting their offer, shall also indicate percentage

of local content and provide self-certification that the item (s) offered meets the local content requirement for Class-I/Class-II Local Suppliers as the case may be. They shall also give details of location (s) at which the local value addition is made.

In cases if the item(s) offered exceed Rs. 10 Crores, the Class-I/Class-II Local Suppliers shall provide a Certificate from the statutory auditor or cost auditor of the company (in 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.

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.

Technical Bids will be opened at the scheduled due date & time. No further intimation will be sent in this regard. The schedule for price bid opening shown is only indicative. Price bids will only be opened in the case of parties who have been techno-commercially accepted, the details of which will be communicated at a later stage.

A.1 Tender Schedule

Bid Submission Start Date : **19-07-2021 14:00**

Bid Clarification Due Date : **05-08-2021 12:00**

Bid Submission Due Date : **16-08-2021 10:00**

Bid Opening Date : **16-08-2021 11:00**

Price Bid Opening Date : **18-08-2021 10:00**

B. Tender Attachments

NA

Instructions To Vendors

1. PPP Make in India(Non- Divisible Items-Class I & II Local Suppliers Only)

1. In line with Public Procurement (Preference to Make in India), Order 2017 & its amendments issued by Govt. of India from time to time with a view to support the Indian industries, ISRO has implemented "Purchase Preference Policy". The "Purchase Preference" is applicable for the "Class-I Local Supplier" for the goods/ services/ works covered in this tender, subject to the following terms & conditions:-

2. a) The subject item falls under Non-divisible category. b) The offers sought only from Class-I & Class-II local suppliers

3. Definitions: A supplier or service provider, whose goods, services or works offered for procurement, has local content: i. Equal to or more than 50%: Class-I local supplier. ii. More than 20% but less than 50%: Class-II local supplier. iii. Less than or equal to 20%: Non-local supplier.

4. 'Local content' means the amount of value added in India (i.e. indigenous items/services added in the offered products/ services/ works) be the total value of the item offered (excluding net domestic indirect taxes) minus the value of imported content in the item (including all customs duties/IGST) as a proportion of the total value (excluding net domestic indirect taxes), in percent.

5. The margin of Purchase Preference shall be up to 20%.

6. 'Margin of purchase preference' means the maximum extent to which the price quoted by the "Class-I local supplier" above the L1 (landed cost).

7. 'L1' means the lowest technically accepted tender / bid / quotation (i.e. lowest landed cost including duties, taxes and freight & Insurance).

8. Works means all works as per Rule 130 of GFR- 2017, and will also include 'turnkey works'. Works includes Engineering, Procurement and Construction (EPC) contracts and services include System Integrator (SI) contracts.

9. Purchase Preference Policy:- Goods/Works which are not divisible (ie., required quantity is 1 or as a package) and Services:

a)If L1 is from a 'Class-I local supplier, the contract will be awarded to L1 bidder.

b) If L1 is not from a 'Class-I local supplier', the lowest bidder among the 'Class-I local supplier' will be invited to match the L1 price subject to local supplier's quoted price falling within the margin of purchase preference (i.e. 20%) and the contract shall be awarded to such 'Class-I local supplier' subject to matching the L1 price (inclusive of duties, taxes and freight & insurance).

c) In case such lowest eligible 'Class-I local supplier' fails to match the L1 price, the 'Class-I local supplier' with the next higher bid within the margin of purchase preference shall be invited to match the L1 price and so on, and order/contract shall be awarded accordingly. In case where none of the 'Class-I local supplier' within the margin of purchase preference agree to match the L1 price, then the order/contract shall be awarded to the original L1 Bidder.

10. The 'Class-I & II local supplier' should provide a "Self Certification" along with technical offer indicating that the item offered meets the minimum local content [as per Sl. No.(3)] as called for in the tender and provide the percentage of local content along with details of the location(s) at which the local value addition is made. In case of two bid tenders, it is mandatory to indicate compliance to MLC(minimum Local Content) in technical bid zone.

11. In cases the quoted price is in excess of Rs.1000 Lakhs (including duties, taxes and freight & Insurance) the 'Class-I & 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 case of suppliers other than companies) giving the percentage of local content.

12. A committee (with an external expert from a practicing cost accountant or practicing chartered accountant, if required) constituted for independent verification shall verify the self-declarations & auditor's / accountant's certificates on random basis, as per the requirements.

13. The ink-signed certificate shall be provided on vendors letter head along with the offer (in case of online tender, copy of ink-signed certificate shall be uploaded along with your offer under concerned tab. Original in Hard copy shall be produced on request). In case of non-submission of certificate, the purchase preference shall not apply.

14. In case of a complaint received from any local supplier indicating a need for review / verification of Local content of successful vendor / awarded vendor, for accepting a complaint from such complainant (w.r.t the false declaration given by the successful vendor on the local content), a complaint fee of Rs.2Lakhs or 1% of the locally manufactured items being procured (subject to a maximum Rs. 5Lakhs), whichever was higher, to be paid by demand draft by the complainant. In case, the complaint is found to be incorrect, the complaint fee shall be forfeited. In case, the complaint is upheld and found to be substantially correct, deposited fee of the complainant would be refunded without any interest.

15. False declarations will be in breach of code of the integrity for which a bidder or its successor's will not be eligible/debarred for purchase preference from further tenders / pending tenders for two years

along with other actions as may be applicable.

16. The Public Procurement (Preference to Make in India), Order 2017 issued by Govt. of India indicates that if there are any general or specific restrictive clauses to restrict participation of Indian companies in those countries procurement tenders, reciprocity clause need to be invoked as per the order. Hence, if ISRO or Govt. of India come across that Indian suppliers of an item are not allowed to participate and / or compete in procurement by your government, the bid submitted by you will be not be considered and excluded from eligibility for procurement. Please note this point.

2. PROFORMA FOR INSTRUCTIONS TO TENDERERS AND TERMS & CONDITIONS OF TENDER where the indent value is Rs. 2.00 lakhs & above for indigenous stores items

1. Preference will be given to those tenders offering supplies from ready stocks and on the basis of FOR destination/delivery at site.

2. REJECTED STORES:

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

3. The term 'Stores' shall mean what the Contractor agrees to supply under the Contract as specified in the Purchase Order including erection of plants & machinery and subsequent testing, should such a condition is included in the Purchase Order.

4. SECURITY DEPOSIT: Wherever, the Purchase Order value is Rs. 5.00 Lakhs or more, on acceptance of the tender, the Contractor shall, at the option of the Purchaser and within the period specified by him, deposit with him, in cash or in any other form as the Purchaser may determine, security deposit not exceeding ten percent of the value of the Contract as the Purchaser shall specify. If the Contractor is called upon by the Purchaser to deposit, 'Security' and the Contractor fails to provide the security within the period specified, such failure shall constitute a breach of the Contract, and the Purchaser shall be entitled to make other arrangements for the re-purchase of the stores Contracted at the risk of the Contractor in terms of Sub-Clause (ii) and (iii) of clause regarding Delivery. (b) hereof and/or to recover from the Contractor, damages arising from such cancellation.

5. Sales Tax and/or other duties/levies legally leviable and intended to be claimed should be mentioned in the price bid template. If nothing is mentioned, then it will be presumed that the rate quoted is inclusive of all taxes/duties.

6. TERMS & CONDITIONS OF TENDER

7. TEST CERTIFICATE: Wherever required, test certificates should be sent along with the despatch documents.
8. The Purchaser reserves the right to place order on the successful tenderer for additional quantity up to 25% of the quantity offered by them at the rates quoted.
9. The authority of the person signing the tender, if called for, should be produced.
10. The purchaser shall be under no obligation to accept the lowest or any tender and reserves the right of acceptance of the whole or any part of the tender or portions of the quantity offered and the tenderers shall supply the same at the rates quoted.
11. (a) All available technical literature, catalogues and other data in support of the specifications and details of the items should be furnished along with the offer.
- (b) Samples, if called for, should be submitted free of all charges by the tenderer and the Purchaser shall not be responsible for any loss or damage thereof due to any reason whatsoever. In the event of nonacceptance of tender, the tenderer will have to remove the samples at his own expense.

- (c) Approximate net and gross weight of the items offered shall be indicated in your offer. If dimensional details are available the same should also be indicated in your offer.
(d) Specifications: Stores offered should strictly confirm to our specifications. Deviations, if any, should be clearly indicated by the tenderer in his quotation. The tenderer should also indicate the Make/Type number of the stores offered and provide catalogues, technical literature and samples, wherever necessary, along with the quotations. Test Certificates, wherever necessary, should be forwarded along with supplies. Wherever options have been called for in our specifications, the tenderer should address all such options. Wherever specifically mentioned by us, the tenderer could suggest changes to specifications with appropriate response for the same.
12. The tenderer should supply along with his tender, the name of his bankers as well as the latest Income-Tax clearance certificate duly countersigned by the Income-Tax Officer of the Circle concerned under the seal of his office, if required by the Purchaser.
13. The term Contractor shall mean, the person, firm or company with whom or with which the order for the supply of Stores is placed and shall be deemed to include the Contractor's successors, representative, heirs, executors and administrators unless excluded by the Contract.
14. The term Purchaser shall mean the President of India or his successors or assigns.
15. (a) All available technical literature, catalogues and other data in support of the specifications and details of the items should be furnished along with the offer.

- (b) Samples, if called for, should be submitted free of all charges by the tenderer and the Purchaser shall not be responsible for any loss or damage thereof due to any reason whatsoever. In the event of

nonacceptance of tender, the tenderer will have to remove the samples at his own expense.

(c) Approximate net and gross weight of the items offered shall be indicated in your offer. If dimensional details are available the same should also be indicated in your offer.

(d) Specifications: Stores offered should strictly confirm to our specifications. Deviations, if any, should be clearly indicated by the tenderer in his quotation. The tenderer should also indicate the Make/Type number of the stores offered and provide catalogues, technical literature and samples, wherever necessary, along with the quotations. Test Certificates, wherever necessary, should be forwarded along with supplies. Wherever options have been called for in our specifications, the tenderer should address all such options. Wherever specifically mentioned by us, the tenderer could suggest changes to specifications with appropriate response for the same.

16. ACCEPTANCE OF STORES:

(a) The stores shall be tendered by the Contractor for inspection at such places as may be specified by the purchaser at the Contractor's own risk, expense and cost.

(b) It is expressly agreed that the acceptance of the stores Contracted for, is subject to final approval by the purchaser, whose decision shall be final.

(c) If, in the opinion of the purchaser, all or any of the stores do not meet the performance or quality requirements specified in the Purchase Order, they may be either rejected or accepted at a price to be fixed by the purchaser and his decision as to rejection and the prices to be fixed shall be final and binding on the Contractor.

(d) If the whole or any part of the stores supplied are rejected in accordance with Clause No. (c) above, the purchaser shall be at liberty, with or without notice to the Contractor, to purchase in the open market at the expense of the Contractor stores meeting the necessary performance and quality Contracted for in place of those rejected, provided that either the purchase, or the agreement to purchase, from another supplier is made within six months from the date of rejection of the stores as aforesaid.

17. As a Government of India Department, this office is exempted from payment of Octroi and similar local levies. Tenderers shall ensure that necessary Exemption Certificates are obtained by them from the Purchase Officer concerned to avoid any payment of such levies.

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

19. GUARANTEE & REPLACEMENT:

(a) The Contractor shall guarantee that the stores supplied shall comply fully with the specifications laid down, for material, workmanship and performance.

- (b) For a period of twelve months after the acceptance of the stores, if any defects are discovered therein or any defects therein found to have developed under proper use, arising from faulty stores design or workmanship, the Contractor shall remedy such defects at his own cost provided he is called upon to do so within a period of 14 months from the date of acceptance thereof by the purchaser who shall state in writing in what respect the stores or any part thereof are faulty.
- (c) If, in the opinion of the purchaser, it becomes necessary to replace or renew any defective stores such replacement or renewal shall be made by the Contractor free of all costs to the purchaser, provided the notice informing the Contractor of the defect is given by the purchaser in this regard within the said period of 14 months from the date of acceptance thereof.
- (d) Should the Contractor fail to rectify the defects, the purchaser shall have the right to reject or repair or replace at the cost of the Contractor the whole or any portion of the defective stores.
- (e) The decision of the Purchaser notwithstanding any prior approval or acceptance or inspection thereof on behalf of the Purchaser, as to whether or not the Stores supplied by the Contractor are defective or any defect has developed within the said period of 12 months or any other period or as to whether the nature of defects requires renewal or replacement, shall be final, conclusive and binding on the Contractor.
- (f) To fulfill guarantee conditions outlined in (a) to (e) above, the Contractor shall, at the option of the Purchaser, furnish a Bank Guarantee (as prescribed by the Purchaser)

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

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

22. a) Your offer should be valid for 90 days from the date of opening of the tender.

b) Prices are required to be quoted according to the units indicated in the annexed tender form. When quotations are given in terms of units other than those specified in the tender form, relationship between the two sets of units must be furnished.

23. d) The term 'Purchase Order' shall mean the communication signed on behalf of the Purchaser by an Officer duly authorised intimating the acceptance on behalf of the Purchaser on the terms and conditions mentioned or referred to in the said communication accepting the tender or offer of the Contractor for supply of stores or plant, machinery or equipment or part thereof.

3. Instructions to Vendors

1. This is an E Tender. Hence Postal/Fax/Email tenders will not be accepted.
2. Last minute clarification on tenders will not be entertained.

4. Specific Terms and Conditions to Tender (MII Compliant)

1. (VIII) Please upload the Technical Details / Catalogue / Data Sheets (whereever applicable)
2. (IX) The offer should be valid for a period of minimum 90 days from the date of opening of Tender and 180 Days for PT Two Part (120 Days for Technical Bid and 60 Days for Price Bid from the date of opening).
3. (X) In order to avail of the benefits extended to by Govt. of India to the Micro and Small Sectors, please submit attested copy of the valid Entrepreneur Memorandum Part-II signed by the General Manager, District Industries Centre / Udyog Adhar / NSIC Registration Certification along with your offer.
4. (XI) If any bidder submits forged / false document along with the tender, offer of such vendors will be summarily rejected and such bidders will be blacklisted for all future tenders.
5. (XII) Wherever samples are required to be submitted along with the quotation, offer without sample will not be considered.
6. (XIII) The other attached forms are our standard terms and conditions, which are to be complied with. If any conflict arise between the specific terms and standard terms, then in those cases, the specific terms will prevail over the standard terms.
7. (XIV) This tender is restricted only to Class-I and Class-II Local Suppliers as defined under DPIIT Order dtd 04/06/2020- Preference to Make in India Order-2017 Revision. Non-Local Suppliers need not quote.
8. (XV) Foreign OEMs/Agents quoting on behalf of Foreign OEMs are not permitted to quote. High Sea Sales Quotes not permitted. The bids shall be in INR only.
9. (XVI) Definitions: A supplier or service provider, whose goods, services or works offered for procurement, has local content: a)Equal to or more than 50% : Class-I local supplier. b)More than 20% but less than 50% : Class-II local supplier. c)Less than or equal to 20% : Non-local supplier.

10. (XVII) Local content means the amount of value added in India (i.e. indigenous items/services added in the offered products/services/works) be the total value of the item offered (excluding net domestic indirect taxes) minus the value of imported content in the item (including all customs duties/IGST) as a proportion of the total value (excluding net domestic indirect taxes), in percent. Indicate extent of Minimum Local Content in offered product/service and location of such value additions.

11. (XVIII) The Class-I & II local supplier should provide a Self Certification along with your offer in PDF format indicating that the item offered meets the minimum local content as called for in the tender as mentioned above and provide the % of local content along with details of the location(s) at which the local value addition is made. In case of two part tenders, it is mandatory to indicate compliance to MLC(minimum local content) in technical bid itself.

12. (XIX) Purchase preference to eligible vendors are applicable as per extant notifications issued by the Government of India.

13. (XX) The Class-I/Class-II Local suppliers, at the time of submitting their offer, shall also indicate percentage of local content and provide self-certification that the item (s) offered meets the local content requirement for Class-I/Class-II Local Suppliers as the case may be. They shall also give details of location (s) at which the local value addition is made.

14. (XXI) In cases if the item(s) offered exceed Rs. 10 Crores, the Class-I/Class-II Local Suppliers shall provide a Certificate from the statutory auditor or cost auditor of the company (in 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.

15. (I) Please quote applicable GST separately.

(a)We are eligible for partial exemption of IGST vide Notification No: 47/2017-Integrated Tax (Rate) dtd 14/11/2017 and 45/2017-Central Tax (Rate) dtd 14/11/2017 issued by Dept. of Revenue, Ministry of Finance. Necessary Exemption Certificates will be issued on demand.

(b)We are eligible for partial exemption of CGST and SGST vide Notification No: 45/2017 dtd 14/11/2017 and No: 169/2017/TAXES dtd 15/11/2017 respectively. Necessary Exemption Certificates will be issued on demand.

16. (II) Our standard delivery term is FOR, VSSC. In case any vendor offers delivery term of Ex-works, Packing and Forwarding charges if any should be indicated separately either as a percentage of the quoted rate or as a Lumpsum amount.

17. (III) Our standard payment term is 100% within 30 days after receipt and acceptance of the items at our site (after installation and commissioning in cases where installation and commissioning is required).

18. (IV) Liquidated Damages: The delivery period quoted should be realistic. The delivery period so quoted and mentioned in the order is the essence of the order/contract. In case of delay in delivery of material as per the delivery schedule, Liquidated Damage @ 0.5% per week or part thereof on the undelivered portion subject to a maximum of 10% of the contract value shall be levied. Wherever, installation and commissioning is also involved, the supply will be deemed to have been completed only when the entire Stores is supplied, installed and accepted.

19. (V) Performance Bank Guarantee: Wherever products offered carry warranty, the warranty should be for one year or as per manufacturers standard warranty term. Against such cases, please confirm submission of Performance Bank Guarantee. The Performance Bank Guarantee should be for 3% of the order value covering the warranty period obtained from any Scheduled Bank on Rs.200/- Non Judicial Stamp Paper and should be valid beyond 2 months from the completion of the warranty period. Alternately vendors can request for withholding 3% payment till completion of the warranty period.

20. (VI) Security Deposit: Wherever the offer value is Rs. 5.00 Lakhs or above, the successful tenderer should submit Security Deposit @ 3% of the order value by way of Bank Guarantee / FD Receipt. The Bank Guarantee shall be obtained from any Scheduled Bank on Rs.200/- Non Judicial Stamp Paper and should be valid beyond 2 months from the completion of all contractual obligations. If the Contractor is called upon by the Purchaser to deposit, Security and the Contractor fails to provide the security within the period specified, such failure shall constitute a breach of the Contract, and the Purchaser shall be entitled to make other arrangements for the re-purchase of the stores Contracted at the risk of the Contractor. In case if Security Deposit is submitted and the contractor fails to execute the order, then the security deposit will be forfeited.

21. (VII) Note: SD, LD and PBG clauses are mandatory and offers of the vendors who have not agreed for the above conditions will be excluded from the procurement process. Micro and Small Vendors are not exempted from the submission of Security Deposit. Only Govt Departments/PSUs/PSEs can submit Indemnity Bond instead of Bank Gurantee towards SD/PBG.

22. (XXII) 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.

C. Bid Templates

C.1 Technical Bid - Integrated X-Ray equipment with dual energy(3.5/6 MeV) LINAC and 450 kV X-ray machine, Flat Panel Detector and Manipulator

1. X RAY UNITS OR EQUIPMENT

Integrated X ray equipment with dual energy(3.5/6MeV) Linear accelerator(LINAC), 450kV X ray machine, Flat panel detector and manipulator.

Document : RFP for Linac and 450 kV

Common Specifications (Applicable for all items)

Sl No	Specification	Value	Compliance	Offered Specification	Remark
1	Specification as per attachments		-		

Supporting Documents required from Vendor

1. Commercial and technical documents

2. UNPRICED BID in Format as mentioned in Annexure-II

3. Declaration regarding the percentage of local content (or value addition) in the item offered

4. Detailed Compliance Matrix vis-a-vis the item specification in tender

5. Detailed Techno-Commercial Offer (without Price Details)

6. UNPRICED AMC Quote in Split-Up format for each year required.

7. UNPRICED LIST of Essential/Optional Spares for 7 years Maintenance

5 additional documents can be uploaded by the vendor

C.2 Commercial Terms / Bid

Sl. No.	Description	Compliance	Vendor Terms
1	All items must be supplied as a single unit	Yes / No / Explain	
2	Training	Yes / No / Explain	
3	Warranty	Yes / No / Explain	
4	Taxes and other costs, if any . [Note: VSSC is a Public Funded Research Institution under the administrative control of Department of Space and is eligible for partial exemption of IGST @5% vide Notfn No. 45/2017, 47/2017 dt 14.11.2017 respectively. Necessary IGST EXEMPTION CERTIFICATE shall be issued.]	Yes / No / Explain	
5	Security Deposit (Applicable if Offer Value is Rs. 5 Lakhs or above. MSME/NSIC Units are NOT EXEMPTED from the payment of SD. Bank Guarantee @ 3% of Order Value valid till 60 days from the date of supply to be submitted. Mandatory compliance required. Only Government Bodies/PSUs/PSEs can submit Indemnity Bond in lieu of BG. In the event of non-performance of contractual obligations, SD will be forfeited).	Yes / No / Explain	
6	Delivery Terms.	Yes / No / Explain	
7	Delivery Period	Yes / No / Explain	
8	Liquidated Damages (Applicable beyond the delivery period mentioned in this tender @ 0.5% per week or part thereof on the undelivered portion subject to a maximum of 10% of the contract value. Mandatory compliance required).	Yes / No / Explain	
9	Comprehensive Warranty (min. 36 months from the date of installation and commissioning of the system at our site).	Yes / No / Explain	

10	Performance Bank Guarantee (PBG) Bank Guarantee @ 3% of Order Value valid till the completion of warranty period plus 2 months claim period to be submitted. Mandatory compliance required. Only Government Bodies/PSUs/PSEs can submit Indemnity Bond in lieu of BG. In the event of non-performance of warranty obligations, PBG will be forfeited).	Yes / No / Explain	
11	Payment Term: (Our Default payment term: For indigenous orders: 100% within 30 days after receipt, installation, commissioning and acceptance of item at our site. NOTE: CONSEQUENT TO COVID 19 PANDEMIC AND AS PER EXISTANT GUIDELINES FROM DEPARTMENT OF SPACE, NO ADVANCE PAYMENT IS PAYABLE TO THIS TENDER).	Yes / No / Explain	
12	Definitions: A supplier or service provider, whose goods, services or works offered for procurement, has local content: a) Equal to or more than 50% : Class-I local supplier. b) More than 20% but less than 50% : Class-II local supplier. c) Less than or equal to 20% : Non-local supplier. Mention your category.	Yes / No / Explain	
13	Local content means the amount of value added in India (i.e. indigenous items/services added in the offered products/services/works) be the total value of the item offered (excluding net domestic indirect taxes) minus the value of imported content in the item (including all customs duties/IGST) as a proportion of the total value (excluding net domestic indirect taxes), in percent. Indicate extent of Minimum Local Content in offered product/service and location of such value additions.	Yes / No / Explain	

14	The Class-I & II local supplier should provide a Self Certification along with your offer in PDF format indicating that the item offered meets the minimum local content as called for in the tender as mentioned above and provide the % of local content along with details of the location(s) at which the local value addition is made. In case of two part tenders, it is mandatory to indicate compliance to MLC(minimum local content) in technical bid itself. Confirm attachment of Self declaration along with the offer.	Yes / No / Explain	
15	PO Placement Address (with Name and Contact Details of sales person concerned).	-	
16	Any Other Terms	-	
17	Acceptance to Provide Non-Comprehensive AMC for a period of 7 years for the systems as mentioned in Table-2 after the completion of warranty period. AMC cost may be mentioned only in the Specific slot in the Price Bid	Yes / No / Explain	
18	List of Essential Spares for the trouble free operation of the equipment for a period of 7 years after warranty period to be uploaded (without price details). Details of optional spares may also be provided.	Yes / No / Explain	
19	Please upload a detailed compliance matrix vis-a-vis the technical specification of the tender. (failing to which the offer will be rejected)	Yes / No / Explain	
20	Please ensure no documents with price details are uploaded. Only unpriced bids (prices masked) shall be uploaded. Price details shall be mentioned only in the price bid. Uploading price bid documents will lead to rejection of tender.	Yes / No / Explain	
21	Based on the offer value, you are supposed to provide a declaration of local content. Details in Tender Notice.	Yes / No / Explain	
22	Please note: Only Class-I Local Supplier/Class-II Local Suppliers are permitted to quote. The offer shall be in INR only. Bids from Foreign OEMs/Agents of behalf of OEMs and offers on High Sea Sales basis are not allowed. Please mention the category of the bidder.	Yes / No / Explain	

C.3 Price Bid

Sl. No.	Item	Quantity	Unit Price	Currency	Total Price	Remark
1	X RAY UNITS OR EQUIPMENT	1.00 Sets		-		

Common charges (Applicable for all items)

Annual Maintenance Contract Charges	
Optional Spares Cost (lumpsum)	
Any Other Charges	
Essential Spares Cost (lumpsum)	
Packing and Forwarding Charges	
Freight charge	
Installation & Commissioning Charges	

**REQUEST FOR PROPOSAL
FOR
SUPPLY, INSTALLATION, COMMISSIONING AND TRAINING OF
INTEGRATED X-RAY EQUIPMENT WITH DUAL ENERGY (3.5/6MeV)
LINEAR ACCELERATOR (LINAC) AND 450 kV X- RAY MACHINE, FLAT
PANEL DETECTOR (FPD) AND MANIPULATOR**

1. INTRODUCTION

Vikram Sarabhai Space Centre (VSSC), is one of the major units of Indian Space Research Organization (ISRO), Govt. of India. VSSC pioneers in rocket research and launch vehicle projects of ISRO. The Centre also pursues research and development activities in associated areas like propellants, solid propulsion technology, aerodynamics, aero structural and aero thermal fields, avionics, polymers and composites, guidance, control & simulation, computer and information, mechanical engineering, aerospace mechanisms, vehicle integration and testing, space ordnance, chemicals and materials. Systems reliability and quality assurance of all aspects of engineering and operations are studied and evaluated to the levels of perfection required in each field.

Aerospace Ordnance Entity (ASOE) carries out design, development, testing, production and supply of aerospace ordnance devices and systems for sounding rockets, launch vehicles and spacecraft applications. In order to meet the NDT requirements of Pyro devices, it has been decided to establish the NDT Facility herewith high energy Radiography systems. The request for proposal (RFP) in this respect deals with all aspects of tendering including detailed technical specifications of the items to be realized such as a Dual energy (3.5 & 6 MeV) Linear accelerator system for generating high energy X-rays, Flat Panel Detector (FPD) for X-Ray imaging and manipulators for LINAC, FPD and objects. The schematic sketch of the total integrated system is as shown in Annexure.3

2. SCOPE OF WORK

The scope of the supplier includes Design, Fabrication, Supply, installation, commissioning and performance demonstration of the complete integrated system at VSSC site. The complete integrated system shall consist of

- I. Dual Energy 3.5/6Mev Linear Accelerator.
- II. Flat Panel Detector system.
- III. Manipulator for flat panel detector.
- IV. Manipulator for object.
- V. Manipulator for LINAC HEAD.
- VI. 450kV X ray machine
- VII. Control Panel

as per enclosed specifications. The specifications of Integrated X-ray equipment with Dual energy (3.5/6 MeV) LINAC, FPD, 450 kV X-ray machine and manipulator are given in Annexure1.

The total systems will be commissioned in the Radiation Exposure Hall or building at VSSC Thiruvananthapuram.

The supplier shall submit offers separately for individual systems and combined for the systems in the prescribed price bid format.

Any further clarifications required will be provided on request.

3. RESPONSIBILITIES

3.1 RESPONSIBILITY OF VSSC, ISRO

- VSSC, ISRO will supply necessary consumables like X-Ray films and Film processing chemicals for carrying out the Acceptance testing of the LINAC system.
- No accommodation will be provided at VSSC, ISRO. Accommodation, Local conveyance and other logistics shall be the responsibility of supplier.
- Import license for LINAC and 450 kV from AERB if applicable.

3.2 RESPONSIBILITY OF SUPPLIER

- Supplier shall provide all supervision, labor, tools, machines, cranes, slings, wire rope, D-shackle etc., equipment, scaffolding, rigging material and incidental material

such as bolts, wedges, anchors, concrete inserts, grout material etc. required to complete the works.

- Design, Manufacture, Testing & demonstration at Shop floor, supply, Erection at our site, Testing and commissioning of 3.5&6 MeV LINAC, FPD ,450 kV and manipulator system as per tender document.
- Transportation of total system along with all accessories & sub-systems to VSSC ISRO for commissioning.
- Testing and Evaluation of the systems at VSSC ISRO and demonstrate the performance of the LINAC, FPD,450 kV and Manipulator systems as per the tender document.
- Supplier shall submit the GA drawing and other design details for clearance by Department before commencing the fabrication of handling system.
- Providing Acceptance test & measurement procedures and test certificates for the acceptance tests at SUPPLIER's site prior to dispatch of equipments to VSSC ISRO.
- Training of VSSC ISRO Engineers during testing and commissioning at VSSC ISRO site.
- The equipment shall have warranty of three years from the date of commissioning and the SUPPLIER shall be responsible for attending snags or major breakdowns during this period at no additional cost.
- Providing two sets of operation and maintenance manuals with schematic wiring diagrams, layout and troubleshooting details.
- Supplier shall mention or identify an Indian agent for extending the post sales service of equipment for a period of 7 years after warranty period, on chargeable basis.
- Type approval from AERB for Dual energy (3.5/ 6 MeV) and 450 kV X-ray machine.

4. GENERAL TERMS AND CONDITIONS

4.1 VALIDITY OF OFFER

The offer shall be valid for 4 months from the date of opening of the bids. In case of any delay in obtaining technical clarifications from the supplier due to incomplete bid, the validity shall be extended accordingly.

4.2 TIME SCHEDULE (DELIVERY PERIOD)

- SUPPLIER shall deliver, commission and demonstrate the rated outputs of the equipments as per the tender document, **within 12 months from the date of acceptance of Purchase Order** for the local manufacturers and that for foreign manufacturers or local agents representing foreign suppliers is **within 12 months from the date of obtaining export clearance**.
- Delivery date is the essence for this contract. Party shall adhere to the delivery date mentioned in this tender and same shall be confirmed along with the offer.
- In case Party is unable to meet the delivery schedule, the offer will be liable for rejection.
- If VSSC ISRO takes some more time for accepting the equipment for carrying out additional trials, the time taken by VSSC ISRO will not be accounted as a delay by supplier.

5 PRICE

Price shall be quoted in the format enclosed in Annexure-II

6 PACKING

- The Contractor wherever applicable shall pack and crate all stores for Sea / Air shipment as applicable in a manner suitable for export to a tropical humid climate, in accordance with internationally accepted export practices and in such a manner so as to protect it from damage and deterioration in transit by road, rail or sea for space qualified stores. The Contractors shall be held responsible for all damages due to improper packing.
- The Contractor shall ensure that each box unit of shipment is legible and properly marked for correct identification. Any failure to comply with this requirement shall make the contractor liable for additional expenses involved.
- The Contractor shall notify the Purchaser of the date of shipment from the port of embarkation as well as the expected date of arrival of such shipment at the designated port of arrival.
- The Contractor shall give complete shipment information concerning the weight, size, content of each packages etc.

- Transshipment of equipment shall not be permitted except with written permission of the Purchaser.
- Apart from the dispatch documents negotiated through Bank, the following documents shall also be airmailed to the Purchaser within 7 days from the date of shipment by sea and within 3 days in case of air-consignments.
 - (i) Commercial Bill of Lading/Airway Bill (two non-negotiable)
 - (ii) Invoices (3 copies)
 - (iii) Packing lists (3 copies)
 - (iv) Test Certificates (3 copies)
 - (v) Certificates in original
 - (vi) Contractor shall also ensure that one copy of the packing lists is enclosed in each case.

7 TERMS OF DESPATCH

- Generally, stores shall be dispatched by the Indian Flagged Vessel / Air India or through any other Agency nominated by the Purchaser. A copy of the invoice and packing list shall invariably be kept inside each of the package.
- By Sea upto Kochi/Chennai Sea Port
- Delivery of the ordered material is F.O.R VSSC ISRO, Thiruvananthapuram by the supplier.
- Safe transportation of material from ex-works to Sea port, Kochi/Chennai is the responsibility of supplier.
- Insurance charges during transportation from Manufacturer's site to Chennai port and Chennai port to VSSC is the responsibility of the supplier.
- The Supplier shall be responsible for transporting all the equipment to site, unloading and storage. No equipment shall be delivered without obtaining dispatch clearance from Purchaser.
- All the equipment shall be properly packed to avoid any damage during transportation / handling / storage.

8 PORT OF ENTRY: Kochi/Chennai (India)

9 PORT OF CONSIGNEE: Purchase and Stores Officer, VSSC ISRO, Thiruvananthapuram.

10 ULTIMATE CONSIGNEE:

Purchase and Stores Officer,
ASOE
VSSC ISRO
Thiruvananthapuram 695029
Kerala

❖ SHIPPING MARKS:

The marks on the shipping documents such as invoice, bills of lading and on the packages shall be as follows:

PURCHASE ORDER No
DATE
GOVERNMENT OF INDIA
DEPARTMENT OF SPACE
DESTINATION
PORT OF ENTRY

11 DEMURRAGE

Supplier shall bear demurrage charges if any incurred due to delayed presentation of shipping documents for clearance.

12 INSTALLATION & COMMISSIONING

- The entire commissioning and testing shall be completed within 30 days for each system.
- The acceptance of the system is as per the Acceptance Test Plan stipulated in the specification document.
- The exact date of commissioning shall be indicated to VSSC ISRO and commissioning shall be planned based on the mutual agreement at a convenient date after the items are received at VSSC ISRO.

13 TESTING, EVALUATION& ACCEPTANCE

Supplier shall submit all the test certificates of individual sub-systems tested at supplier's site along with the equipment

Acceptance Testing will be conducted at VSSC ISRO as per mutually agreed Acceptance Test Plan (ATP). Supplier shall submit the ATP document along with the offer in line with the Acceptance criteria proposed in the specification document.

14 TRAINING

Suitable training is to be imparted to sufficient number of Engineers and technicians on basic operation and general maintenance of all subsystems of LINAC (modulator, X-ray head, computerized Control console, Temperature control unit, etc.) , 450 kV X-ray machine.

Similarly, suitable training programme for operation and maintenance of Manipulator system shall be provided.

The content of training and training kits shall be mutually agreed and finalized.

15 GUARANTEE & REPLACEMENT

- The Contractor shall guarantee that the Stores supplied shall comply fully with the specifications laid down, for material, workmanship and performance.
- For a period of 36 months after the commissioning and acceptance of the systems, if any defects are discovered therein or any defects therein are found to have developed under proper use arising from faulty materials, design or workmanship, the contractor shall rectify such defects at his own cost provided he is called upon to do so within a period of 36 months from the date of acceptance thereof by the Purchaser who shall state in writing in what respect the Stores or any part thereof are faulty.
- If in the opinion of the Purchaser, it becomes necessary to replace or renew any defective stores, such replacement or renewal shall be made by the supplier free of all costs to the Purchaser provided the notice informing the supplier of the defect is given by the Purchaser in this regard within the said period of 36 months from the date of acceptance.
- To fulfill the guarantee condition as stated above, the supplier shall furnish Performance Bank Guarantee (as prescribed by the Purchaser) from a reputed international Bank for an amount equivalent to 10% of the supply value of the Contract along with first shipment documents. On the performance and completion

of the Contract in all respects, the Bank Guarantee will be returned to the Contractor without any interest.

- All the replacement stores shall also be guaranteed for a period of 36 months from the date of the arrival of stores at Purchaser's site.

16 ANNUAL MAINTENANCE

Supplier shall quote for annual non comprehensive maintenance charges per year for the period of 7 years for the total integrated system including LINAC, FPD, 450kV and Manipulators. A separate contract shall be released after completing the warranty period.

17 LIST OF CRITICAL SPARES

The list of essential spares for at least 7 years maintenance of total integrated system including LINAC, FPD, 450kV and Manipulators system shall be indicated. Supplier shall quote the cost of individual item as an optional item. VSSC ISRO reserves the right to order the items as per the requirement along with the equipment.

18 TECHNICAL DOCUMENTS

SUPPLIER shall deliver, two copies of the Technical Manual, consisting of Operation Instructions, Preventive Maintenance procedures & Trouble Shooting procedures etc. in English along with the equipment. Any changes or modifications that may be found necessary at the time of test and evaluation shall be incorporated and the documents shall be amended suitably.

19 LANGUAGE AND MEASURES

All documents pertaining to the contract including specifications, schedule notices, correspondence, operating and maintenance instructions, drawings or any other writings shall be written in English Language. Metric system of measurement shall be used exclusively in this contract.

20 GENERAL SPECIFICATIONS RELATED TO FABRICATION

- a) All welds shall be ground.
- b) 100% DP test for root and final weld pass shall be carried out.
- c) 100% Ultrasonic test for plates of thickness above 20mm.
- d) 100% Radiography test for all butt welds for plate thickness 20mm and above.

- e) The entire fabrication activity shall be performed in a planned / sequential manner to achieve desired dimensional/ geometrical tolerance specified in the drawing or functional requirement mentioned in this document. It is suggested to add sufficient number of fixtures and tools to control the distortion during welding process.
- f) Dimensions shown in the drawing are final acceptance dimensions. Allowances for machining and thinning due to fabrication process shall be added to arrive at material sizes. Party is wholly responsible for realizing the finished product. Allowances mentioned in the drawing are indicative. Party shall study the requirement and provide proper machining allowances required based on the fabrication procedure adopted.
- g) Dimensional tolerance wherever not specified shall follow the standard open dimension tolerances provided in the drawing. Wherever welded attachments are used to facilitate fabrication, same shall be removed carefully by cutting or chipping and surface of material shall be finished smooth by grinding. As far as possible, hammering shall be avoided.
- h) Edge preparation shall be carried out for all joints as mentioned in the drawing or as per standard fabrication procedure.

21 PAINTING

All the exposed carbon steel surfaces shall be painted as per following: -

- a) Surface Preparation: Cleaning by wire brush or power tools to remove any loose dirt or mill scales from the surface.
- b) Sand blasting shall be carried out to clean the surfaces before painting operation.
- c) Spray painting shall be carried out for primer and paint.
- d) Primer: One coat of zinc rich primer with red oxide and zinc phosphate pigments to achieve total DFT of 70 to 75 micron.
- e) Final Coat: Two coats of epoxy paint of total 125-micron DFT.
- f) Color – On outer and inner surface shall be Blue. Party shall get approval prior to painting.
- g) Total DFT shall be 175 microns (min.)
- h) Any intermediate cleaning required between successive coats of paint shall also be carried out as per manufacturer's standard.
- i) Final coat of paint shall be applied after erection at our site. However, final coat shall be applied to surfaces that become accessible after erection.

- j) Necessary tools like compressor, spray gun and consumables shall be provided by the party.
- k) Proper masking shall be carried out where ever required.

Annexure-1

TECHNICAL SPECIFICATIONS FOR DUAL ENERGY (3.5/6 MEV) LINAC SYSTEM, FLAT PANEL DETECTOR (FPD), 450 KV X-RAY MACHINE AND MANIPULATORS

Detail Technical Specification for individual main sub system are as

I. Dual Energy 3.5/6Mev Linear Accelerator

The proposed linear accelerator is a programmable logic controlled (PLC), 3.5/6 MeV and standing wave type vacuum sealed linear accelerator tube which can continuously operable at its maximum rated output. The schematic sketch of the total integrated system is as shown in Annexure.3 The technical specification of the proposed linear accelerator is as follows.

1. X-RAY ENERGY:

3.5MeV and 6Mev (nominal).

2. X-RAY BEAM INTENSITY OR DOSE RATE (Gy/min – m):

The **Un flattened** dose rate of the X-ray beam at 1 meter from the target on the central axis:

Parameter	3.5MeV	6MeV
Dose Rate (Gy/min-m)	2.50 or higher	8.0 or higher

The **flattened** dose rate of the X-ray beam at 1 meter from the target on the central axis:

Parameter	3.5MeV	6MeV
Dose Rate (Gy/min-m)	1.5 or Higher	3.5 or higher

3. FOCAL SPOT SIZE:

The focal spot of size 2mm or less in diameter for both 3.5 and 6MeV energies.

4. COLLIMATOR ANGLE (FULL CONE ANGLE):

X-Ray field Size shall be 30° cone or 22.5° square

5. X-RAY BEAM FLATNESS:

+10% in 80% of width around the center of the field.

6. X-RAY BEAM SYMMETRY:

At 7.5° on either side of the axis, the beam asymmetry should be less than $\pm 5\%$.

7. BEAM CENTERING:

The Linac head shall be fitted with a laser beam direction indicator which projects a light

beam along the X-ray beam centerline. The spot of light projected shall be clearly visible

under any reasonable room lighting conditions and usable for target to film distances

8. X-RAY BEAM DIRECTION:

The central axis of the x-ray beam will be perpendicular to the x-ray head mounting.

9. HALF VALUE LAYER THICKNESS (HVL):

0.96 inch (24.38 mm) for 3.5 MeV and 1.1 inch (27.94mm) for 6 MeV.

10. RADIATION LEAKAGE:

Less than 0.1% of central axis beam intensity.

11. RADIATION QUALITY:

The system shall be capable of demonstrating a radiographic sensitivity of 1-2T (1% sensitivity) or better as defined in ASTM –E-94-4 in steel at the following thickness ranges.

Nominal Energy (MeV)	Range (mm)
3.5	38-200
6.0	50-250

12. X-RAY BEAM STABILITY:

Should be less than 5 secs (It is the time required to reach the required output, corresponding to given PRF).

13. CABINET ENCLOSURES:

All components in the x-ray head and modulator cabinet shall be fully contained within the grounded metal enclosures, and shall have removable side doors so that they can be removed easily for service accessibility.

14. OPERATING MODES:

- i. Emergency off button shall shut off electrical power of the entire LINAC system
- ii. In stand-by mode the machine shall be in X ray beam off condition; RF generator filament shall be at reduced voltage and gun filament at reduced voltage.
- iii. The standard control console shall be a touch screen enabled PC system.
- iv. X- Ray Beam ON and OFF provision.
- v. The control console should have facility of setting time of exposure and dose to a required value.
- vi. The control system shall shut off the X- ray beam automatically when a preset value of dose or time is reached.
- vii. Monitor screen shall display the accumulated exposure and the X-ray beam dose rate
- viii. The console shall have a “safety key” provision for Beam-ON operation
- ix. Facility shall be available to adjust “PULSE REPETITION FREQUENCY” in multiple steps.

15. SAFETY SYSTEM:

Interlock provision for radiation safety interlocks shall be available

- i. Door interlock for concrete sliding door and MAZE entrance door
- ii. Emergency Off provision in X-Ray Head, Modulator, Control Console and X-Ray room.
- iii. Blinking lamp at following locations shall be linked to the radiation interlock system (i) On top 4 corners of X Ray Bay (ii) on top of sliding door entrance, (iii) on top of Maze door entrance and control room
- iv. There shall be audio alarm for beam on indication.
- v. Pull cord on the three walls of LINAC hall

16. SUPPLY VOLTAGE: 3phase, 50Hz, 440 volts +5%, 4 wire plus ground.

17. Modulator/power distribution cabinet with programmable logic controller, external signal interface, and desktop pc control console.

18. Remote Human machine interfaces with signal monitoring which includes external trigger emergency off, remote interlock, warning lights, warning alarm, X- ray on request, warm up and power on status, fault information and power on status, fault information and reset.

19. TEMPERATURE CONTROL UNIT: TCU shall cool by a convection fluid to maintain the critical components in the Linac head at required temperatures.

20. VARIABLE EXTERNAL COLLIMATOR:

The Linac head shall be provided with an external collimator and shall consist of four motorized independent jaws with provision for field sizing and rotation. There shall be provision for remote readout and operation of collimator from control room. The essential specifications of the external collimators shall be as follows:

- i. Field Size: 15° Vertical x 20° Horizontal.
- ii. Adjustable: 0 to $\pm 7.5^\circ$ on the vertical axis (up and down) and: 0 to $\pm 10^\circ$ on the horizontal axis (left to right).
- iii. Rotation Range : $\pm 50^\circ$.
- iv. Leakage through collimator : Less than 2% at 6 MeV
- v. Accuracy : 0.25° per jaw
- vi. Remote readout: Display of collimator parameters in the control room.

21. ACCESSORIES:

- a) Standard spare part kits including PC boards and individual components.
- b) Interconnection cables and hoses.
- c) Manuals and data books in English.
- d) External dosimeter for calibration

22. Warranty shall be provided for a period of three years.

23. Spares and accessories for the trouble free operation of machine for seven years.
AMC After warranty period and cost of essential spares are to be quoted.

24. The system should function smoothly for minimum 8 - 12 hours tube operation per day.

25. The LINAC of specific make should have been installed and commissioned in at least 3 Govt. of India/PSUs and shall submit a certificate from them showing satisfactory performance under continuous operation

26. OEM trained Engineer should available in INDIA.

27. ACCEPTANCE OF DUAL ENERGY LINAC SYSTEM

- a) Acceptance Test Procedure (ATP) document shall be supplied by the supplier
- b) Prior to transportation, the supplier shall perform factory acceptance tests of following important parameters of the LINAC system at both 3.5 MeV and 6 MeV energies:
 - i. X-ray output (Dose rate)
 - ii. Electron beam current
 - iii. X-ray energy
 - iv. Focal spot size

- v. X-ray beam flatness and symmetry
 - vi. Leakage of X-Rays
 - vii. Safety interlocks
- c) A report of the test results shall be supplied to the purchaser. Upon completion of installation of Linac system at site, final acceptance at both 3.5 MeV and 6 MeV shall be based on the successful completion of following tests.
- i. Safety interlock test
 - ii. Radiographic quality test
 - iii. Endurance test
- d) The following test will be carried out by the user at site:
- i. X-ray beam intensity (Flattened and Un-flattened) or dose rate
 - ii. Vertical and Horizontal beam symmetry
 - iii. Beam flatness
 - iv. X-ray beam energy
 - v. Focal spot size
 - vi. Measurement of leakage radiation

II. Flat Panel Detector (FPD) system

The flat panel detector system should have following specifications

a.	Operational X-ray Energy range	20keV-6MeV
b.	Compatibility	FPD should be compatible with Pulsed and Continuous X-ray radiation source
c.	Receptor type	Amorphous silicon
d.	Conversion screen	Gadolinium Oxysulfide/DRZ+
e.	Size (Physical)(LXW X T)	70cmX60cmX5cm(Approx)
f.	Pixel area (Active) : 42.5X 42.5 cm ² (minimum)	42.5X 42.5 cm ² (minimum)
g.	Pixel matrix	3072 X 3072 (Typical)
h.	Pixel Pitch	139µm (Maximum)
i.	Frame rate	04 fps(1X1) & 15fps(2x2)
j.	A/D Conversion	16 bit
k.	Power supply	Single Phase AC 240V +/-10%V, 50Hz
l.	Environmental Temperature	30-35°C
m.	Environmental Relative Humidity	40-60%
n.	Cable length (Detector to	Approx. 60 meters

	control Panel)	
o.	Housing Design	Robust design for Mechanical shielding against physical damage during operation / handling
p.	NDT X-Ray Exposures	Minimum or at least equal to no. of present exposures taken for an object with desired image quality and user's requirements.
q.	Reliability	For continuous operation of machine up to 12-16 Hours/day.
r.	Certifications and standards	Compliance to all Legal and Technical standards as applicable.

Additional requirements :

- i. The electronics should be outside of detector active area so that external shielding could be provided for their use above 225 kV or higher energies.
Flat panel should have lead shutter
and its area of opening can be adjusted so that the required imaging area only will expose and the remaining area will be shielded to avoid damaging due to direct X ray exposure.
- ii. Additional attachment should be there on manipulator to hold film also in case of film radiography requirement comes.

III. Manipulator for Flat Panel Detector:

- a) Manipulator design should be robust and rigid to hold the FPD (with 80mmthick lead shielding at front,20mm at back and 10 mm at side and top, around 600kg) and movement in horizontal, vertically up/down and towards/away from the object.
- b) Center of the FPD should be aligned to the X-ray beam center in Horizontal plane.
- c) Movement accuracy: +/-1 mm.
- d) It should have necessary safety limit switches for all movement's limits and should be properly enclosed/ protected against X-ray energy and for additional safety separate mechanical stopper to be provided to stop the movement in each direction also.

- e) Perpendicular distance from object's cylindrical axis to FPD detector screen:
Maximum 150mm (when linear movement stop at object side)
- f) Horizontal Movement Range: 0- 5000 mm
- g) FPD center Height from floor surface: 500 mm
- h) FPD Center Vertical Movement Range: 500mm -2000mm
- i) FPD front and back movement (towards and away from object): 1000mm
- j) Movement Speed in any axis/direction: 5-10mm/sec.
- k) Axis Movement drive: Energy efficient Flame Proof (FLP) Servo Motor/DC stepper with CMRI Dhanbad Certificate.
- l) All the motors shall be flame proof Ex-tc and confirm to hazardous area classification
i.e zone 2 with IP65(Dust tight 6 and water jet 5)

IV. Manipulator for Object:

- a. Rotary table of dimension dia 1000mm x height 1000mm with wheel and movement in rail in Y axis with locking mechanism
- b. Horizontal movement: 0-5000mm
- c. Rotation speed is 5 to 10mm/sec
- d. Rotation accuracy with in ± 0.1 degree
- e. Repeatability with in ± 0.1 degree
- f. Radial run out within 0.1mm
- g. Axial run out within 0.1mm
- h. Axis movement drive: Energy efficient Flame Proof (FLP) Servo Motor/DC stepper with CMRI Dhanbad Certificate.
- i. Table design should be robust and rigid to hold the various objects and can hold weight up to 500Kg. (maximum)
- j. Servo motors (Siemens/SEW make) for rotation with suitable servo drive, low backlash gear boxes, Resolver/Encoder, PLD, DI, DO and programming to ensure specified indexin accuracy.
- k. All the motors shall be flame proof Ex-tc and confirm to hazardous area classification i.e zone 2 with IP65(Dust tight 6 and water jet 5)

V. Manipulator for LINAC HEAD:

- a. Manipulator design should be robust and rigid to hold the X-ray source Linac Head and movement in vertically up/down and towards/away from the object.
- b. Position of LINAC should be able to align X-ray beam center in horizontal plane with FPD center.
- c. Movement accuracy: ± 1 mm.
- d. It should have necessary safety limit switches for all movement's limits and should be properly enclosed/ protected against X-ray energy and for additional safety separate mechanical stopper to be provided to stop the movement in each direction also.
- e. Horizontal Movement Range: 0-3500 mm
- f. Machine Bottom Height from floor surface at lowest vertical rest position: 300 mm
- g. X-ray beam center Vertical Movement Range: 500mm - 2000mm
- h. Movement Speed in any axis/direction: 5-10 mm/sec
- i. Rotation of LINAC carriage Horizontal swivel (Pan): $\pm 15^\circ$ (From mean position) with resolution less than 0.5°
- j. Rotation of LINAC carriage Vertical swivel (tilt): $\pm 15^\circ$ (From mean position) with resolution less than 0.5°
- k. Axis Movement drive: Energy sufficient Flame Proof (FLP) Servo Motor/DC stepper with Certificate of CMRI Dhanbad.
- l. All the motors shall be flame proof Ex-tc and confirm to hazardous area classification i.e zone 2 with IP65(Dust tight 6 and water jet 5)

VI. 450 kV x- ray machine and Manipulator

450 kV X-ray Machine

S.No.	Requirement	Detail
1.	Tube Voltage range	50-450 kV for both focal spot sizes
2.	Steps of change in voltage	In steps of 1 kV or lesser

3.	Tube type	Metal ceramic
4.	Focus	Dual focus
5.	Focal Spot Size (As per EN 12543)	a. 0.4 mm for small focus b. 1.0 mm for large focus
6.	Current at Maximum kV	a. $\geq 1.6\text{mA}$ for small focus b. $\geq 3.3\text{ mA}$ for large focus Tube current shall be variable in steps of 0.1 mA or lesser.
7.	Window	Be/Al/Cu
8.	Emerging X-ray beam angle	$30^\circ \times 40^\circ$
9.	HV Power supply cable	20 m long cable to connect X-ray tube
10.	Cooling System	Oil cooled with secondary water/air cooling system.
11.	Temperature range	0 to 40° , Safety alarm for temperature shall be provided with system.
12.	Safety feature	System must have following personnel & equipment safety features
		a. Door interlock switches b. Radiation ON indication with glowing lamp c. Emergency OFF d. Interlock for buzzers and warning lamps. a. Audio and Visual indication for beam ON
13.	Leakage radiation	As per AERB guidelines
14.	Collimator	1. Motorized shutters or jaws for operation from Control console. 1. Number of independent jaws shall be four and each jaw shall

		<p>be controllable independently.</p> <p>2. Thickness of lead (Pb) for each jaw shall be around 20 mm.</p> <p>3. Each jaw shall have a movement provision of 50 mm such that an opening of 100 mm is ensured in perpendicular directions when all four jaws are fully opened.</p>
15.	Laser centering device	Laser pointer shall have a power rating 1 mW and satisfy class 2 as per revised IEC 60825 standard.
16.	Operation of collimator	<p>1. Jaw movements should be operated from the remote computer for control of all the manipulators and collimator controls. Corresponding opening of collimator shall be seen on monitor screen by means of motion animation</p> <p>2. A local control for jaws movement of collimator shall also be provided near X-Ray source.</p>
17.	Generators	Bipolar generators 225 kV of appropriate rating that will meet X-ray tube power requirement.
18.	Interface of console for operation of X-ray tube	<p>a. Provision for setting of parameters like kV, Current, time of exposure</p> <p>b. Provision of switching ON and OFF of X-ray source</p> <p>c. Display of error status (if any)</p> <p>d. Emergency OFF switch</p>
19.	Voltage Stabilizer	A suitable voltage stabilizer shall be provided for complete system
20.	Radiation Safety Interlock	<p>a. 3 nos. doors interlocks</p> <p>b. 4 nos. buzzers</p> <p>c. 5 Warning lamps (red)</p> <p>d. These shall be installed at designated places and shall be connected with X-ray machine.</p>

Manipulator for 450 kV X-ray Machine

- a). X-ray tube should move vertically up/down and rotated through 90 degrees in both clockwise and anticlockwise direction with accuracy of 1%.
- b). Total movement in vertical axis should be 500mm to 2000 mm from floor.
- c). The speed in both axes should be 5-10 mm/sec.
- d). Movement accuracy: ± 1 mm
- e). Manipulator with wheel and locking mechanism.
- f). All the motors shall be flame proof Ex-tc and confirm to hazardous area classification i.e zone 2 with IP65(Dust tight 6 and water jet 5)

VII. CONTROL PANEL

1. All manipulators should be able to operate in all axis from the remote control panel located at a distance of 50 meter (approx.) and also from the radiation hall.
2. Electrical cabinets/manipulator control drives etc. to be installed in a separate closed room at a distance of 50 meter (approx.)
3. All manipulators should be able to operate remotely from the control panel in both manual Jog mode and through manipulator animation control software mode.
4. Firm should provide Jog mode controls for all axis movements at control room panel.
5. There should be separate dedicated real time manipulator animation movement/position display system with software.
6. Real time manipulator animation movement/position software should have various features like manual/automatic movement as per operator requirement in any direction, axis movement profile for various object's segment, rotation etc. as per user's requirement.
7. There should be provision for synchronized and standalone up/down movement of the FPD and X-ray Head aligned with X-ray beam center through control software.
8. Flame proof manual pendant control with emergency stop switch should be provided near to the manipulator in the exposure room to operate all the manipulators for alignment/adjustment.
9. An interlock arrangement should be provided to ensure only one axis motion in all manipulators at a time.

10. Emergency push buttons 02 nos. to be provided in control room and one in exposure.

room to stop all the manipulators movement immediately in case of emergency.

11. Control panel should have following:

11.1 Work Station

Make	:Dell/HP/IBM/HCL
Processor	:Intel Core i-7 and advance
OS	:Microsoft Window 7or higher (Suitable for Non-destructive Testing Radiography Digital Image analysis software)
Secondary Storage HDD	:5TB
Motherboard	:Original of intel
RAM	:16GB DD RAM or above
Graphics cards	:suitable for image software

11.2. LED Color Monitor

Type	: Color Monitor
Make	: DELL/HP/IBM/HCL/SAMSUNG/LENOVO
Size	: 23-25 inches
Display	: LED LCD Display
Back Light	: LED
Resolution	:Full HD (1080p) 1980 x 1080 or better
Screen Resolution Type	: HD

11.3 High resolution monochrome/Gray scale monitor

Display Colour	:Monochrome
Make	:EIZO/JVC/NDS/TOTOKU/BARCO

Panel Size (Diagonal)	:21.3 inch/54 cm
Resolution	:5MP
Contrast ratio	:1200:1
Brightness	:1200 cd/m ² (Typical)

11.4. Non-Destructive Testing (NDT) Digital Radiography data analysis software:

The system should be a combination of Computed Tomography (CT) and Digital Radiography (DR) in one unit that incorporates all necessary hardware and software for DR and CT reconstruction. The acquisition software should have capability to acquire 2D, CT and real time images. The system should be capable of producing cross sectional CT images and digital radiographs (DR) of metallic and non-metallic items such ceramic core over a wide range of density and materials. Interactive and user-friendly suitable software like VG studio Max 3.4 or latest is required with following features

FOR CT

- i.3D porosity/ inclusion analysis
- ii.Wall thickness measurement
- iii.Coordinate measurement, CAD actual to Nominal comparison
- iv.Enhanced Inclusion/ porosity analysis
- v.All software should have perpetual license without expiry date.
- vi.Image Processing software
- vii.Image processing software should run on latest version of Windows
- viii.Image arithmetic – averaging subtraction
- ix.Image processing edge enhancement, edge detection, smoothening noise reduction, median, Unsharpness and other filters
- x.Beam hardening correction and blooming effect correction should be provided
- xi.Scatter Correction tools
- xii.The latest version of the software should be given and all updates should be available free of cost for three years after installation.

FOR DR

- a. General features of software for image open, save, delete, print, Zoom, processing bar, etc.

- b. Selection of frame rate, continuous or sequential mode.
 - c. Image correction: shading, contrast, brightness, dead pixels and gamma etc.
 - d. Image filters: Edge detection, image normalization, Image inversion, mean, median, embossing, smoothing & unsharpness, etc.
 - e. Pseudo coloring of the gray scale images
 - f. ROI (Region of Interest) processing of images.
 - g. Histogram Equalization, Image Histogram and Intensity
 - h. Display of Intensity value (Pixel value) of the user's selected pixel.
 - i. Interactive Measurement tools for length, diameter, shape, distance etc.
 - j. Facility for incorporation of annotation in the image should be provided.
 - k. X-ray Noise reduction/elimination filters in X-ray image.
-
- l. Software shall be able to perform the image acquisition/grabbing and processing simultaneously to save the interpretation time.
 - m. The software should be able to provide desired radiography image quality of 1T minimum as per user's quality requirement.
 - n. Supporting Image Formats should be Dicommed (DCM), TIFF, JPEG, BMP, PNG, fits.
 - o. Software should be reliable in respect of speed, X-ray quality, functioning, processing, protection from virus/malware/spyware, security etc.
 - p. Software should be user friendly.
 - q. Software should have license validity for 10 years at least.
 - r. Software should have features for calibration, Gain calibration, offset etc.
 - s. Limiting resolution to be verified by experimentation to minimum level of 2.5lp/mm.
 - t. Software should be complete package to full fill the user's requirement.

Accessories:

1. Voltage stabilizer and Isolation transformer of suitable rating for real time X ray inspection system should be provided.
2. UPS for PC with minimum 30 minutes backup time.

Commissioning, testing and training for system

1. Supplier shall demonstrate performance of the integrated x-ray equipment with dual energy (3.5/6mev) Linear accelerator (LINAC) and 450kv x- ray machine, flat panel detector and manipulator and other accessories as per the scope and PO specifications at the site (RID/HRAG/ASOE, VSSC Thiruvananthapuram).
2. Dual energy LINAC system shall be operable at maximum output for both energies for 45 minutes continuously. The same operation shall be repeated after a cooling time of 15 minutes for 5 times.
3. X-Ray system shall be operable at maximum voltage (450 KV) and maximum tube current (at 450 KV) for both small focus (0.4 mm) and large focus (1 mm) for 45 minutes continuously. The same operation shall be repeated after a cooling time of 15 minutes for 5 times.
4. Radiographic sensitivity of 1-2T shall be demonstrated on steel and aluminium samples using ASTM plaque type IQIs.
5. The focal spot sizes shall be measured as per EN 12543 and ink signed certificate shall be provided from the manufacturer.
6. The supplier shall provide training in the operation, maintenance and troubleshooting of X-Ray system to VSSC Personnel.

General Terms & Conditions:

1. The offer for the integrated x-ray equipment with dual energy (3.5/6mev) Linear accelerator (LINAC) and 450kv x- ray machine, flat panel detector and manipulator and other accessories System shall be from original equipment manufacturers (OEM) or authorized dealers of OEM.
2. The authorized dealers shall submit ink signed dealership certificate from OEM for dual energy (3.5/6mev) Linear accelerator (LINAC) 450kv x- ray machine and flat panel detector.
3. The offered X-ray system shall be from the reputed manufacturers or authorized dealers of OEM, who have supplied at least one Linear accelerator (LINAC) ,450kv x- ray machine, flat panel detector and manipulator and other accessories X-Ray system in India and the same shall be satisfactorily working for the last 3 years.
4. All the Servo motors (Siemens/SEW make) for rotation/axial movement with suitable servo drive, low backlash gear boxes, Resolver/Encoder, PLD, DI, DO and programming to ensure specified indexing/movement accuracy
5. The supplier shall have after sales service facility and trained manpower in India to promptly attend preventive or breakdown maintenance of the X-Ray system, flat panel detector system and manipulators subsequent to commissioning of the same.
6. Manufacturers of Dual Energy LINAC and 450 KV X-ray system or their authorized dealers only can participate in this bid.
7. The address of such government / reputed institutions should be given whom they

- have supplied identical X-ray systems. Purchaser reserves the right to evaluate the equipment performance at the shop floor.
8. The lowest technically qualified bid will be selected for purchase order placement.
 9. Bidder who have dedicated after sales service facilities will be given preference.
 10. Bidders shall provide price break-up for integrated x-ray equipment with dual energy (3.5/6mev) Linear accelerator (LINAC), 450kv x- ray machine, flat panel detector and manipulator and other accessories.
 11. Detailed user manual in English shall be provided for all the systems. Detailed circuit diagrams shall be included in the manual for trouble shooting.
 12. Datasheet of Radiation dose versus kV of X-Ray system shall be provided.
 13. Warranty shall be provided for minimum period of one three for the total integrated system including X-ray machine, Flat panel Detector and the accessories from the date of commissioning.
 14. Dual energy (3.5/6mev) Linear accelerator (LINAC) and 450 KV X-ray unit shall have type approval of AERB (if applicable) and shall satisfy AERB norms with respect to leakage radiation.
 15. The supplier shall provide after sales service with factory trained engineers in case of any breakdown. Service during warranty period shall be free of charge. The supplier shall also be willing to enter into service contract after the warranty period.
 16. The bidder shall indicate the location and details of servicing facility available for carrying out repair or servicing of the integrated x-ray equipment with dual energy (3.5/6mev) Linear accelerator (LINAC), 450kv x- ray machine, flat panel detector and manipulator
 17. All relevant technical information shall be provided along with the quotation.
 18. Party shall provide assured support for maintenance and service for at least five years after the Warranty period. (The scope of AMC like number of preventive visits and number of breakdown visits shall be clearly mentioned).
 19. Separate quotation shall be given for essential spares for trouble free operation of the system for seven years minimum after the warranty.
 20. Compliance matrix in the template provided by VSSC shall be given along with the offers. The offers without the matrix will be rejected.
 21. Heritage of supplying similar machines to ISRO centres/ other units shall be provided along with proof such as P.O copy/Installation report, Contact person etc.

Annexure-II

SCHEDULE OF PRICES
Price Bid Format (without customs duty)

S.No	Description	Unit	Cost (in Rs/foreign currency as applicable.)
1.	Supply of a x-ray equipment with dual energy (3.5/6mev) Linear accelerator (LINAC) system as per the specifications.	Lump sum	
2.	Supply of a bifocal 450 KV X-Ray system as per the specifications.	Lump sum	
3.	Supply of a Flat Panel detector system as per the specifications.	Lump sum	
4.	Supply of manipulator systems (Linac manipulator, FPD Manipulator , 450 kV Manipulator and Object manipulator) as per the specifications.	Lump sum	
5.	Software for CT and Image processing	Lump sum	
6.	Transportation charges	Lump sum	
7.	Installation, Testing and Commissioning charges	Lump sum	
8.	GST	%	
Total Cost			

Table-2

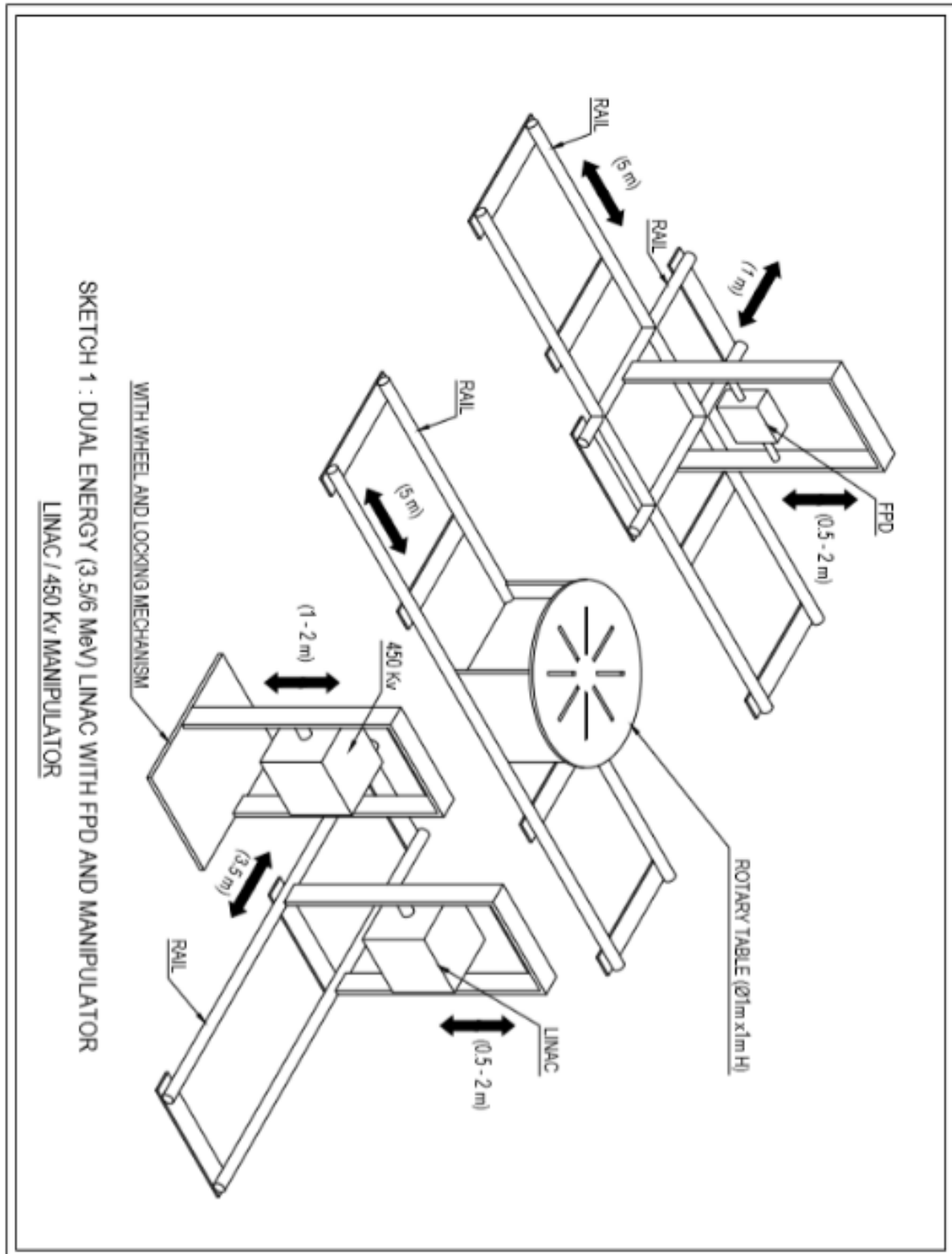
S.No.	Description	Unit	Cost in Rs.
1.	Annual Maintenance Contract of integrated x-ray equipment with dual energy (3.5/6mev) Linear accelerator (LINAC) ,450 kV system, FPD and manipulators for 7 years (Starting from after warranty period) (Non-comprehensive)		
2.	GST		
Total cost			

The cost of spares and AMC will not be considered for evaluation of price bid.

(SIGNATURE OF SUPPLIER)

SKETCH 1 : DUAL ENERGY (3.5/6 MeV) LINAC WITH FPD AND MANIPULATOR

LINAC / 450 Kv MANIPULATOR



E-Procurement No. VSSC/PURCHASE UNIT III(SPRE)/ASOE/2021001854 Dt. 27/07/2021 and Website Advertisement ref. No. VSSC/SPRE-PUR/17-1 DT. 29/07/2021. E-Tenders are invited for ***Supply, Installation and Commissioning of Laser Diode System with Accessories*** through our E-procurement site <https://eproc.vssc.gov.in>. Bids can be submitted upto 30.08.2021 [10:00 Hrs.], Technical Bid Opening date : 30.08.2021 [11:00 Hrs.].

Only online tenders will be accepted. No manual / Postal / e-mail / fax offers will be entertained. No manual tender document will be issued. Parties interested to participate in this e-Tender are required to register themselves as vendors, if not already registered, in our e-procurement portal <https://eproc.vssc.gov.in> by downloading plugins and help demos listed on the home page of the e-procurement link mentioned above to complete the vendor registration process. They can seek help from help desk 0471-2565454 also as provided in the home page of e-procurement portal in case of any problem for registration and subsequent process. Vendors may please note that without registering in our e-procurement portal, they will not be able to quote for this e-tender.

Important Notice : Tender will be automatically closed on the due date [ie. **30.08.2021 10:00 Hrs**], if at least one offer is received. If the tender could not be opened on the first day due to any technical snag, it will be opened on the subsequent day as per the schedule.

This being a Two Part Tender, Cost shall be mentioned in the Price Bid Only. All the documents being uploaded like quote split up details, AMC cost etc should not contain the rates/costs. However a copy of your **PRICE BID, AMC Quote etc WITHOUT PRICE SHALL BE UPLOADED** in the Documents Solicited from the Vendor Field [available in Bid forms] **TO KNOW THE PATTERN OF QUOTE. [ENSURE NOT TO MENTION ANY PRICE, OTHERWISE THE QUOTE WILL BE INVALID]**.

THE TECHNICAL DOCUMENTS NEED TO BE ATTACHED ONLINE AS PER REQUIREMENT WITHOUT ANY PRICE INFORMATION, TECHNICAL BID CONTAINING PRICE DETAILS WILL BE TREATED AS REJECTED. PLEASE REFER TENDER DOCUMENTS FOR DETAILS.

Tender Details

Tender No :	VS202100185401
Tender Date :	27-07-2021
Purchase Entity :	PURCHASE UNIT III (SPRE)
Centre :	VSSC

Procurement of Laser Diode System and Accessories

This tender is for the Procurement of Laser Diode System and Accessories .

This tender is proposed as a DOMESTIC PUBLIC TENDER. This tender is restricted only to Class-I and Class-II Local Suppliers as defined under DPIIT Order dtd 04/06/2020- Preference to Make in India Order-2017 Revision. Non-Local Suppliers need not quote.

Foreign OEMs/Agents quoting on behalf of Foreign OEMs are not permitted to quote. High Sea Sales Quotes not permitted. The bids shall be in INR only.

This is a TWO-PART tender i.e. Techno-Commercial Bid (Part-I) and Price Bid (Part-II) shall be submitted separately. All technical and commercial terms and conditions shall be furnished in the Techno-Commercial Bid while price shall be indicated only in the Price Bid. Uploading price details anywhere else other than the price-bid shall lead to unconditional rejection of the tender. Pleasemake note of the same.

Tenderers are advised NOT TO UPLOAD any documents revealing the price of the main equipment, accessories, spares or AMC. They are however, requested to upload UNPRICED BIDS (i.e. Price details masked) showing appropriate break-up of components of main equipment, individual accessories and spares as desired.

Purchase preference to eligible vendors are applicable as per extant notifications issued by the Government of India.

The Class-I/Class-II Local suppliers, at the time of submitting their offer, shall also indicate percentage of local content and provide self-certification that the item (s) offered meets the local content requirement for Class-I/Class-II Local Suppliers as the case may be. They shall also give details of location (s) at which the local value addition is made.

In cases if the item(s) offered exceed Rs. 10 Crores, the Class-I/Class-II Local Suppliers shall provide a Certificate from the statutory auditor or cost auditor of the company (in 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.

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.

Technical Bids will be opened at the scheduled due date & time. No further intimation will be sent in this regard. The schedule for price bid opening shown is only indicative. Price bids will only be opened in the case of parties who have been techno-commercially accepted, the details of which will be communicated at a later stage.

**GOVERNMENT OF INDIA
DEPARTMENT OF SPACE
VIKRAM SARABHAI SPACE CENTRE (VSSC)
THIRUVANANTHAPURAM**

Tender for Laser Diode System and accessories

Bids to be submitted online

Tender No.: VSSC/PURCHASE UNIT III (SPRE)/VS202100185401 dated 27-07-2021

A. Tender Details

Tender No :	VSSC/PURCHASE UNIT III (SPRE)/VS202100185401
Tender Date :	27-07-2021
Tender Classification:	GOODS
Purchase Entity :	PURCHASE UNIT III (SPRE)
Centre :	VIKRAM SARABHAI SPACE CENTRE (VSSC)

Procurement of Laser Diode System and Accessories

This tender is for the Procurement of Laser Diode System and Accessories .

This tender is proposed as a DOMESTIC PUBLIC TENDER. This tender is restricted only to Class-I and Class-II Local Suppliers as defined under DPIIT Order dtd 04/06/2020- Preference to Make in India Order-2017 Revision. Non-Local Suppliers need not quote.

Foreign OEMs/Agents quoting on behalf of Foreign OEMs are not permitted to quote. High Sea Sales Quotes not permitted. The bids shall be in INR only.

This is a TWO-PART tender i.e. Techno-Commercial Bid (Part-I) and Price Bid (Part-II) shall be submitted separately. All technical and commercial terms and conditions shall be furnished in the Techno-Commercial Bid while price shall be indicated only in the Price Bid. Uploading price details anywhere else other than the price-bid shall lead to unconditional rejection of the tender. Pleasemake note of the same.

Tenderers are advised NOT TO UPLOAD any documents revealing the price of the main equipment, accessories, spares or AMC. They are however, requested to upload UNPRICED BIDS (i.e. Price details masked) showing appropriate break-up of components of main equipment, individual accessories and spares as desired.

Purchase preference to eligible vendors are applicable as per extant notifications issued by the Government of India.

The Class-I/Class-II Local suppliers, at the time of submitting their offer, shall also indicate percentage of local content and provide self-certification that the item (s) offered meets the local content requirement for Class-I/Class-II Local Suppliers as the case may be. They shall also give details of

location (s) at which the local value addition is made.

In cases if the item(s) offered exceed Rs. 10 Crores, the Class-I/Class-II Local Suppliers shall provide a Certificate from the statutory auditor or cost auditor of the company (in 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.

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.

Technical Bids will be opened at the scheduled due date & time. No further intimation will be sent in this regard. The schedule for price bid opening shown is only indicative. Price bids will only be opened in the case of parties who have been techno-commercially accepted, the details of which will be communicated at a later stage.

A.1 Tender Schedule

Bid Submission Start Date :	27-07-2021 11:00
Bid Clarification Due Date :	17-08-2021 11:00
Bid Submission Due Date :	30-08-2021 10:00
Bid Opening Date :	30-08-2021 11:00
Price Bid Opening Date :	31-08-2021 11:00

B. Tender Attachments

Technical Write-up/Drawings

Document : Terms and Conditions

Document : Acceptance Criteria

Instructions To Vendors

3. PPP Make in India(Non- Divisible Items-Class I & II Local Suppliers Only)

1. In line with Public Procurement (Preference to Make in India), Order 2017 & its amendments issued by Govt. of India from time to time with a view to support the Indian industries, ISRO has implemented "Purchase Preference Policy". The "Purchase Preference" is applicable for the "Class-I Local Supplier" for the goods/ services/ works covered in this tender, subject to the following terms & conditions:-

2. a) The subject item falls under Non-divisible category. b) The offers sought only from Class-I & Class-II local suppliers

3. Definitions: A supplier or service provider, whose goods, services or works offered for procurement, has local content: i. Equal to or more than 50%: Class-I local supplier. ii. More than 20% but less than 50%: Class-II local supplier. iii. Less than or equal to 20%: Non-local supplier.

4. 'Local content' means the amount of value added in India (i.e. indigenous items/services added in the offered products/ services/ works) be the total value of the item offered (excluding net domestic indirect taxes) minus the value of imported content in the item (including all customs duties/IGST) as a proportion of the total value (excluding net domestic indirect taxes), in percent.

5. The margin of Purchase Preference shall be up to 20%.

6. 'Margin of purchase preference' means the maximum extent to which the price quoted by the "Class-I local supplier" above the L1 (landed cost).

7. 'L1' means the lowest technically accepted tender / bid / quotation (i.e. lowest landed cost including duties, taxes and freight & Insurance).

8. Works means all works as per Rule 130 of GFR- 2017, and will also include 'turnkey works'. Works includes Engineering, Procurement and Construction (EPC) contracts and services include System Integrator (SI) contracts.

9. Purchase Preference Policy:- Goods/Works which are not divisible (ie., required quantity is 1 or as a package) and Services:

a) If L1 is from a 'Class-I local supplier', the contract will be awarded to L1 bidder.

b) If L1 is not from a 'Class-I local supplier', the lowest bidder among the 'Class-I local supplier' will be invited to match the L1 price subject to local supplier's quoted price falling within the margin of purchase preference (i.e. 20%) and the contract shall be awarded to such 'Class-I local supplier' subject to matching the L1 price (inclusive of duties, taxes and freight & insurance).

c) In case such lowest eligible 'Class-I local supplier' fails to match the L1 price, the 'Class-I local supplier' with the next higher bid within the margin of purchase preference shall be invited to match the L1 price and so on, and order/contract shall be awarded accordingly. In case where none of the 'Class-I local supplier' within the margin of purchase preference agree to match the L1 price, then the order/contract shall be awarded to the original L1 Bidder.

10. The 'Class-I & II local supplier' should provide a "Self Certification" along with technical offer indicating that the item offered meets the minimum local content [as per Sl. No.(3)] as called for in the tender and provide the percentage of local content along with details of the location(s) at which the local value addition is made. In case of two bid tenders, it is mandatory to indicate compliance to MLC(minimum Local Content) in technical bid zone.

11. In cases the quoted price is in excess of Rs.1000 Lakhs (including duties, taxes and freight & Insurance) the 'Class-I & 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 case of suppliers other than companies) giving the percentage of local content.

12. A committee (with an external expert from a practicing cost accountant or practicing chartered accountant, if required) constituted for independent verification shall verify the self-declarations & auditor's / accountant's certificates on random basis, as per the requirements.

13. The ink-signed certificate shall be provided on vendors letter head along with the offer (in case of online tender, copy of ink-signed certificate shall be uploaded along with your offer under concerned tab. Original in Hard copy shall be produced on request). In case of non-submission of certificate, the purchase preference shall not apply.

14. In case of a complaint received from any local supplier indicating a need for review / verification of Local content of successful vendor / awarded vendor, for accepting a complaint from such complainant (w.r.t the false declaration given by the successful vendor on the local content), a complaint fee of Rs.2Lakhs or 1% of the locally manufactured items being procured (subject to a maximum Rs. 5Lakhs), whichever was higher, to be paid by demand draft by the complainant. In case, the complaint is found to be incorrect, the complaint fee shall be forfeited. In case, the complaint is upheld and found to be substantially correct, deposited fee of the complainant would be refunded without any interest.

15. False declarations will be in breach of code of the integrity for which a bidder or its successor's will not be eligible/debarred for purchase preference from further tenders / pending tenders for two years along with other actions as may be applicable.

16. The Public Procurement (Preference to Make in India), Order 2017 issued by Govt. of India indicates that if there are any general or specific restrictive clauses to restrict participation of Indian companies in those countries procurement tenders, reciprocity clause need to be invoked as per the order. Hence, if ISRO or Govt. of India come across that Indian suppliers of an item are not allowed to participate and / or compete in procurement by your government, the bid submitted by you will be not be considered and excluded from eligibility for procurement. Please note this point.

4. Specific Terms and Conditions to Tender (MII Compliant)

1. (VIII) Please upload the Technical Details / Catalogue / Data Sheets (whereever applicable)

2. (IX) The offer should be valid for a period of minimum 90 days from the date of opening of Tender and 180 Days for PT Two Part (120 Days for Technical Bid and 60 Days for Price Bid from the date of opening).

3. (X) In order to avail of the benefits extended to by Govt. of India to the Micro and Small Sectors, please submit attested copy of the valid Entrepreneur Memorandum Part-II signed by the General Manager, District Industries Centre / Udyog Adhar / NSIC Registration Certification along with your offer.

4. (XI) If any bidder submits forged / false document along with the tender, offer of such vendors will be summarily rejected and such bidders will be blacklisted for all future tenders.

5. (XII) Wherever samples are required to be submitted along with the quotation, offer without sample will not be considered.

6. (XIII) The other attached forms are our standard terms and conditions, which are to be complied with. If any conflict arise between the specific terms and standard terms, then in those cases, the specific terms will prevail over the standard terms.

7. (XIV) This tender is restricted only to Class-I and Class-II Local Suppliers as defined under DPIIT Order dtd 04/06/2020- Preference to Make in India Order-2017 Revision. Non-Local Suppliers need not quote.

8. (XV) Foreign OEMs/Agents quoting on behalf of Foreign OEMs are not permitted to quote. High Sea Sales Quotes not permitted. The bids shall be in INR only.

9. (XVI) Definitions: A supplier or service provider, whose goods, services or works offered for procurement, has local content: a) Equal to or more than 50% : Class-I local supplier. b) More than 20% but less than 50% : Class-II local supplier. c) Less than or equal to 20% : Non-local supplier.
10. (XVII) Local content means the amount of value added in India (i.e. indigenous items/services added in the offered products/services/works) be the total value of the item offered (excluding net domestic indirect taxes) minus the value of imported content in the item (including all customs duties/IGST) as a proportion of the total value (excluding net domestic indirect taxes), in percent. Indicate extent of Minimum Local Content in offered product/service and location of such value additions.
11. (XVIII) The Class-I & II local supplier should provide a Self Certification along with your offer in PDF format indicating that the item offered meets the minimum local content as called for in the tender as mentioned above and provide the % of local content along with details of the location(s) at which the local value addition is made. In case of two part tenders, it is mandatory to indicate compliance to MLC(minimum local content) in technical bid itself.
12. (XIX) Purchase preference to eligible vendors are applicable as per extant notifications issued by the Government of India.
13. (XX) The Class-I/Class-II Local suppliers, at the time of submitting their offer, shall also indicate percentage of local content and provide self-certification that the item (s) offered meets the local content requirement for Class-I/Class-II Local Suppliers as the case may be. They shall also give details of location (s) at which the local value addition is made.
14. (XXI) In cases if the item(s) offered exceed Rs. 10 Crores, the Class-I/Class-II Local Suppliers shall provide a Certificate from the statutory auditor or cost auditor of the company (in 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.
15. (I) Please quote applicable GST separately.
(a) We are eligible for partial exemption of IGST vide Notification No: 47/2017-Integrated Tax (Rate) dtd 14/11/2017 and 45/2017-Central Tax (Rate) dtd 14/11/2017 issued by Dept. of Revenue, Ministry of Finance. Necessary Exemption Certificates will be issued on demand.
(b) We are eligible for partial exemption of CGST and SGST vide Notification No: 45/2017 dtd 14/11/2017 and No: 169/2017/TAXES dtd 15/11/2017 respectively. Necessary Exemption Certificates will be issued on demand.
16. (II) Our standard delivery term is FOR, VSSC. In case any vendor offers delivery term of Ex-works, Packing and Forwarding charges if any should be indicated separately either as a percentage of the quoted rate or as a Lumpsum amount.

17. (III) Our standard payment term is 100% within 30 days after receipt and acceptance of the items at our site (after installation and commissioning in cases where installation and commissioning is required).

18. (IV) Liquidated Damages: The delivery period quoted should be realistic. The delivery period so quoted and mentioned in the order is the essence of the order/contract. In case of delay in delivery of material as per the delivery schedule, Liquidated Damage @ 0.5% per week or part thereof on the undelivered portion subject to a maximum of 10% of the contract value shall be levied. Wherever, installation and commissioning is also involved, the supply will be deemed to have been completed only when the entire Stores is supplied, installed and accepted.

19. (V) Performance Bank Guarantee: Wherever products offered carry warranty, the warranty should be for one year or as per manufacturers standard warranty term. Against such cases, please confirm submission of Performance Bank Guarantee. The Performance Bank Guarantee should be for 3% of the order value covering the warranty period obtained from any Scheduled Bank on Rs.200/- Non Judicial Stamp Paper and should be valid beyond 2 months from the completion of the warranty period. Alternately vendors can request for withholding 3% payment till completion of the warranty period.

20. (VI) Security Deposit: Wherever the offer value is Rs. 5.00 Lakhs or above, the successful tenderer should submit Security Deposit @ 3% of the order value by way of Bank Guarantee / FD Receipt. The Bank Guarantee shall be obtained from any Scheduled Bank on Rs.200/- Non Judicial Stamp Paper and should be valid beyond 2 months from the completion of all contractual obligations. If the Contractor is called upon by the Purchaser to deposit, Security and the Contractor fails to provide the security within the period specified, such failure shall constitute a breach of the Contract, and the Purchaser shall be entitled to make other arrangements for the re-purchase of the stores Contracted at the risk of the Contractor. In case if Security Deposit is submitted and the contractor fails to execute the order, then the security deposit will be forfeited.

21. (VII) Note: SD, LD and PBG clauses are mandatory and offers of the vendors who have not agreed for the above conditions will be excluded from the procurement process. Micro and Small Vendors are not exempted from the submission of Security Deposit. Only Govt Departments/PSUs/PSEs can submit Indemnity Bond instead of Bank Gurantee towards SD/PBG.

22. (XXII) 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.

5. Instructions to Vendors

1. This is an E Tender. Hence Postal/Fax/Email tenders will not be accepted.

2. Last minute clarification on tenders will not be entertained.

6. PROFORMA FOR INSTRUCTIONS TO TENDERERS AND TERMS & CONDITIONS OF TENDER where the indent value is Rs. 2.00 lakhs & above for indigenous stores items

1. Preference will be given to those tenders offering supplies from ready stocks and on the basis of FOR destination/delivery at site.

2. REJECTED STORES:

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

3. The term 'Stores' shall mean what the Contractor agrees to supply under the Contract as specified in the Purchase Order including erection of plants & machinery and subsequent testing, should such a condition is included in the Purchase Order.

4. SECURITY DEPOSIT: Wherever, the Purchase Order value is Rs. 5.00 Lakhs or more, on acceptance of the tender, the Contractor shall, at the option of the Purchaser and within the period specified by him, deposit with him, in cash or in any other form as the Purchaser may determine, security deposit not exceeding ten percent of the value of the Contract as the Purchaser shall specify. If the Contractor is called upon by the Purchaser to deposit, 'Security' and the Contractor fails to provide the security within the period specified, such failure shall constitute a breach of the Contract, and the Purchaser shall be entitled to make other arrangements for the re-purchase of the stores Contracted at the risk of the Contractor in terms of Sub-Clause (ii) and (iii) of clause regarding Delivery. (b) hereof and/or to recover from the Contractor, damages arising from such cancellation.

5. Sales Tax and/or other duties/levies legally leviable and intended to be claimed should be mentioned in the price bid template. If nothing is mentioned, then it will be presumed that the rate quoted is inclusive of all taxes/duties.

6. TERMS & CONDITIONS OF TENDER

7. TEST CERTIFICATE: Wherever required, test certificates should be sent along with the despatch documents.

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

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

10. The purchaser shall be under no obligation to accept the lowest or any tender and reserves the right of acceptance of the whole or any part of the tender or portions of the quantity offered and the tenderers shall supply the same at the rates quoted.

11. (a) All available technical literature, catalogues and other data in support of the specifications and details of the items should be furnished along with the offer.

(b) Samples, if called for, should be submitted free of all charges by the tenderer and the Purchaser shall not be responsible for any loss or damage thereof due to any reason whatsoever. In the event of nonacceptance of tender, the tenderer will have to remove the samples at his own expense.

(c) Approximate net and gross weight of the items offered shall be indicated in your offer. If dimensional details are available the same should also be indicated in your offer.
(d)

Specifications: Stores offered should strictly confirm to our specifications. Deviations, if any, should be clearly indicated by the tenderer in his quotation. The tenderer should also indicate the Make/Type number of the stores offered and provide catalogues, technical literature and samples, wherever necessary, along with the quotations. Test Certificates, wherever necessary, should be forwarded along with supplies. Wherever options have been called for in our specifications, the tenderer should address all such options. Wherever specifically mentioned by us, the tenderer could suggest changes to specifications with appropriate response for the same.

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

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

14. The term Purchaser shall mean the President of India or his successors or assigns.

15. (a) All available technical literature, catalogues and other data in support of the specifications and details of the items should be furnished along with the offer.

(b) Samples, if called for, should be submitted free of all charges by the tenderer and the Purchaser shall not be responsible for any loss or damage thereof due to any reason whatsoever. In the event of nonacceptance of tender, the tenderer will have to remove the samples at his own expense.

(c) Approximate net and gross weight of the items offered shall be indicated in your offer. If dimensional details are available the same should also be indicated in your offer.

(d) Specifications: Stores offered should strictly confirm to our specifications. Deviations, if any, should be clearly indicated by the tenderer in his quotation. The tenderer should also indicate the Make/Type number of the stores offered and provide catalogues, technical literature and samples, wherever

necessary, along with the quotations. Test Certificates, wherever necessary, should be forwarded along with supplies. Wherever options have been called for in our specifications, the tenderer should address all such options. Wherever specifically mentioned by us, the tenderer could suggest changes to specifications with appropriate response for the same.

16. ACCEPTANCE OF STORES:

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

17. As a Government of India Department, this office is exempted from payment of Octroi and similar local levies. Tenderers shall ensure that necessary Exemption Certificates are obtained by them from the Purchase Officer concerned to avoid any payment of such levies.

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

19. GUARANTEE & REPLACEMENT:

- (a) The Contractor shall guarantee that the stores supplied shall comply fully with the specifications laid down, for material, workmanship and performance.
- (b) For a period of twelve months after the acceptance of the stores, if any defects are discovered therein or any defects therein found to have developed under proper use, arising from faulty stores design or workmanship, the Contractor shall remedy such defects at his own cost provided he is called upon to do so within a period of 14 months from the date of acceptance thereof by the purchaser who shall state in writing in what respect the stores or any part thereof are faulty.
- (c) If, in the opinion of the purchaser, it becomes necessary to replace or renew any defective stores

such replacement or renewal shall be made by the Contractor free of all costs to the purchaser, provided the notice informing the Contractor of the defect is given by the purchaser in this regard within the said period of 14 months from the date of acceptance thereof.

(d) Should the Contractor fail to rectify the defects, the purchaser shall have the right to reject or repair or replace at the cost of the Contractor the whole or any portion of the defective stores.

(e) The decision of the Purchaser notwithstanding any prior approval or acceptance or inspection thereof on behalf of the Purchaser, as to whether or not the Stores supplied by the Contractor are defective or any defect has developed within the said period of 12 months or any other period or as to whether the nature of defects requires renewal or replacement, shall be final, conclusive and binding on the Contractor.

(f) To fulfill guarantee conditions outlined in (a) to (e) above, the Contractor shall, at the option of the Purchaser, furnish a Bank Guarantee (as prescribed by the Purchaser)

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

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

22. a) Your offer should be valid for 90 days from the date of opening of the tender.

b) Prices are required to be quoted according to the units indicated in the annexed tender form. When quotations are given in terms of units other than those specified in the tender form, relationship between the two sets of units must be furnished.

23. d) The term 'Purchase Order' shall mean the communication signed on behalf of the Purchaser by an Officer duly authorised intimating the acceptance on behalf of the Purchaser on the terms and conditions mentioned or referred to in the said communication accepting the tender or offer of the Contractor for supply of stores or plant, machinery or equipment or part thereof.

C. Bid Templates

C.1 Technical Bid - Laser Diode System and accessories

1. High Power LASER Systems with accessories as per list of components in specifications

Item specifications for High Power LASER Systems

SI No	Specification	Value	Compliance	Offered Specification	Remark
1	Detailed Specifications are mentioned in general specifications and attached in the documents section as well		-		
2	List of components	I) Laser Diode (0.5 W to 40 W): 1 No II) Fiber optic Cable (10m, 200 micron Dia): 2 Nos III) Fiber optic Cable (2m, 200 micron Dia): 10 Nos IV) Fiber optic Cable (2m, 400 micron Dia): 4 Nos V) SMA 905 Fiber optic cable coupler: 10 Nos VI) Focussing and collimating lens system: 2 Nos VII) Power meter: 1 No VIII) Sapphire optical window: 10 Nos IX) Control Laptop: 1 No X) Safety Goggles: 6 Nos	Yes / No / Explain		

Document : Detailed Specifications of Laser Diode System

Common Specifications (Applicable for all items)

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

1	Laser diode unit with armoured Fiber Optic Cable (FOC) : 1 No	Provide Catalogue	Yes / No / Explain		
2	Output Optical Power (CW and Pulsed with Duty Cycle)	0.5W to 40W (minimum)	Yes / No / Explain		
3	Steps of optical power	0.1W to 0.5W (maximum)	Yes / No / Explain		
4	Centre wavelength	Between 800-850 nm	Yes / No / Explain		
5	Maximum spectral bandwidth	(± 20 nm)	Yes / No / Explain		
6	Pulse width (for pulsed mode)	1ms to 50 ms in steps of 1ms	Yes / No / Explain		
7	Compact Laser Diode Driver for above Laser Diode (built-in): 1. Current: Should be displayable 2. Temperature: Should be displayable for ensuring wavelength within spectral bandwidth 3. Output power (programmable) - 40W (in steps of 0.5W maximum)	A suitable control software on a Laptop (part of Control System) attached to the Laser Driver unit through USB should have the following things programmable: -- Pulse width (programmable): 1ms to 50 ms in steps of 1ms (maximum) -- Number of pulses or frequency (programmable)	Yes / No / Explain		

8	Trigger:	-- The system should accept input trigger for starting the driving unit. -- The laser source must provide an external trigger at the start of lasing. -- The lasing starting time has to be explicitly mentioned for our use. -- Trigger input and output - Amplitude trigger level and pulse width to be specified	Yes / No / Explain		
9	Input Voltage	1 Phase 240 VAC ($\pm 10\%$) / 50 Hz (Indian Standards)	Yes / No / Explain		
10	Operating Temperature:	15-35 degree C	Yes / No / Explain		
11	Cooling Requirements:	Air cooled	Yes / No / Explain		
12	Laser diode Output: LASER Diode should have high quality armored FOC with SMA- 905 connector.	The party should explicitly mention their scheme of attaching the Laser diode to the armored FOC. Parameters to be ensured from the output of armored FOC -- Minimum output power: 40W -- Numerical Aperture of FOC<0.22 -- Profile of beam: To be specified	Yes / No / Explain		
13	Fibre Optic Cables (FOC): Suitable for above mentioned wavelength and power: I) Length: 10m (core dia: 200m): 2 Nos II) Length: 2m (core dia: 200m): 10 Nos III) Length: 2m (core dia: 400m): 4 Nos	Provide catalog -- Fibre core material: Quartz/Silica -- Fibre NA: less than 0.22 -- Attenuation: less than 10dB/Km -- Termination for optical fibres : SMA 905 at both ends. -- Suitable Fiber Tip Cleaning and Inspection Tool Shall be supplied alongwith	Yes / No / Explain		

14	SMA-905 Fiber Optic Cable Coupler: 10 Nos	Provide catalog. Suitable for connecting two FOCs having SMA 905 connector. The power loss at the fiber connection joint should be less than 10 %	Yes / No / Explain		
15	Focusing and Collimating system: This hardware should consist of lens system to provide collimation and focusing separately and should receive the FOC through SMA- 905 connector.	Provide catalog The scheme for focusing lens and collimating lens should be explicitly mentioned and catalogue must be attached) --Focusing system with SMA-905 connector on one side and threaded interface on other side - Suitable for center wavelength. Focal length of 5mm approx.(power loss through focussing system should be less than 10%) -- Collimating system with SMA-905 connector on one side and threaded interface on other side: Collimation lens should give a beam diameter of not more than 0.4 mm. (power loss through collimation system should be less than 10%)	Yes / No / Explain		
16	Power Meter and Energy Meter: 1 No	Provide catalog --Spectral Range (min):0.80- 1.0 m --Maximum Noise equivalent power: 5 mW --Linearity with power: $\pm 2\%$ or better --Power accuracy: $\pm 5\%$ or better --Maximum Power:40W CW type --Repeatability: $\pm 1\%$ or better --Cooling: Proper cooling to be provided	Yes / No / Explain		

17	Interface Adaptor for connecting SMA 905 FOC to power-meter: 1 No		-		
18	Read/control of power-meter shall be directly from control laptop	Control and Monitoring software for power-meter should be pre-installed in the Laptop and a copy must be supplied in separate Media Kit.	Yes / No / Explain		
19	Sapphire Optical Window: 10 Nos	8mm Dia and 3mm thick, with minimum of 85% transmittance for 800-850nm	Yes / No / Explain		
20	Control and monitoring System: 1 No	Control laptop from reputed make (Dell, HP, Lenovo etc.) : Core i5 (latest generation), minimum 8 GB RAM, 250 GB SSD, 1 GB Graphics card, with minimum 15.6 inch screen, 64 bit Windows 10 with all required, USB 3.0 ports and any required adaptors for connection with diode drivers.	Yes / No / Explain		

21	Operating and service manuals for all modules - Shall be provided by manufacturer: 2 set	<p>All the measurement data and dimension in drawings should follow SI /Metric unit system. The manual shall contain instructions or guidelines in English with details on</p> <p>I. General information about system i.e. hardware / software</p> <p>II. Instructions for fixing / mounting i.e. readying the system for measurements</p> <p>III. Calibration procedure, Performance calibration chart of and Calibration report of all digital data sensors</p> <p>IV. Instructions for operation i.e. Measurement / acquisition of data during test</p> <p>V. Instruction for routine and periodical maintenance</p> <p>VI. Error message manual & Trouble shooting manual</p> <p>VII. Complete list of parts with identification numbers and brief specifications</p> <p>VIII. Technical notes / application notes on the system.</p> <p>IX. design documents and design drawing</p>	Yes / No / Explain		
22	Safety Goggles suitable : 6 Nos	Wavelength: 800-850nm	Yes / No / Explain		

23	Input Electric Power Supply	The equipment shall be compatible with electric input power supply 240V + 10%, 50 Hz, single phase AC supply. The party has to supply all power cords with triple point AC adapters required to run the system. All power cords and adapters should be suitable to both the supplied equipment and Indian power supply source.	Yes / No / Explain		
24	Ambient conditions for system performance Vendor has to specify the atmospheric conditions, as the working environment for the offered equipment to deliver precise results and serve for a prescribed life of the equipment.	For system Performance: The uncontrolled ambient room conditions are: --Temp:18 to 45° C --Relative Humidity : 45 to 95 %	Yes / No / Explain		

Supporting Documents required from Vendor

- 1. Vendor must provide a list of their customers holding the same system along with details of their contact.**
- 2. Test Report: The supplier should provide necessary laser characterisation test report along with their offer.**
- 3. Spares and Consumables: The firm should provide a list of consumables and spares required for smooth functioning of Laser System for minimum 5 years**
- 4. UNPRICED BID showing the split-up of main equipment, accessories, essential spares as applicable.**
- 5. Detailed Techno-Commercial Offer (without Price Details)**
- 6. UNPRICED AMC Quote in Split-Up format for each year required.**

7. UNPRICED LIST of Essential/Optional Spares for 5 years Maintenance

8. Declaration regarding the percentage of local content (or value addition) in the item offered

9. Detailed Compliance Matrix vis-a-vis the item specification in tenders.

5 additional documents can be uploaded by the vendor

C.2 Commercial Terms / Bid

Sl. No.	Description	Compliance	Vendor Terms
1	Price Bid should contain all the price details (showing split-ups wherever possible) for the each component of the system, its accessories and spares. Price quoted should include expenditures on packing, forwarding, installation, commissioning.	Yes / No / Explain	
2	Technical Bid should contain the compliances and non-compliances for mentioned specifications and contain all the design and technical details of the system. In addition, all other details like technical data sheet, technical catalogues may be included	Yes / No / Explain	
3	Party should submit the offer in two part bid- technical bid and price bid	Yes / No / Explain	
4	Final inspection and Acceptance: The equipment supplied under this order will be Subject to approval by VSSC after Installation & Commissioning, as per technical specifications & Scope of supply.	Yes / No / Explain	
5	Safety and Quality Standards: Supplier should ensure that safety and quality of the system and its accessories shall conform to international standards. Conformance certificate must be provided by the firm along with the equipment.	Yes / No / Explain	
6	Packing: The Supplier shall provide faultless seaworthy packing of the goods as is required to prevent their damage or deterioration during transit to their final destination	Yes / No / Explain	
7	Security Deposit as applicable	Yes / No / Explain	
8	PBG and LD clause as applicable	Yes / No / Explain	
9	Delivery Schedule: Best possible delivery schedule should be indicated in the technical offer.	Yes / No / Explain	
10	Annual Maintenance Contract: The vendor must be willing to undertake annual maintenance contract for minimum 3 years beyond the period of warranty. Cost for AMC per year should be mentioned separately in the price bid.	Yes / No / Explain	

11	Warranty: The firm has to provide two years comprehensive on-site warranty for the main equipment's and accessories. Any software updates as well as technical requirements / problems need to be supported during the warranty period.	Yes / No / Explain	
12	Training: All costs related to travel, accommodation, food, transportation during installation, training and subsequent tests must be borne by the vendor.	Yes / No / Explain	
13	Training: This would include Basic training on Laser diode operation, FOC coupling procedure, measurement/acquisition of data during test, instructions for routine and periodical maintenance, handling of error messages and trouble shooting.	Yes / No / Explain	
14	Training on Operation, Trouble shooting & Maintenance: Detailed and cost free training for VSSC Engineers on the use of the systems should be provided by supplier at VSSC, Trivandrum	Yes / No / Explain	
15	Final inspection and Acceptance: The equipment supplied under this order will be Subject to approval by VSSC after Installation & Commissioning, as per technical specifications & Scope of supply.	Yes / No / Explain	
16	Capital equipment insurance: The equipment is to be insured by the party to cover the total interest, including VSSC's interest, till such time the equipment is handed over to VSSC after the commissioning.	Yes / No / Explain	
17	VENDOR ELIGIBILITY CRITERIA: Vendors should have supplied the same item to reputed Laboratories/organisations. Vendor must provide a list of their customers holding the same system along with details of their contact.	Yes / No / Explain	
18	VENDOR ELIGIBILITY CRITERIA: Only OEMs or their authorized dealers should be eligible for submitting offer. Authorized agents shall provide an Authorization Letter from OEM (certification of authorization) along with TECHNICAL BID	Yes / No / Explain	

19	Taxes and other costs, if any . [Note: VSSC is a Public Funded Research Institution under the administrative control of Department of Space and is eligible for partial exemption of IGST @5% vide Notfn No. 45/2017, 47/2017 dt 14.11.2017 respectively. Necessary IGST EXEMPTION CERTIFICATE shall be issued.]	Yes / No / Explain	
20	Security Deposit (Applicable if Offer Value is Rs. 5 Lakhs or above. MSME/NSIC Units are NOT EXEMPTED from the payment of SD. Bank Guarantee @ 3% of Order Value valid till 60 days from the date of supply to be submitted. Mandatory compliance required. Only Government Bodies/PSUs/PSEs can submit Indemnity Bond in lieu of BG. In the event of non-performance of contractual obligations, SD will be forfeited).	Yes / No / Explain	
21	Delivery Terms.	Yes / No / Explain	
22	Delivery Period	Yes / No / Explain	
23	Liquidated Damages (Applicable beyond the delivery period mentioned in this tender @ 0.5% per week or part thereof on the undelivered portion subject to a maximum of 10% of the contract value. Mandatory compliance required).	Yes / No / Explain	
24	Warranty (Comprehensive Warranty for a period of min. 2 years from the date of installation and acceptance).	Yes / No / Explain	
25	Performance Bank Guarantee (PBG) Bank Guarantee @ 3% of Order Value valid till the completion of warranty period plus 2 months claim period to be submitted. Mandatory compliance required. Only Government Bodies/PSUs/PSEs can submit Indemnity Bond in lieu of BG. In the event of non-performance of warranty obligations, PBG will be forfeited).	Yes / No / Explain	

26	Payment Term: (Our Defalut payment term: For indigenous orders: 100% within 30 days after receipt, installation, commissioning and acceptance of item at our site. NOTE: CONSEQUENT TO COVID 19 PANDEMIC AND AS PER EXTANT GUIDELINES FROM DEPARTMENT OF SPACE, NO ADVANCE PAYMENT IS PAYABLE TO THIS TENDER).	Yes / No / Explain	
27	Definitions: A supplier or service provider, whose goods, services or works offered for procurement, has local content: a)Equal to or more than 50% : Class-I local supplier. b)More than 20% but less than 50% : Class-II local supplier. c)Less than or equal to 20% : Non-local supplier. Mention your category.	Yes / No / Explain	
28	Local content means the amount of value added in India (i.e. indigenous items/services added in the offered products/services/works) be the total value of the item offered (excluding net domestic indirect taxes) minus the value of imported content in the item (including all customs duties/IGST) as a proportion of the total value (excluding net domestic indirect taxes), in percent. Indicate extent of Minimum Local Content in offered product/service and location of such value additions.	Yes / No / Explain	
29	The Class-I & II local supplier should provide a Self Certification along with your offer in PDF format indicating that the item offered meets the minimum local content as called for in the tender as mentioned above and provide the % of local content along with details of the location(s) at which the local value addition is made. In case of two part tenders, it is mandatory to indicate compliance to MLC(minimum local content) in technical bid itself. Confirm attachment of Self declaration along with the offer.	Yes / No / Explain	
30	PO Placement Address (with Name and Contact Details of sales person concerned).	-	
31	Any Other Terms	-	

32	Acceptance to provide Non Comprehensive AMC for a period of 3 (three) years for the systems after the completion of warranty period. AMC cost shall only be mentioned in the specific slot in the Price Bid.	Yes / No / Explain	
33	List of Essential Spares for the troublefree operation of the equipment for a period of 5 years after warranty period to be uploaded (without price details). Details of optional spares may also be provided (price masked).	Yes / No / Explain	
34	Please upload a compliance matrix vis-a-vis the technical specification of the tender (failing to which the offer will be rejected).	Yes / No / Explain	
35	Please ensure that NO DOCUMENTS WITH PRICE DETAILS ARE UPLOADED. Only unpriced bids (prices masked) shall be uploaded. Price details shall only be mentioned in the price bid. Uploading documents that reveal the price details will lead to rejection of tender.	Yes / No / Explain	
36	Based on the offer value, you are supposed to provide a declaration of local content. Details in Tender Notice.	Yes / No / Explain	
37	Please note: Only Class-I Local Supplier/Class-II Local Suppliers are permitted to quote. The offer shall be in INR only. Bids from Foreign OEMs/Agents of behalf of OEMs and offers on High Sea Sales basis are not allowed. Please mention the category of the bidder.	Yes / No / Explain	

C.3 Price Bid

Sl. No.	Item	Quantity	Unit Price	Currency	Total Price	Remark
1	High Power LASER Systems with accessories as per list of components in specifications	1.00 Sets		-		

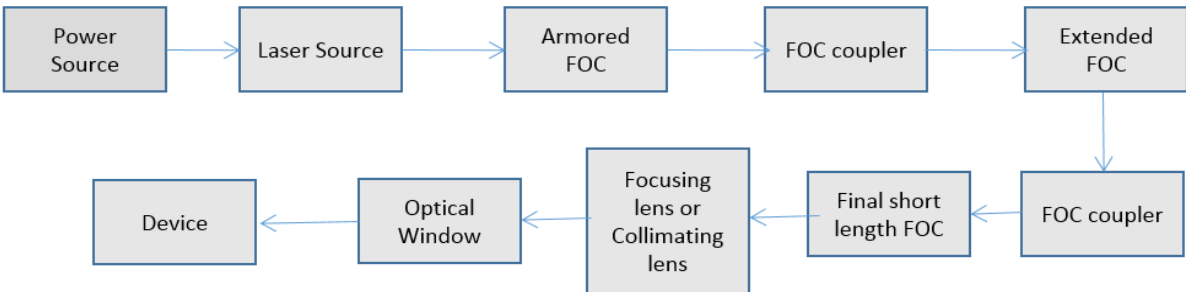
Common charges (Applicable for all items)

Annual Maintenance Contract Charges	
--	--

Optional Spares Cost (lumpsum)	
Any Other Charges	
Essential Spares Cost (lumpsum)	
Packing and Forwarding Charges	
Freight charge	
Installation & Commissioning Charges	

ANNEXURE-I: Specification Sheet

Technical Specification for Laser Diode System and Accessories

Sl. No.	Technical Specification	Quantity	Vendor's Compliance	Remarks
	Introduction			
	<p>Laser diode with control system coupled with Fiber Optic cable (FOC) is the system required for heating of a surface for short period of time. This system requires Laser diode, cable couplers, suitable lenses to transfer the energy to our device with minimum loss. To achieve the goal of heating a surface for specific time, following is the proposed optical line for energy transfer (refer schematic as shown in figure1)</p> <ul style="list-style-type: none"> > CW Laser diode (with driver unit operating in pulsed mode with variable power and pulse width) > Armored FOC attached with Laser Diode (intended to be fixed and used throughout the operational life cycle) > Fiber optic cable coupler (with minimum losses, to transfer the power to next FOC) > Extended FOC (Intended to transfer the power from diode and armored FOC to a device kept at distance) > Fiber optic cable coupler (SMA 905 type with minimum losses, to transmit power to from one FOC to next FOC) > Final Short Length FOC (intended to be connected with surface heating device) > Focusing lens and Collimating lens system with SMA-905 connector on one end and threaded interface on other side (Intended to focus or collimate the light from Final FOC onto a fixed area) > Optical Window before the device (to provide sealing of gases from the device) > Our device (will be fixed with threaded interface of focusing or collimating lens system for surface heating) 			
	 <pre> graph LR PS[Power Source] --> LS[Laser Source] LS --> AFOC[Armored FOC] AFOC --> FOC1[FOC coupler] FOC1 --> EFOC[Extended FOC] EFOC --> FOC2[FOC coupler] FOC2 --> FSFOC[Final short length FOC] FSFOC --> FLCL[Focusing lens or Collimating lens] FLCL --> OW[Optical Window] OW --> D[Device] </pre>			
	Figure 1: Schematic for working of laser diode system			

Sl. No.	Technical Specification	Quantity	Vendor's Compliance	Remarks
01	Laser diode unit with armoured FOC : 1 No		Provide Catalogue	
	1.1	Output Optical Power (CW and Pulsed with Duty Cycle) - 0.5W to 40W (minimum)		
	1.2	Steps of optical power- 0.1W to 0.5W (maximum)		
	1.3	Centre wavelength - Between 800-850 nm		
	1.4	Maximum spectral bandwidth- (± 20 nm)		
	1.5	Pulse width (for pulsed mode) - 1ms to 50 ms in steps of 1ms		
	1.6	Visible Pilot laser for alignment - Less than <2mW		
	1.7	Compact Laser Diode Driver for above Laser Diode (built-in): 1. Current: Should be displayable 2. Temperature: Should be displayable for ensuring wavelength within spectral bandwidth 3. Output power (programmable) - 40W (in steps of 0.5W maximum) A suitable control software on a Laptop (part of part of Control System) attached to the Laser Driver unit through USB should have the following things programmable:		
	1.7.1	Pulse width (programmable) - 1ms to 50 ms in steps of 1ms (maximum)		
	1.7.2	Number of pulses or frequency (programmable)		
	1.8	Trigger: The system should accept input trigger for starting the driving unit. The laser source must provide an external trigger at the start of lasing. The lasing starting time has to be explicitly mentioned for our use.		
	1.9	Trigger input and output - Amplitude trigger level and pulse width to be specified		
	1.10	Input Voltage : 1 Phase 240 VAC (±10%) / 50 Hz (Indian Standards)		
	1.11	Operating Temperature: 15-35° C		
	1.12	Cooling Requirements: Air cooled		
02	Laser diode Output LASER Diode should have high quality armored FOC with SMA-905 connector. The party should explicitly mention their scheme of attaching the Laser diode to the armored FOC. Things to be ensured from the output of armored FOC			
	2.1	Minimum output power : 40W		
	2.2	Numerical Aperture of FOC : < 0.22		
	2.3	Profile of beam : To be specified		

Sl. No.	Technical Specification		Quantity	Vendor's Compliance	Remarks
03	Fibre Optic Cables (FOC): Suitable for above mentioned wavelength and power				
	3.1	Length: 10m (core dia: 200µm)	2 Nos		
	3.2	Length: 2m (core dia: 200µm)	10 Nos		
	3.3	Length: 2m (core dia: 400µm)	4 Nos		
	3.4	Fibre core material - Quartz/Silica			
	3.5	Fibre NA - less than 0.22			
	3.6	Attenuation - less than 10dB/Km			
	3.7	Termination for optical fibres - SMA 905 at both ends. Suitable Fiber Tip Cleaning and Inspection Tool Shall be supplied alongwith			
04	SMA-905 Fiber Optic Cable Coupler: Suitable for connecting two FOCs <i>The power loss at the fiber connection joint should be less than 10 %</i>		10 Nos		
05	Focusing and Collimating system: This hardware should consist of lens system to provide collimation and focusing separately and should receive the FOC through SMA-905 connector. The scheme for focusing lens and collimating lens should be explicitly mentioned and catalogue must be attached)		2 Nos each		
	5.a	Focusing system with SMA-905 connector on one side and threaded interface on other side - Suitable for center wavelength. Focal length of 5mm approx. (power loss through focussing system should be less than 10%)			
	5.b	Collimating system with SMA-905 connector on one side and threaded interface on other side: Collimation lens should give a beam diameter of not more than 0.4 mm (power loss through collimation system should be less than 10%)			
06	Power Meter and Energy Meter		1 No		
	6.1	Spectral Range (min) - 0.80- 1.0 µm			
	6.2	Maximum Noise equivalent power - 5 mW			
	6.3	Linearity with power - ±2% or better			

Sl. No.	Technical Specification	Quantity	Vendor's Compliance	Remarks
	6.4	Power accuracy - $\pm 5\%$ or better		
	6.5	Maximum Power - 40W CW type		
	6.6	Repeatability - $\pm 1\%$		
	6.7	Cooling -- Proper cooling to be provided		
	6.8	Interface Adaptor for connecting SMA 905 FOC to power-meter: 1 No		
	6.9	Read/control of power-meter should be directly from control laptop should be available through USB: Control and Monitoring software for power-meter should be pre-installed in the Laptop and a copy must be supplied in separate Media Kit.		
07	Sapphire Optical Window- 8mm Dia and 3mm thick, with minimum of 85% transmittance for 800-850nm light	10 Nos		
08	Control and Monitoring System	1 No		
	Control laptop from reputed make (Dell, HP, Lenovo etc.) : Core i5 (latest generation), minimum 8 GB RAM, 250 GB SSD, 1 GB Graphics card, with minimum 15.6 inch screen, 64 bit Windows 10 with all required USB 3.0 ports and any required adaptors for connection with diode drivers.			
09	Operating and service manuals for all modules - Shall be provided by manufacturer:	All the measurement data and dimension in drawings should follow SI /Metric unit system. The manual shall contain instructions or guidelines in English with details on I. General information about system i.e. hardware / software II. Instructions for fixing / mounting i.e. readying the system for measurements III. Calibration procedure, Performance calibration chart of and Calibration report of all digital data sensors IV. Instructions for operation i.e. Measurement / acquisition of data during test V. Instruction for routine and periodical maintenance VI. Error message manual & Trouble shooting manual VII. Complete list of parts with identification numbers and brief specifications VIII. Technical notes / application notes on the system. IX. design documents and design drawing		
10	Safety Goggles suitable for 800-850nm Wavelength	6 Nos		