

भारत सरकार/**GOVERNMENT OF INDIA**  
अंतरिक्ष विभाग/**DEPARTMENT OF SPACE**  
क्रय यूनिट-II/**PURCHASE UNIT-II**  
विक्रम साराभाई अंतरिक्ष केंद्र/**VIKRAM SARABHAI SPACE CENTRE**  
तिरुवनंतपुरम/**THIRUVANANTHAPURAM – 695 022**  
Tel: (0471) 2562425/2387  
email: pso3\_avn\_pur@vssc.gov.in, spo\_avn\_pur@vssc.gov.in

**EXPRESSION OF INTEREST / अभिरुचि की अभिव्यक्ति**

**No. VSSC/SR-QDAS/EOI/2023/001**

**Date: 13.02.2023**

**अभिरुचि की अभिव्यक्ति-** प्रचालनात्मक प्रमोचन यानों के लिए वीएसएससी तिरुवनंतपुरम में उप समुच्चयन तैयारियों एवं परीक्षण के दौरान एविओनिकी प्रणालियों की गुणता आश्वासन सेवा.

**EXPRESSION-OF-INTEREST FOR** “Quality Assurance Service of Avionics systems during Sub-Assembly preparations and Testing at VSSC Trivandrum for Operational Launch Vehicles”

इच्छुक प्रत्याशित निर्माता हमारे संदर्भ सं. **VSSC/SR-QDAS/EOI/2023/001** का उद्धरण करते हुए **13.03.2023 [16:00 Hrs.]** को या उससे पहले निम्नलिखित पते पर अपनी अभिरुचि की अभिव्यक्ति दे सकते हैं।

VSSC invites, EOI from prospective bidders for “**Quality Assurance Service of Avionics systems during Sub-Assembly preparations and Testing at VSSC Trivandrum for Operational Launch Vehicles**”. Interested parties may furnish their **Expression of Interest in Sealed Envelope** quoting our **Reference No. VSSC/SR-QDAS/EOI/2023/001** on or before **13.03.2023 [16:00 Hrs.]** to the following address:

वरि. क्रय एवं भंडार अधिकारी / Sr. Purchase & Stores Officer,  
क्रय यूनिट II /Purchase Unit- II,  
आरएफएफ क्षेत्र, इसरो पीओ/ RFF Area, ISRO. PO,  
तिरुवनंतपुरम/Thiruvananthapuram- 695022.  
फोन/Ph: 0471-256 2425/2055

नोट/Note :- मेक इन इंडिया नीति के अनुसार केवल श्रेणी-I तथा श्रेणी-II के स्थानीय आपूर्तिकार इस बोली में भाग लेने हेतु पात्र हैं। / **Only Class-I and Class-II Local suppliers as per Make in India policy are eligible to participate in the bid.**

EOI documents are available at our website [www.isro.gov.in](http://www.isro.gov.in) and [www.vssc.gov.in](http://www.vssc.gov.in).

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



Government of India  
Department of Space  
**Vikram Sarabhai Space Centre**  
Indian Space Research Organization  
Thiruvananthapuram-695022  
Kerala

**No. VSSC/SR-QDAS/EOI/2023/001**

**Date: 13.02.2023**

**INVITATION FOR EXPRESSION-OF-INTEREST**

Vikram Sarabhai Space Centre (VSSC), Thiruvananthapuram invites Expression-Of- Interest (EOI) from vendors for **"Quality Assurance Service of Avionics systems during Sub-Assembly preparations and Testing at VSSC Trivandrum for Operational Launch Vehicles"** for a period of 2 years extendable for another one year, based on performance and review and on mutual consent. Scope of work is to provide Quality Assurance (QA) service for avionics systems of electrical subassemblies of PSLV, GSLV and LVM3 in VSSC by the VENDOR during subassembly checkout T&E, subassembly electrical testing, vibration flight acceptance testing and mission simulation activities which will be carried out at different VSSC facilities located in VRC/Veli, ICF/TERLS Thumba &VMC Valiamala.

The scope of work shall broadly include providing QA services in VSSC

- Audit of production files of identified avionic packages
- Test result audit of identified avionics packages
- QA activities prior to electrical checks
- Test & evaluation of the subassembly checkout
- Online surveillance during subassembly electrical checks
- Analysis of test data during electrical checks and subassembly Vibration Flight Acceptance testing
- Mission simulation data analysis
- Flight battery preparation data verification
- Assessment report preparation and presentation to review forums.

Interested Vendors having adequate experience in the area of testing of avionics packages / avionics sub-assemblies or quality assurance of avionics packages / avionics systems in aerospace & defense area are invited to participate in the Expression-Of-Interest. On receipt of EOI, VSSC shall evaluate and assess the suitability prior to short-listing of Vendors. This call for EOI does not carry with it any guarantee for allotment of contract.

EOI document can be downloaded from website [www.isro.gov.in](http://www.isro.gov.in) and the same shall be submitted within the due date and time. **"Expression of Interest"** with all essential information shall reach the **Senior Purchase and Stores Officer, Purchase Unit II, Vikram Sarabhai Space Centre, ISRO Post, Thiruvananthapuram 695022, Kerala**, on or **before 13.03.2023, 16.00hrs**. This EOI is issued as a "Pre-Bid Qualification". Inadequate or incomplete information will result in rejection of the offer. VSSC reserves the right to accept or reject all or any of the EOI. Mere compliance to the EOI terms does not guarantee further consideration for vendor qualification. **A Pre-bid meeting is scheduled on 24.02.2023 at 2:00 PM at PRO Conference Hall, VSSC and interested bidders can take part in the meeting.**

**Senior Purchase and Stores Officer,  
Purchase Unit II,  
Vikram Sarabhai Space Centre,  
ISRO P.O,  
Thiruvananthapuram - 695022  
Kerala State**

**INVITATION FOR EXPRESSION-OF-INTEREST**  
**FOR QUALITY ASSURANCE SERVICE OF AVIONICS SYSTEMS**  
**DURING SUBASSEMBLY PREPARATIONS AND TESTING AT VSSC**  
**TRIVANDRUM FOR OPERATIONAL LAUNCH VEHICLES**

**A: Attention to bidders:**

1. The EOI document shall be carefully read and all points shall be duly addressed.
2. EOI responses with incomplete/insufficient supporting data shall not be considered further. No further correspondence shall be entertained with respect to this.
3. Bidders can contact/visit VSSC/ISRO with prior appointment from Sr. Purchase & Stores Officer, Purchase Unit-II, Main Purchase, RFF Area, VSSC, ISRO.PO, Thumba, Thiruvananthapuram - 695022 for any clarifications/discussions. Contact Phone No: 0471-2562425. Email id: spo\_avn\_pur@vssc.gov.in

**Preamble**

Vikram Sarabhai Space Centre (VSSC) is the lead Centre of Indian Space Research Organisation (ISRO) that specializes in the design and realization of satellite launch vehicles. To meet the increasing demand of launches, ISRO has decided to look forward to participation of private industries for providing Quality Assurance (QA) services for avionic systems during subassembly preparation and testing. This includes both avionics package level and subassembly level QA activities. QA services of avionic packages include audit of production files and test results of identified avionics packages. Subassembly QA services include test & evaluation of the subassembly checkout, QA activities prior to electrical checks, online surveillance during electrical checks, analysis of test data, mission simulation data analysis, flight battery preparation data verification, assessment report preparation and presentation to review forums.

VSSC invites Expression of Interest from VENDORS to provide QA services of subassembly avionic systems of operational launch vehicles PSLV, GSLV & LVM3 during subassembly preparation and testing at VSSC facilities at VRC/Veli, ICF/TERLS and VMC/Valiamala, Trivandrum in "Government Owned Company Operated (GOCO) mode". Avionics packages comprise onboard computers, sequencing packages, control electronics packages, telemetry, tracking, RF, vehicle interface packages and sensors. Avionics subassemblies consist of Equipment Bay, Interstage subassemblies, Core base shroud, Nose cone deck, Heatshield etc. There are 6 electrical subassemblies for PSLV, 9 electrical subassemblies for GSLV and 5 electrical subassemblies for LVM3.

The contract will have provision for constitution of a Contract Management Committee (CMC) comprising members from VSSC & VENDOR for overseeing execution & implementation of the contract provisions and also to manage the activities effectively.

The annual workload is based on the launch manifesto for the next two years. Launch of 10 PSLV, 4 GSLV and 4 LVM3 missions are expected during the next 2 year tenure. However, in order to meet the dynamic project needs during the course of execution of this contract, it

is envisaged to have flexible provisions in the contract where the quantity of work requirement may be increased or decreased.

QA service activities shall be carried out at various facilities of VSSC as per the approved checklists and guidelines. All the documents required for carrying out the QA service activities will be provided by VSSC.

### **Scope of work**

Scope of work is to provide Quality Assurance (QA) service for avionics systems of electrical subassemblies of PSLV, GSLV and LVM3 in VSSC by the VENDOR during subassembly checkout T&E, subassembly electrical testing, vibration flight acceptance testing and mission simulation activities which will be carried out at different VSSC facilities located in VRC/Veli, ICF/TERLS Thumba &VMC Valiamala.

The scope of work shall broadly include providing QA services in VSSC

- Audit of production files of identified avionic packages
- Test result audit of identified avionics packages
- QA activities prior to electrical checks
- Test & evaluation of the subassembly checkout
- Online surveillance during subassembly electrical checks
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- Mission simulation data analysis
- Flight battery preparation data verification
- Assessment report preparation and presentation to review forums.

In the event of any Observation / Deviation/ Failure in test results from the specifications, the matter shall be reported to departmental focal point in real time. An Observation / Deviation / Failure note is required to be made by the VENDOR. The VENDOR shall participate in subsequent Failure Analysis Board (FAB)/ Review meetings to explain the Observation/ Deviation/ Failure details and also shall involve in failure analysis if required. Clearance for further proceedings shall be done only as per the direction of FAB/Review forums. Payment for hold time if any due to the above reasons or facility related issues shall be decided by CMC.

The detailed list of QA services to be provided by VENDOR is given in Annexure-2. The approximate duration of each activity (in work units) for one PSLV/GSLV/LVM3 is given in Annexure-3.

Non subsidised canteen facility will be provided by VSSC. Transportation facility will not be provided by VSSC.

The VENDOR's work force shall be conversant with essential avionics QA activities including use of software tools such as Easyplot/Mplot for data analysis. Those who have already executed similar work either for VSSC or for other Government Organizations will be given preference.

VSSC reserves the right to assess the suitability of the persons deployed by the VENDOR initially as well as on a continuous basis, for carrying out the work as per the standards required for the QA service of avionics subassemblies. VSSC can demand for suitable replacement or enhancement if required. The QA service shall be carried out exactly as per

the guidelines provided by VSSC. On job training will be provided by VSSC for first TWO subassemblies. VENDOR shall ensure that the work is done only by personnel trained for the particular activity. If deployment of fresh manpower due to discontinuation of trained manpower takes place, the responsibility of training the new entrant will be with VENDOR. The VENDOR shall have an HR policy for retaining trained personnel.

Suitable insurance for the contract team covering all the exigencies have to be taken by the VENDOR for the full contract period as per the government norms. Documentary proof for the same has to be submitted to the department before engaging the team. Insurance renewal will be the responsibility of VENDOR.

The VENDOR's work force shall be provided with necessary initial training on safety practices and shall ensure compliance to safety regulations. Also the VENDOR and their team shall abide by the Indian Official Secrets Act in vogue and shall provide information of awareness of the above in writing.

The work force shall be first class Graduate Engineers (BTech/BE in Electronics) who work as a team under a technical supervisor provided by VENDOR). 50% of the work force shall be with ONE year minimum prior experience in related activities.

#### **Duration**

It is envisaged that the contract shall be for a tenure of **TWO** years and extendable for another **ONE** year, based on performance and review and on mutual consent.

#### **Payment terms**

Payment shall be made monthly on the basis of work units completed for each subassembly.

#### **Call for EOI**

VENDORS with sound financial background desirous of long-term partnership with ISRO are invited to participate in the Expression-Of-Interest with supporting documents for these credentials. They shall also have a team of qualified and skilled technical personnel with commitment. On receipt of EOI, VSSC will evaluate and assess the suitability prior to short-listing of VENDORS. This call for EOI does not carry with it any guarantee for allotment of contract.

EOI document can be downloaded from website [www.isro.gov.in](http://www.isro.gov.in) and the same shall be submitted within the due date and time. "Expression of Interest" with all essential information shall reach the Senior Purchase and Stores Officer, Purchase Unit II, Vikram Sarabhai Space Centre, ISRO Post, Thiruvananthapuram 695022, Kerala, on or before..... This EOI is issued as a "Pre-Bid Qualification". Inadequate or incomplete information will result in rejection of the offer. VSSC reserves the right to accept or reject all or any of the EOI. Mere compliance to the EOI terms does not guarantee further consideration for qualification.

Senior Purchase and Stores Officer,  
Purchase Unit II,  
Vikram Sarabhai Space Centre,  
ISRO P.O.,  
Thiruvananthapuram - 695 022

**Confidentiality**

All documents, information and any item related to the sub-assemblies being tested or the test procedures involved that are received from VSSC shall be kept confidential and shall not be tampered with or disclosed to third parties without explicit written permission from VSSC/ISRO.

**Criteria for VENDOR Selection**

1. VENDORS registered within India only need to participate in this EOI
2. Profile of the company- Companies registered under Indian Companies Act 1956/2013 only will be considered.
3. The company should have been in existence for a minimum period of FIVE years prior to the date of EOI.
4. VENDOR shall have at least THREE years experience in the area of testing of avionics packages / avionics sub-assemblies or quality assurance of avionics packages / avionics systems in aerospace & defence area
5. Minimum turn over of the VENDOR for the previous financial year shall be Rs.5.00 Crores
6. Similar experience in Quality Assurance activities either in Space sector or in Defence sector of aerospace will be an added advantage.
7. In line with the Third party Quality Assurance philosophy being practiced by VSSC, VENDOR who is currently executing assembly, integration and testing activities of ISRO launch vehicles will not be considered

**Processing of EOI proposals**

1. The interested VENDOR shall be required to prepare and submit an EOI to VSSC with the following documentation details.
  - Profile of the company and the details of registration under Indian Companies Act 1956/2013.
  - GST Registration and PAN details
  - Staff strength with relevant skill set, and hierarchy of organisation
  - Engineering skills
  - Financial statement (balance sheets/ income tax statements/ITR) for the last three years.
  - Details of Purchase Orders executed for similar nature of work in the last five years.
  - ISO certification details if applicable

2. For parties who have executed similar ISRO contracts/ other government contracts previously, necessary documentary evidences shall be attached with the EOI
3. VENDOR shall submit the EOI with all technical details duly filled in the Compliance Matrix attached with the EOI (Annexure -1). Incomplete/insufficient data in the Compliance Matrix shall be considered as a disqualification. In addition, if the technical details provided were found incorrect at a later stage, the VENDOR shall get disqualified.
4. Technical competence and other inputs furnished by the parties will be evaluated by a committee constituted by VSSC to short list the VENDORS (Ref. Section. Criteria for VENDOR Selection)
5. Short listed VENDORS from the EOI only shall be allowed to participate in further tendering process through Request For Proposal (RFP). The decision of VSSC shall be final and binding.
6. If required, an audit of the industry will be carried out by VSSC team prior to shortlisting
7. Pre bid meeting is planned on 24/02/2023, 2pm at PRO Conference Hall VSSC for the interested VENDORS

#### **Mode of Tendering & Final selection**

- VENDORS responding to EOI, will be shortlisted based on the above factors
- A Request for proposal (RFP) in two parts – technical & commercial will be prepared by VSSC and will be issued to shortlisted parties. RFP will give more details regarding QA services of sub-assemblies and other terms & conditions.
- RFP document is made in two parts - Technical & Commercial. Technical part gives the details of all subassembly related activities which helps the interested parties to get a very good understanding about the work content expected of them.
- Commercial part addresses the general commercial terms, work units (man hour) rates, schedule, format for quote, payment terms etc.
- VENDOR has to make quotation in two parts -Technical & Commercial. The Technical& Commercial Bids from the VENDORS will be evaluated by the Technical Committee constituted by VSSC and will be short listed based on the merits of the proposal and the capability of the VENDORS for providing QA services as per VSSC requirement.
- The final decision will be the prerogative of VSSC based on its own experience, wisdom and judgment and such decision shall be final and binding on all.

<b>Annexure-1: Compliance Matrix</b>				
<b>Sl No.</b>	<b>Parameters</b>	<b>Compliance</b>	<b>Response</b>	<b>If Yes attach relevant details</b>
1.	Company Registration	Is company registered under company act 1956/2013?	Yes/No	
2.	GST & PAN	Is company is having GST & PAN registration	Yes/No	
3.	Company existence	Whether company is in existence for a minimum period of FIVE years prior to the date of EOI	Yes/No	
4.	Company Experience	Have company own a minimum THREE years experience in the area of testing of avionics packages / avionics sub-assemblies or quality assurance of avionics packages / avionics systems in aerospace & defence area	Yes/No	
5.	QA Certification	Is company a certified quality assurance provider?	Yes/No	
6.	Attention to VENDORS	Ensure VENDOR has read completely.	Yes/No	
7.	Scope of work	Whether clearly understood?	Yes/No	
8.	Confidentiality	Whether clearly understood and comply with?	Yes/No	
9.	Criteria for scrutiny of EOI proposals	Whether clearly understood and comply with?	Yes/No	
10.	Past experience in executing ISRO/Govt contracts	Whether VENDOR has executed ISRO/government contracts? If yes, provide details	Yes/No	
		Whether blacklisted by Govt./PSU?	Yes/No	
11.	Financial stability	Whether VENDOR is financially stable or not? If yes, provide details of last 3 years balance sheets / income tax statements	Yes/No	
12.	Minimum Turn over	Does VENDOR have a minimum turnover of Rs.5.00 Crores for the previous financial year	Yes/No	
13.	Company Brochure	Does the company have a Brochure?	Yes/No	

All are mandatory details. If details are not provided, offer will be rejected.



<b>Annexure-2: List of QA Services to be provided</b>	
a.	Checkout T&E of subassembly checkout & Preparation of assessment report for T&E review committee
b.	Harness changes verification wherever applicable
c.	Signal conditioner gain allocation verification
d.	Gain allocation verification of small signal conditioners
e.	Structural measurement unit channel gain allocation verification
f.	Telemetry format review
g.	Production file audit of identified avionics packages
h.	Assessment of package T&E reports against the requirements, for Phase-1 electrical checks
i.	Preparation of assessment report for commencement of Phase-1 electrical checks and assessment to review committee
j.	T&E of signal conditioner calibration test station
k.	Online surveillance during Phase-1 electrical checks
l.	Ambient Verification & Data analysis of Phase-1 electrical checks & Presentation of deviations to appropriate forums
m.	Preparation of assessment report after Phase-1 electrical checks
n.	Scale factor verification
o.	Online surveillance during vibration FAT checks
p.	Ambient verification & Data analysis of vibration FAT checks
q.	Preparation of assessment report after vibration FAT checks
r.	Pyro chain verification
s.	Battery formation data verification & report generation for Li-Ion & Ag-Zn
t.	Mission simulation data verification and preparation of assessment report
u.	Consolidation of failures and non conformances occurring during electrical checks and its updation in database
v.	Presentation of assessment reports of Checkout T&E, Phase 1 electrical checks and vibration FAT to review committee
w.	Presentation of battery formation assessment reports to Battery Review Committee
x.	Presentation of QA assessment report of mission simulation activity
y.	Uploading of all reports mentioned above to data base

<b>Annexure-3: Mission Activities - Work Units *</b>				
SI No.		PSLV	GSLV	LVM3
1	Harness changes verification	10	10	10
2	Checkout T&E & report generation	25	30	30
3	Signal conditioner gainallocation verification	5	4	3
4	Small Signal conditioner/ Structural measurement unitgain allocation	2	3	3
5	Telemetry format review	7	7	5
6	Production file audit	63	73	75
7	QA assessment of packages for phase-1 checks	10	14	12
8	Preparation of Assessment report to review committee prior to Phase-1 checks	4	5	3
9	T&E of signal conditioner calibrationtest station etc	2	2	2
10	Online surveillance during Phase-1 checks	50	82	70
11	Data analysis of Phase-1 checks	12	17	15
12	QA report preparation for review committee after Phase-1 checks	6	8	6
13	Review Committee after Phase-1 checks	4	5	3
14	Scale factor verification	15	26	20
15	QA surveillance during vibration checks	18	13	24
16	Data analysis of vibration checks	9	7	11
17	QA report preparation for review committee after vibration checks	5	5	6
18	Review Committee after vibration	4	3	3
19	Pyro chain verification	4	4	4
20	Battery assessment & report generation for Li-Ion & Ag-Zn	3	3	3
21	Mission Simulation Activity – OILS/HLS/ALS	30	25	25
22	FA and NC consolidation	8	8	8
23	Updation of reports in data base	8	8	8
<b>Total work units for one PSLV/GSLV /LVM3</b>		<b>269</b>	<b>322</b>	<b>309</b>

\*One work unit is approximately 8 hours of work of an Engineer

## Abbreviations

Ag-Zn	Silver Zinc
ALS	Actuator in Loop Simulation
CMC	Contract Management Committee
FA	Failure Analysis
FAB	Failure Analysis Board
FAT	Flight Acceptance Testing
GSLV	Geosynchronous Satellite Launch Vehicle
HLS	Hardware in Loop Simulation
HR	Human Resource
ICF	Integration & Checkout Facilities
Li-Ion	Lithium Ion
LVM3	Launch Vehicle GSLV MkIII
NC	Non Conformance
OILS	Onboard In Loop Simulation
PSLV	Polar Satellite Launch Vehicle
QA	Quality Assurance
RF	Radio Frequency
RFP	Request For Proposal
T&E	Test and Evaluation
TERLS	Thumba Equatorial Rocket Launching Station
VMC	Valiamala Complex
VRC	Veli Research Complex