

**GOVERNMENT OF INDIA
DEPARTMENT OF SPACE
LIQUID PROPULSION SYSTEMS CENTRE
VALIAMALA, TRIVANDRUM 695547, KERALA
PURCHASE & STORES**

Ph No: 0471-2567 726/813/317/319
Fax +091-0472-2800712,0471-2567305

Date :27/09/2017

INVITATION TO TENDER

M/s

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Our Ref No : 01CS 2016-029261-01

Tender Due: 16:00 Hrs IST on 19/10/2017

Dear Sirs,

Please submit your sealed quotation , in the Tender Form enclosed here along with the descriptive catalogues / pamphlets /literature ,superscribed with Our Ref.No. and Due Date for the supply of the following items as per the terms & conditions mentioned in Annexure(Form No:)

S.No.	Description of Items with Specifications	Unit	Quantity
1	WORK PACKAGE FOR FOLLOWING ACTIVITIES IN LPSC,VALIAMALA : 1. Fabrication of Electronic Systems		
2	Technician	MM	360
	Technical Assistant	MM	108
3	Engineer	MM	36
4	2.Parts Management of Electronics Systems : Technician	MM	36
	Technical Assistant	MM	36
5	3.Testing of Electronics Systems : Technical Assistant	MM	432
6	Engineer	MM	144

DELIVERY AT: LPSC VALIAMALA

MODE OF DESPATCH ON SITE

DUTY EXEMPTIONS

SPECIAL INSTRUCTIONS NIL

SPECIFIC TERMS

INSTRUCTIONS TO TENDERERS:

1. Terms and conditions as per Annexure-1 and RFP for Sl.Nos. 1,2 & 3 Attached as Annexure-II
3. Period of Work Package: 3 years.
4. Instruction to Two Part Tenders as Annexure-III and General Terms and conditions as Annexure-IV
5. Fax/email quotations will not be considered.
4. A compliance sheet attached as annexure -V shall be duly filled in and sent along with the offer without fail.

Each vendor has to give the following.

1. Name and Address of the vendor
2. Compliance to be filled by the vendor

Sl.No	Item	Compliance
I	Has the vendor executed the following in ISRO Centres or in any reputed industry.	
1	Aerospace quality PCB wiring	
2	integration of Electronic Modules.	
3	Circuit simulation using software Pspice/Orcad	
4	Electromagnetic component realization like winding of transformers and inductors.	
5	Preparation of mechanical drawings using Autocad.	
6	DC motor brush soldering	
7	DC motor testing	
8	Preparation of PCB layout design using software.	
9	Vacuum Test Facility operation and maintenance.	
II	Availability of Manpower- Qualification requirements.	
1	VSSC soldering school passed technicians with apprenticeship certificate.	
2	Experienced Technical Assistants with apprenticeship certificate.	
3	Trained engineers for simulation of circuits and coding in C/VHDL.	
III	General requirements	
1	Whether the vendor has a good quality Management system.	

3. Details of previous work carried out by the vendor.
4. Additional information if any, meriting the vendor performance.



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FABRICATION OF ELECTRONIC SYSTEMS

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REQUEST FOR PROPOSAL - 1 .

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LIQUID PROPULSION SYSTEMS CENTRE
INDIAN SPACE RESEARCH ORGANISATION
VALIAMALA, TRIVANDRUM-695 547



Document No	LPSC/ESG/RFP/01/2016	Control Status	Uncontrolled
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FABRICATION OF ELECTRONIC SYSTEMS

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REQUEST FOR PROPOSAL

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1.0 DEFINITIONS & ABBREVIATIONS

Wherever used hereinafter in this Request for Proposal, the following expressions /Abbreviations shall have the following meanings:

APPROVAL	Documents in the approval category require approval from Department, prior to implementation by the Contractor. Approval is understood to mean permission to proceed unlike otherwise specified.
CONTRACT	The agreement that will ultimately be entered into with the industry
CONTRACTOR	The industry / company who is ultimately entrusted with this work.
DEPARTMENT	President of India or his successors, representatives or assigns, in this case THE DIRECTOR, LIQUID PROPULSION SYSTEMS CENTRE, THIRUVANANTHAPURAM - 695 547.
ISRO	Indian Space Research Organization under the Department of Space
LPSC	Liquid Propulsion Systems Centre of Indian Space Research Organization, Department of Space, Government of India.
PARTY	The industry / company who is ultimately entrusted with this work.
FIM	Free issue material



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PCB	Printed Circuit Board
PSU	Public Sector Unit
CC	Configuration Control

2.0 **OPPORTUNITY AND OBJECTIVES**

LPSC is looking for competent organisations who can carry out aerospace standard electronic/electrical developmental fabrication like PCB wiring with both leaded and SMT components, electrical harnessing, and realisation of electromagnetic components.

This RFP gives information on the scope of electronics/electrical fabrication work to be carried out at LPSC campus. The activity also includes the interface management for fabrication of electronic modular thru external industry.

3.0 **SCOPE OF WORK**

3.1 **Wiring of PCB**

The activity includes component tinning, soldering, rework, connector wiring, hook soldering, lap soldering and harnessing. PCB Size: 300mm*300mm size and around 400 components.

3.2 **Wiring of test console**

Test Console wiring consists of connectors, jacks and terminations. One console wiring may be equated to one PCB wiring.

3.3 **Production of electronic module through external industry**

This activity includes component sorting, Preparation of FIMs and FIM supply to work centre, Preparation of production file, follow up and reporting non-conformances.

3.4 **Magnet coil realization & Electrical harness of electric thruster**

The magnet coil realization includes magnet coil bobbin preparation, coil winding, its encapsulation and electrical checks. Copper sleeve preparation, tinning, joint preparation, wire routing, connector wiring, shielding and encapsulation of each joint and electrical check are the activities involved in the Electrical harnessing of thruster.

3.5 **DC Motor Parts and fixture realization Activities**

The activities are preparation of brush leaf, brush attachment, and lead wire soldering. Also the required fixture drawing sketches preparation, realization of fixtures for motor realization are to be carried out. Different documents and drawings related to realization, process, and assembly procedures are to be prepared. Material despatches to external industry through stores are also to be coordinated. The activities related to brushless motor development and realization are also to be carried out.

3.6 **Realisation of electromagnetic components**


This activity includes core and winding wire selection, winding, potting and curing.

3.7 **Injection valve/ Actuator connector wiring**

This activity includes wire selection, end preparation, hook soldering, connector pin crimping and conformal coating.

3.8 **Autocad drawing preparation**

This activity includes preparation of AutoCAD 2D drawings for mechanical parts and electronic package chassis.

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Sl No	Activity	Qty
1	Wiring of developmental PCB	300
2	Wiring of test console	20
3	Production of electronic module through external industry	300
4	Magnet coil realization & Electrical harness of electric thruster	25
5	DC Motor Parts and fixture realization Activities	600
6	Realisation of electromagnetic components	200
7	Injection valve/ Actuator connector wiring	600
8	Autocad drawing preparation (mechanical)	200

4.0 **Man days estimate for each activity**

The man days is estimated for each activity per year based on the average work output of a qualified and 1 year / 5 years experienced person.

Item	Activity	Qty	Man days estimate /year					
			Technician		Technical Assistant		Engineer	
			Man days	Total	Man days	Total	Man days	Total
1	Wiring of PCB	300	8	2400	1	100	0	0
2	Wiring of test console	20	20	400	1	25	0	0
3	Production of electronic module through external industry	300	0	0	2	600	1	300
4	Magnet coil realization & Electrical harness of electric thruster	25	10	250	3	75	0	0
5	DC Motor Parts and fixture realization Activities	600	2	1200	1	30	0	0
6	Realisation of electromagnetic components	200	2	400	0.25	50	0	0
7	Injection valve/ Actuator connector wiring	600	1	600	0.25	75	0	0
8	Autocad drawing preparation (mechanical)	200	2	400	0	0	0	0
Total man days				5650		955		300
No. of persons required (Tentative)				10		3		1



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5.0 Competence of the contractor

The contractor should be able to execute the above mentioned activities at ESG/LPSC Valiamala .

The personnel deputed for the activities should have the following qualification & experience.

5.1 Qualifications of the persons

For Technician (Item 1-7) ITI in Electronic mechanic or instrument mechanic and pass in VSSC Soldering School. Person should have completed apprentice training in ISRO or PSU. Person should have min. one year PCB wiring experience in avionics packages at any of the ISRO centre.

For Technician (Item 8) ITI draughtsman mechanical. Person should have completed apprentice training in ISRO or PSU.

For Technical Assistant- Diploma in Electronics/ Electrical. Person should have completed apprentice training in ISRO or PSU. For item in Sl. No.4 Diploma holder in Electrical Engr. is essential. Person should have completed apprentice training in ISRO or PSU. Person should have min. one year testing experience in avionics packages at any of the ISRO centre or PSU.

For Engineer – B Tech in Electronics/Electrical. Person should have completed apprentice training in ISRO or PSU.

LPSC reserves the right to verify the conformance of the qualifications and other details mentioned above.

6.0 Guidelines to the tenders for price bid

6.1 Facilities and Equipments, will be provided at ESG/LPSC.

6.2 The term of the contract is for 3 years and hence the price quoted shall be for 3 years. In case of any exigencies, department can opt for extension of the contract for further period of 1-2 years, on mutually agreed terms.

7.0 Working arrangement and Number of Personnel


The contractor shall make his personnel available ON DEMAND to work at LPSC Valiamala during office hours from 8:45 hrs to 17:15 hrs for 6 days in a week. However, when required with the approval of the competent authority, they should be prepared to work during extended hours/holidays.

8.0 RESPONSIBILITIES

8.1 LPSC's responsibilities

LPSC shall:

Provide circuit diagrams, position diagrams, PCB and components for items 1&2, approved Configuration Controlled document and drawings, FIM for item no 3, harness diagram for item no 4 and fabrication sheet, core, winding wire, potting fixture and potting compound for item no 5.

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8.2 Contractor's responsibilities

The Contractor shall:

- Have adequate qualified and trained manpower to take care of activities 1 to 5.
- Be responsible for the safety of personnel and their belongings during the course of work. Department is not responsible for any loss in any manner.
- Ensure uninterrupted services. ie., in case of any absenteeism, the requisite number of personnel shall be replaced with skilled personnel from buffer.

9.0 Award criteria:

The work package will be awarded to the agency who is technically suitable and quoting the lowest rate per unit work.

10.0 Payment:

- 10.1** The payment to the contractor shall be made on completion of work as per the no. of units.
- 10.2** Payments will be made after submission of complete documents and invoice for the completed work.
- 10.3** Contractor should agree to all statutory guidelines.

11.0 General:

11.1 Bio Data :-The Contractor should furnish the Bio Data and other relevant details of the persons proposed to be engaged within 5 days from the receipt of the Purchase Order.

11.2 The contractor shall have to provide immediate replacement for the deployed manpower if the client is not satisfied with his/her performance

11.3 The contractor shall be responsible for recruitment of personnel and the work done by the personnel engaged by him

11.4 It should be ensured that the staffs of contractor deputed for the work are attending the duties regularly without any complaint. In case of their absence/staying away from duty due to sickness or otherwise, the contractor shall provide suitable substitutes.

11.5 The personnel deputed are not eligible for LPSC's transport , medical and subsidized food facilities. However they are eligible to use shuttle services within the LPSC campus and will have limited access to first aid facility available in the campus in case of emergency.

11.6 The contractor shall engage personnel from an identified batch continuously for the entire contract period to ensure job continuity. In case the contractor desires a change of person, the same shall be effected only with the consent/approval of GD ESG.



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11.7 It shall be the responsibility of contractor to deploy selected manpower within one week of placing the work order by LPSC. In case contractor fails to provide the candidates for four weeks , the contract with contractor will be terminated and Security Deposit will be forfeited.

11.8 The engineer in charge deployed for the work shall be instructed by LPSC with respect to the specifics of the job, priority and schedule requirement. Engr in charge will be responsible for executing the work and report to LPSC.

11.9 Shall ensure that the personnel deployed are all Indian citizens only, character & antecedents of whom are duly verified by the Police. An undertaking to this effect shall be provided by the party.

11.10 Shall ensure provisions of social security measures and other mandatory payments as per provisions of prevailing laws, for the personnel employed by them.

11.11 Shall also verify/certify the conduct of the work force at frequent intervals. If any of the workforces misbehaves or commits any misconduct, LPSC reserves the right to refuse permission to such persons to enter LPSC. Any violation in this regard will result in the termination of the contract without any notice.

12.0 Secrecy and Security

12.1 The work entrusted to contractor's staffs shall be kept secret and not parted with by contractor / contractor's staffs either directly or through any third party/agencies without prior written consent from Director, LPSC .If at any time it is found that Contractor violate the secrecy clause and transferred / disclosed or parted with intentionally or otherwise through contractor or any third party /agency, the details of documents as such , Contractor is liable to indemnify the loss/damage to Government of India and/or liable for legal remedies as per the law of the land.

12.2 The Contractors staff shall not divulge or disclose to any person/third party any details of the office, operational process, technical know how as all are of confidential in nature.

12.3 The selected contractor shall not outsource the work to any other Associate/franchisee/third party under any circumstances.

13.0 General conditions for Evaluation:

If the bidder wishes to incorporate some condition, the same should be mentioned in the bid, together with the justifications thereof. LPSC reserves the right to accept or reject such conditions.



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13.1 LPSC reserves the right to accept or reject any tender offer and to annul the tendering process and reject all tenders at any time prior to award of the contract, without thereby incurring any liability towards the affected Bidder[s] or any obligation to inform the affected Bidder[s] of the grounds for the LPSC 's action.

13.2 Parallel/ad-hoc contract:

The department reserves the right to enter into parallel rate contract (s)/ Ad-hoc contract(s) simultaneously or at any time during the period(s) of the rate contract with one or more such contractors.

13.3 Short closing / termination of contract

Under normal circumstances, short-closing / termination of the Contract is not foreseen. However, in case of continued non-performance of the Contractor, resulting in inordinate delays in carrying out the activities or not meeting the required standards in performing the activities, LPSC reserves the right to terminate the Contract either wholly or partly.

In the event of short-closing/termination of the Contract, the following procedure shall be followed.

- LPSC shall give a notice of not less than one month.
- On receipt of the notice, the Contractor shall take all necessary steps for winding up of the Contract in line with the notice within a reasonable period, but in any case not exceeding three months from the date of posting the notice.
- The compensation to be paid to the Contractor during the notice period shall be agreed to by mutual negotiations.
- The Department shall in no circumstances be liable to pay any sum which, when added to the other sums paid, due or becoming due to the Contractor under this Contract, exceeds the amount specified in the contract

14.0 GRIEVANCE REDRESSAL AND ARBITRATIONS

14.1 The provisions relating to grievance redressal mechanism, including the details of the authority to whom a contractor/supplier may submit an application for review of any decision or action taken by the Centre/Unit, shall be incorporated in the Purchase Order/Contract.

14.2 In the event of any question, dispute or difference arising out of or in connection with any of the terms and conditions of the Purchase Order/Contract, the Centre/Unit & the supplier are not in a position to settle the dispute mutually, the matter shall be referred to the Head of the Centre/Unit for arbitration or as mutually agreed upon.

14.3 The award of the arbitrator shall be final and binding on both the parties to the contract.

14.4 The arbitration proceedings would be subject to the provisions of the Arbitration & Reconciliation Act, 1996, and the Rules framed there under.

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PARTS MANAGEMENT OF ELECTRONIC SYSTEMS

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REQUEST FOR PROPOSAL - 2 .

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LIQUID PROPULSION SYSTEMS CENTRE
INDIAN SPACE RESEARCH ORGANISATION
VALIAMALA, TRIVANDRUM-695 547



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PARTS MANAGEMENT OF ELECTRONIC SYSTEMS

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CONTRACTOR	The industry / company who is ultimately entrusted with this work.
DEPARTMENT	President of India or his successors, representatives or assigns, in this case THE DIRECTOR, LIQUID PROPULSION SYSTEMS CENTRE, THIRUVANANTHAPURAM – 695 547.
ISRO	Indian Space Research Organization under the Department of Space
LPSC	Liquid Propulsion Systems Centre of Indian Space Research Organization, Department of Space, Government of India.
PARTY	The industry / company who is ultimately entrusted with this work.
QC	Quality control
ElCom	Electronic components
PSU	Public Sector Unit



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2.0 OPPORTUNITY AND OBJECTIVES

LPSC is looking for competent organisations who can manage components and parts management in the state-of-art electronic stores in LPSC, Valiamala campus. The party is expected to have sound knowledge in the handling of electronic components, their storage conditions, decoding of date codes, exposure to inventory management using software tools, maintenance of store ambient like temperature and RH, etc. The activity includes receiving inspection of parts, bonding of the parts, issue of parts/components to users and its account keeping.

This RFP provides information on the scope of parts management activities to be carried out in the electronic store of LPSC.

3.0 SCOPE OF WORK

3.1 Incoming inspection of parts.

Inspector has to visually examine under 10X magnification each component for

- 1) Damage of body
- 2) Damage of leads
- 3) Corrosion of terminals.

Microscope will be provided by LPSC.

3.2 Bonding of parts.

3.2.1 Technician has to pack the components properly in lots in antistatic covers, mark the date code, manufacturer details, part numbers, bin numbers etc.

3.2.2 The technical assistant supervises the above and makes entry for the same in inventory management software system (ElCom).

3.3 Issue for screening.

3.3.1 Draw the components from store based on the approved request over ElCom software.

3.3.2 Pack the materials with proper identification to main store for FIM supply to work centre.

3.3.3 Data entry into ElCom by Supervisor.

3.4 Screening data collection& data entry to ElCom.

3.4.1 Collect the screening data in soft or hard form from the work centre.

3.4.2 Submit the test reports for QC Clearance.

3.4.3 Bond the accepted materials for issue with QC Clearance No.

3.4.4 Bond the rejected material separately.

3.4.5 Enter the data into ElCom (supervisor)



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3.5 Issue for fabrication.

- 3.5.1 Draw the components from store based on the approved request over ElCom software.
- 3.5.2 Pack the material with proper identification and issue document to the fabricator.
- 3.5.3 Data entry to ElCom by Supervisor.

3.6 Summary reports.

- 3.6.1 Supervisor has to generate summary report of all activities every week including bonding, screening, issue, quarantine etc.

3.7 ElCom data back up and maintenance

This is the activity of the Supervisor-

- 3.7.1 Generate media back up of ElCom database twice weekly.
- 3.7.2 Catalogue the above and make the data available for ElCom recovery operation.
- 3.7.3 Keep log of ElCom operation and snags.
- 3.7.4 Generate weekly snag sheets.

4.0 Man days estimate for each activity

The man days is estimated based on the average work output of a qualified and 1 year experienced person.

Sl no	Activity	Total quantity	Estimated man days/year	
			Technician	Technical Asst
1	Incoming inspection of parts	200,000Nos	100	100
2	Bonding of parts	200,000Nos	100	50
3	Issue for screening	50 times	50	50
4	Screening data Collection, QC submission & Entry in ElCom	50 times	50	20
5	Issue for fabrication	400 times	50	50
6	Summary report generation	100 Nos		50
7	ElCom data backup and maintenance	200 Nos	-	-
		Total	350	320
		No. of persons required (tentative)	1	1



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5.0 **Competence of the contractor**

The contractor should be able to execute the above mentioned activities at ESG/LPSC Valiamala .

The personnel deputed for the activities should have the following qualification & experience.

5.1 **Qualifications of the persons**

For Technician – ITI in Electronic mechanic/ Instrument mechanic. Person should have completed apprentice training in ISRO or PSU.

For Technical Assistant- Diploma in Electronics. Person should have completed apprentice training in ISRO or PSU.

LPSC reserves the right to verify the conformance of the qualifications and other details mentioned above.

6.0 **Guidelines to the tenders for price bid**

6.1 Facilities and Equipments, will be provided at ESG/LPSC.

6.2 The term of the contract is for 3 years and hence the price quoted shall be for 3 years. In case of any exigencies, department can opt for extension of the contract for further period of 1-2 years, on mutually agreed terms.

7.0 **Working arrangement and Number of Personnel**

The contractor shall make his personnel available ON DEMAND to work at LPSC Valiamala during office hours from 8:45 hrs to 17:15 hrs for 6 days in a week. However, When required with the approval of the competent authority, they should be prepared to work during extended hours/holidays.

8.0 **responsibilities**

8.1 **LPSC's responsibilities**


LPSC shall:

Provide Inventory management software, Electronic components, relevant purchase orders .

8.2 **Contractor's responsibilities**

The Contractor shall:

- Have adequate qualified and trained manpower to take care of activities 1 to 7.
- Be responsible for the safety of personnel and their belongings during the course of work. Department is not responsible for any loss in any manner.
- Ensure uninterrupted services. ie., in case of any absenteeism, the requisite number of personnel shall be replaced with skilled personnel from buffer.

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9.0 Award criteria:

The work package will be awarded to the agency who is technically suitable and quoting the lowest rate per unit work.

10.0 Payment:

10.1 The payment to the contractor shall be made on completion of work as per the no. of units.

10.2 Payments will be made after submission of complete documents and invoice for the completed work.

10.3 Contractor should agree to all statutory guidelines.

11.0 General:

11.1 Bio Data :-The Contractor should furnish the Bio Data and other relevant details of the persons proposed to be engaged within 5 days from the receipt of the Purchase Order.

11.2 The contractor shall have to provide immediate replacement for the deployed manpower if the client is not satisfied with his/her performance

11.3 The contractor shall be responsible for recruitment of personnel and the work done by the personnel engaged by him

11.4 It should be ensured that the staffs of contractor deputed for the work are attending the duties regularly without any complaint. In case of their absence/staying away from duty due to sickness or otherwise, the contractor shall provide suitable substitutes.

11.5 The personnel deputed are not eligible for LPSC's transport , medical and subsidized food facilities. However they are eligible to use shuttle services within the LPSC campus and will have limited access to first aid facility available in the campus in case of emergency.

11.6 The contractor shall engage personnel from an identified batch continuously for the entire contract period to ensure job continuity. In case the contractor desires a change of person, the same shall be effected only with the consent/approval of GD ESG.

11.7 It shall be the responsibility of contractor to deploy selected manpower within one week of placing the work order by LPSC. In case contractor fails to provide the candidates for four weeks , the contract with contractor will be terminated and Security Deposit will be forfeited.



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11.8 The engineer in charge deployed for the work shall be instructed by LPSC with respect to the specifics of the job, priority and schedule requirement. Engr in charge will be responsible for executing the work and report to LPSC.

11.9 Shall ensure that the personnel deployed are all Indian citizens only, character & antecedents of whom are duly verified by the Police. An undertaking to this effect shall be provided by the party.

11.10 Shall ensure provisions of social security measures and other mandatory payments as per provisions of prevailing laws, for the personnel employed by them.

11.11 Shall also verify/certify the conduct of the work force at frequent intervals. If any of the workforces misbehaves or commits any misconduct, LPSC reserves the right to refuse permission to such persons to enter LPSC. Any violation in this regard will result in the termination of the contract without any notice.

12.0 **Secrecy and Security**

12.1 The work entrusted to contractor's staffs shall be kept secret and not parted with by contractor / contractor's staffs either directly or through any third party/agencies without prior written consent from Director, LPSC .If at any time it is found that Contractor violate the secrecy clause and transferred / disclosed or parted with intentionally or otherwise through contractor or any third party /agency, the details of documents as such , Contractor is liable to indemnify the loss/damage to Government of India and/or liable for legal remedies as per the law of the land.

12.2 The Contractors staff shall not divulge or disclose to any person/third party any details of the office, operational process, technical know how as all are of confidential in nature.

12.3 The selected contractor shall not outsource the work to any other Assicate/franchisee/third party under any circumstances.

13.0 **General conditions for Evaluation:**

If the bidder wishes to incorporate some condition, the same should be mentioned in the bid, together with the justifications thereof. LPSC reserves the right to accept or reject such conditions.

13.1 LPSC reserves the right to accept or reject any tender offer and to annul the tendering process and reject all tenders at any time prior to award of the contract, without thereby incurring any liability towards the affected Bidder[s] or any obligation to inform the affected Bidder[s] of the grounds for the LPSC 's action.

13.2 Parallel/ad-hoc contract:



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The department reserves the right to enter into parallel rate contract (s)/ Ad-hoc contract(s) simultaneously or at any time during the period(s) of the rate contract with one or more such contractors.

13.3 Short closing / termination of contract

Under normal circumstances, short-closing / termination of the Contract is not foreseen. However, in case of continued non-performance of the Contractor, resulting in inordinate delays in carrying out the activities or not meeting the required standards in performing the activities, LPSC reserves the right to terminate the Contract either wholly or partly.

In the event of short-closing/termination of the Contract, the following procedure shall be followed.

- LPSC shall give a notice of not less than one month.
- On receipt of the notice, the Contractor shall take all necessary steps for winding up of the Contract in line with the notice within a reasonable period, but in any case not exceeding three months from the date of posting the notice.
- The compensation to be paid to the Contractor during the notice period shall be agreed to by mutual negotiations.
- The Department shall in no circumstances be liable to pay any sum which, when added to the other sums paid, due or becoming due to the Contractor under this Contract, exceeds the amount specified in the contract

14.0 GRIEVANCE REDRESSAL AND ARBITRATIONS

14.1 The provisions relating to grievance redressal mechanism, including the details of the authority to whom a contractor/supplier may submit an application for review of any decision or action taken by the Centre/Unit, shall be incorporated in the Purchase Order/Contract.

14.2 In the event of any question, dispute or difference arising out of or in connection with any of the terms and conditions of the Purchase Order/Contract, the Centre/Unit & the supplier are not in a position to settle the dispute mutually, the matter shall be referred to the Head of the Centre/Unit for arbitration or as mutually agreed upon.

14.3 The award of the arbitrator shall be final and binding on both the parties to the contract.

14.4 The arbitration proceedings would be subject to the provisions of the Arbitration & Reconciliation Act, 1996, and the Rules framed there under.

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TESTING OF ELECTRONIC SYSTEMS

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REQUEST FOR PROPOSAL - 3

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LIQUID PROPULSION SYSTEMS CENTRE
INDIAN SPACE RESEARCH ORGANISATION
VALIAMALA, TRIVANDRUM-695 547

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TESTING OF ELECTRONIC SYSTEMS



REQUEST FOR PROPOSAL

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1.0 DEFINITIONS & ABBREVIATIONS

Wherever used hereinafter in this Request for Proposal, the following expressions /Abbreviations shall have the following meanings:

APPROVAL	Documents in the approval category require approval from Department, prior to implementation by the Contractor. Approval is understood to mean permission to proceed unlike otherwise specified.
CONTRACT	The agreement that will ultimately be entered into with the industry
CONTRACTOR	The industry / company who is ultimately entrusted with this work.
DEPARTMENT	President of India or his successors, representatives or assigns, in this case THE DIRECTOR, LIQUID PROPULSION SYSTEMS CENTRE, THIRUVANANTHAPURAM - 695 547.
ISRO	Indian Space Research Organization under the Department of Space
LPSC	Liquid Propulsion Systems Centre of Indian Space Research Organization, Department of Space, Government of India.



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PARTY	The industry / company who is ultimately entrusted with this work.
MOSFET	Metal Oxide Semiconductor Field Effect transistor
PCB	Printed Circuit Board
SMD	Surface mounted devices
PSU	Public Sector Unit
CC	Configuration Control

2.0 **OPPORTUNITY AND OBJECTIVES**

LPSC is looking for competent organisations who can carry out testing of various Electrical and Electronic systems like circuits as PCB, Electronic modules, Brush type and Brushless DC motors, actuators, Electric thrusters. The activity also include simulation of circuits in development tools like PSPICE, software coding in high level language like C and VHDL coding.

This RFP provides information on the scope of above testing activities.

3.0 **SCOPE OF WORK**

3.1 Testing of wired PCBs

500 cards are to be tested as per test plan document. Work involves Test setup preparation, Test setup clearance ,testing , test result compilation and documentation. The circuit consists of op amps , transistors, MOSFET, transformers, switching devices etc. Total components in a circuit will be around 400.

3.2 Testing of actuators

250 actuators are to be tested as per test plan document. Work involves Test setup preparation, Test setup clearance, testing , supervision of testing, test result compilation , documentation and analysis and non conformance report preparation. Tests include environmental tests also.

3.3 Testing of Electronic modules

100 electronic modules/ packages are to be tested as per test plan document. Work involves Test setup preparation, test set up clearance, testing supervision during testing, test result compilation and documentation, data analysis and preparation of non conformance report. Include environmental tests also.

3.4 PSPICE simulation of circuit

50 nos of electronic circuits are to be modeled and simulated using ECAD software package like Pspice. Simulation results are to be compared with experimental data and model parameters are to be tuned. Simulation results are to be compiled and documented. The circuit consists of op amps, transistors, MOSFET, transformers, switching devices etc.


3.5 Software coding in C

Code is to be developed in Visual studio according to the given flow chart (10nos).This involves code development, testing , debugging and document generation. Each Job roughly consists of 1000 lines of code.

3.6 Coding in VHDL

Code is to be developed in Embedded C / VHDL according to the given flow chart (10nos).This involves optimised code development according to ISRO software quality standards, work bench testing , debugging and document generation. Each job roughly consists of 1000 lines of codes.

3.7 Layout design & draughting This activity includes schematic preparation, Library creation for electronic parts, layout design, Part list preparation, netlist generation, drill details preparation, QC clearance and Gerber data generation using Electronic CAD facility at ESG.

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3.8 DC Motor incoming inspection and Storage

The activity includes incoming inspection, vacuum sealing for storage, FCD inspection coordination, inspection report verification, consolidation, NCR verification and its clearance for the motors fabricated through external industry.

3.9 DC Motor screening and testing

The screening activities for flight assembly, periodical activation, test set up preparations, testing of different types of DC motors & test reports preparations are also to be carried out. Different documents and drawings related to testing and screening are to be prepared.

3.10 SPT Assembly level Electrical Check.

SPT assembly level checks include hardware identification, magnetic field measurement, magnet field profile plotting and electrical checks. Electrical checks are to be carried out during various stages of thruster assembly and harnessing. Also procedures and drawings related to assembly process and electrical harnessing are to be prepared.

3.11 SPT testing Activities

SPT test operations includes, establishment of electrical interfaces, setting up of measuring instruments, setting up of diagnostic tools, power supply and data acquisition system operations during each test campaign. Electrical checks are to be carried out during various stages of thruster vacuum chamber mounting and testing.

3.12 Testing & Processing of Subassemblies for electric thrusters and drg. preparation

The activity includes electric thruster subassembly level testing viz. flow tests, leak tests etc and test set up & schematic preparations for the same. Pre-processing and pre-conditioning of different anode unit parts for assembly of the thruster are to be carried out. Also the work includes subassembly preparations, assembly of fixtures, trial suiting of anode unit parts, support for magnet coil realization and profile plotting, encapsulation of anode joints, degassing of thruster unit after assembly etc during assembly of each thruster.

3.13 Incoming inspection of parts and Storage of SPT

The incoming inspection of various parts, its identification, inspection coordination, clearance and inspection report verification, parts storage, vacuum storage of assembled thruster etc. are to be carried out

Other activities are material inspection, its clearance, special process follow up, pressure test set up, preparation of part drawings, fixture drawings, assembly drawings and documents related to process, assembly and testing.

3.14 SPT testing, Vacuum facility operation and maintenance

During test firing of thruster in vacuum chamber mounting of thruster, flow set up preparations, vacuum chamber operation etc are to be carried out. During the entire testing duration the facility operation and flow controller operations are to be carried out. Also the routine chamber operation and running are to be carried out including operations during maintenance and installation of cryo pumps.

Sl. No.	Activity	Qty
1	Testing of wired PCBs	500
2	Testing of actuators	250
3	Testing of Electronic modules	300
4	PSPICE simulation of circuit	50




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5	Software coding in C	50
6	Coding in VHDL	50
7	Layout design & draughting	50
8	DC Motor incoming inspection and Storage	600
9	DC Motor screening and testing	600
10	SPT Assembly level Electrical Check.	20
11	SPT Testing	5
12	Testing & Processing of Subassemblies for electric thrusters and drg. preparation	20
13	Incoming inspection of parts and Storage of SPT	300
14	SPT testing, Vacuum facility operation and maintenance	10

4.0 Man days estimate for each activity

The man days is estimated for each activity per year based on the average work output of a qualified and 1 year / 5 years experienced person.

Sl No	Activity	Qty	Technical Assistant		Engineer	
			Man days	Total	Man days	Total
1	Testing of wired PCBs	500	4	2000	0.6	300
2	Testing of actuators	250	4	1000	0.3	75
3	Testing of Electronic modules	300	10	3000	3	300
4	PSPICE simulation of circuit	50	0	0	4	200
5	Software coding in C	50	0	0	4	200
6	Coding in VHDL	50	0	0	4	200
7	Layout design & draughting	50	20	1000	0	0
8	DC Motor incoming inspection and Storage	600	0.25	150	0	0
9	DC Motor screening and testing	600	0.5	300	0	0
10	SPT Assembly level Electrical Check.	20	2	40	0	0
11	SPT Testing	5	8	40	0	0
12	Testing & Processing of Subassemblies for electric thrusters and drg. preparation	20	4	80	0	0
13	Incoming inspection of parts and Storage of SPT	300	0.2	60	0	0
14	SPT testing, Vacuum facility operation and maintenance	10	16	160	0	0
Total man days				7830		1275
No. of persons required (Tentative)				12		4

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5.0 **Competence of the contractor**

The contractor should be able to execute the above mentioned activities at ESG/LPSC Valiamala.

The personnel deputed for the activities should have the following qualification & experience.

5.1 **Qualifications of the persons**

For Technical Assistant- Diploma in Electronics/ Electrical. Person should have completed apprentice training in ISRO or PSU and minimum 3 years experience in testing area. For item in Sl. No.12 & 13 Diploma holder in Electrical Engr. is essential. For item in Sl. No.14 Diploma holder in Mechanical Engineering is essential.

For Engineer – B Tech in Electronics /Electrical . Preferable to have persons who have completed apprentice training in ISRO or PSU.

LPSC reserves the right to verify the conformance of the qualifications and other details mentioned above.

6.0 **Guidelines to the tenders for price bid**

6.1 Facilities and Equipments, will be provided at ESG/LPSC.

6.2 The term of the contract is for 3 years and hence the price quoted shall be for 3 years. In case of any exigencies, department can opt for extension of the contract for further period of 1-2 years, on mutually agreed terms.

7.0 **Working arrangement and Number of Personnel**

The contractor shall make his personnel available ON DEMAND to work at LPSC Valiamala during office hours from 8:45 hrs to 17:15 hrs for 6 days in a week. However, when required with the approval of the competent authority, they should be prepared to work during extended hours/holidays.

8.0 **RESPONSIBILITIES**

8.1 **LPSC's responsibilities**

LPSC shall:

Provide circuit diagrams, approved Test plan document, wired PCB for item 1, approved Test plan document and Control electronics module for item 2, Circuit diagram and test conditions for item 3, Flow chart for item 4, functional requirements of modules, timing diagrams for item 5, assembled thruster with test plan document for item 6, assembled thruster and post assembly checklist for item 7, assembled module, approved test plan document for item 8.

8.2 **Contractor's responsibilities**

The Contractor shall:

- Have adequate qualified and trained manpower to take care of activities 1 to 8.
- Be responsible for the safety of personnel and their belongings during the course of work. Department is not responsible for any loss in any manner.
- Ensure uninterrupted services. ie., in case of any absenteeism, the requisite number of personnel shall be replaced with skilled personnel from buffer.



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9.0 Award criteria:

The work package will be awarded to the agency who is technically suitable and quoting the lowest rate per unit work.

10.0 Payment:

- 10.1** The payment to the contractor shall be made on completion of work as per the no. of units.
- 10.2** Payments will be made after submission of complete documents and invoice for the completed work.
- 10.3** Contractor should agree to all statutory guidelines.

11.0 General:

11.1 Bio Data :-The Contractor should furnish the Bio Data and other relevant details of the persons proposed to be engaged within 5 days from the receipt of the Purchase Order.

11.2 The contractor shall have to provide immediate replacement for the deployed manpower if the client is not satisfied with his/her performance

11.3 The contractor shall be responsible for recruitment of personnel and the work done by the personnel engaged by him

11.4 It should be ensured that the staffs of contractor deputed for the work are attending the duties regularly without any complaint. In case of their absence/staying away from duty due to sickness or otherwise, the contractor shall provide suitable substitutes.

11.5 The personnel deputed are not eligible for LPSC's transport, medical and subsidized food facilities. However they are eligible to use shuttle services within the LPSC campus and will have limited access to first aid facility available in the campus in case of emergency.

11.6 The contractor shall engage personnel from an identified batch continuously for the entire contract period to ensure job continuity. In case the contractor desires a change of person, the same shall be effected only with the consent/approval of GD ESG.


11.7 It shall be the responsibility of contractor to deploy selected manpower within one week of placing the work order by LPSC. In case contractor fails to provide the candidates for four weeks, the contract with contractor will be terminated and Security Deposit will be forfeited.

11.8 The engineer in charge deployed for the work shall be instructed by LPSC with respect to the specifics of the job, priority and schedule requirement. Engr in charge will be responsible for executing the work and report to LPSC.

11.9 Shall ensure that the personnel deployed are all Indian citizens only, character & antecedents of whom are duly verified by the Police. An undertaking to this effect shall be provided by the party.

11.10 Shall ensure provisions of social security measures and other mandatory payments as per provisions of prevailing laws, for the personnel employed by them.

11.11 Shall also verify/certify the conduct of the work force at frequent intervals. If any of the workforces misbehaves or commits any misconduct, LPSC reserves the right to refuse permission to such persons to enter LPSC. Any violation in this regard will result in the termination of the contract without any notice.

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12.0 Secrecy and Security

12.1 The work entrusted to contractor's staffs shall be kept secret and not parted with by contractor / contractor's staffs either directly or through any third party/agencies without prior written consent from Director, LPSC .If at any time it is found that Contractor violate the secrecy clause and transferred / disclosed or parted with intentionally or otherwise through contractor or any third party /agency, the details of documents as such , Contractor is liable to indemnify the loss/damage to Government of India and/or liable for legal remedies as per the law of the land.

12.2 The Contractors staff shall not divulge or disclose to any person/third party any details of the office, operational process, technical know how as all are of confidential in nature.

12.3 The selected contractor shall not outsource the work to any other Associate/franchisee/third party under any circumstances.

13.0 General conditions for Evaluation:

If the bidder wishes to incorporate some condition, the same should be mentioned in the bid, together with the justifications thereof. LPSC reserves the right to accept or reject such conditions.

13.1 LPSC reserves the right to accept or reject any tender offer and to annul the tendering process and reject all tenders at any time prior to award of the contract, without thereby incurring any liability towards the affected Bidder[s] or any obligation to inform the affected Bidder[s] of the grounds for the LPSC 's action.

13.2 Parallel/ad-hoc contract:

The department reserves the right to enter into parallel rate contract (s)/ Ad-hoc contract(s) simultaneously or at any time during the period(s) of the rate contract with one or more such contractors.

13.3 Short closing / termination of contract

Under normal circumstances, short-closing / termination of the Contract is not foreseen. However, in case of continued non-performance of the Contractor, resulting in inordinate delays in carrying out the activities or not meeting the required standards in performing the activities, LPSC reserves the right to terminate the Contract either wholly or partly.

In the event of short-closing/termination of the Contract, the following procedure shall be followed.

- LPSC shall give a notice of not less than one month.
- On receipt of the notice, the Contractor shall take all necessary steps for winding up of the Contract in line with the notice within a reasonable period, but in any case not exceeding three months from the date of posting the notice.
- The compensation to be paid to the Contractor during the notice period shall be agreed to by mutual negotiations.
- The Department shall in no circumstances be liable to pay any sum which, when added to the other sums paid, due or becoming due to the Contractor under this Contract, exceeds the amount specified in the contract.



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14.0 GRIEVANCE REDRESSAL AND ARBITRATIONS

14.1 The provisions relating to grievance redressal mechanism, including the details of the authority to whom a contractor/supplier may submit an application for review of any decision or action taken by the Centre/Unit, shall be incorporated in the Purchase Order/Contract.

14.2 In the event of any question, dispute or difference arising out of or in connection with any of the terms and conditions of the Purchase Order/Contract, the Centre/Unit & the supplier are not in a position to settle the dispute mutually, the matter shall be referred to the Head of the Centre/Unit for arbitration or as mutually agreed upon.

14.3 The award of the arbitrator shall be final and binding on both the parties to the contract.

14.4 The arbitration proceedings would be subject to the provisions of the Arbitration & Reconciliation Act, 1996, and the Rules framed there und

INSTRUCTIONS FOR TWO PART TENDERS

1. We invite your offer duly signed, in **TWO** parts as follows:-

(a) **PART-I : TECHNICAL & COMMERCIAL** (Other than Price)

(b) **PART -II : PRICE BID**

1.1 PART-I : TECHNICAL & COMMERCIAL

1.1.1 **TECHNICAL:** The detailed Technical Specification/configuration for the proposed Data acquisition system, the make and model of each modules proposed to supply and other requirements as per Annexure I, Commercial Terms such as delivery date, taxes, duties payable, place of delivery, payment term, validity, guarantee etc and scope of supply along with Compliance Matrix as per Annexure III, shall also be covered in this part. Please enclose a copy of the details indicated in price quotation (**WITHOUT PRICES OR BY MASKING THE PRICE**) mainly to know the items/ specifications for which you have indicated prices in price bid. **This part should not contain prices.** The Technical and commercial part of the offer should be kept in a sealed envelope superscribing the following details.

QUOTATION AGAINST TENDER NO TL56 2016029261 01
DUE ON 19.10.2017 at 16.00 hrs IST
OPENING ON 20.10.2017 at 10.30 hrs IST
WORK PACKAGE FOR FABRICATION, PARTS MANAGEMENT AND TESTING OF
ELECTRONICS SYSTEMS
PART I - TECHNICAL & COMMERCIAL

The cover should indicate " **SENDER'S**" address.

1.2. PART -II : PRICE BID

1.2.1. This part shall contain **PRICE** details only.

1.2.2. The price for the item should be indicated item wise in this part as per the price format. All the items/ specifications mentioned in the Technical Part should come here and prices indicated against each. The break-up for each item of supply or services should be indicated.

1.2.3. Whenever options are quoted, the same should also be indicated with quantity and unit rate separately. The prices are to be mentioned both in figures and in words. This part should also be kept in a sealed cover superscribing as follows:-

QUOTATION AGAINST TENDER NO TL56 2016029261 01
DUE ON 19.10.2017 at 16.00 hrs IST
OPENING ON 20.10.2017 at 10.30 hrs IST
WORK PACKAGE FOR FABRICATION, PARTS MANAGEMENT AND TESTING OF
ELECTRONICS SYSTEMS
PART II - PRICE BID

THE TWO SEALED COVERS PREPARED AS ABOVE SHOULD BE KEPT IN ANOTHER ENVELOPE, SEALED AND SUPERSCRIBED AS UNDER:-

"Quotation against Tender No. **TL56 2016029261 01** Due on **19.10.2017 at 16.00 hrs IST** for **WORK PACKAGE FOR FABRICATION, PARTS MANAGEMENT AND TESTING OF ELECTRONICS SYSTEMS** containing **TWO SEPARATE COVERS PART-I & PART -II** and addressed to:

SR.PURCHASE & STORES OFFICER
Liquid Propulsion Systems Centre
Valiamala (PO)
Thriuvananthapuram- 695 547.

The cover should indicate " **SENDER'S** " address

For any clarification you may contact us at following phone/Fax Nos.

Telephone : 0471 2567726/0471 2567727

Fax : 0472 2800712/0471 2567305

Your offer should reach us on or before the due date and time i.e. **19.10.2017 at 16.00 hrs IST**. ***Offers received after the due date and time will not be considered.***

Offers received through fax or email will not be considered.

Note:

Tender fee **Rs.590/- (Rupees Five Hundred and ninety only)** shall be payable only in the form of Bank draft in favour of Accounts Officer, LPSC, Valiamala payable at Trivandrum and the same shall be enclosed along with Part-I, Techno-Commercial Bid, **without which your offer will not be considered.**

General Terms and Conditions:

1) Earnest Money Deposit :

Earnest Money Deposit amounting to **Rs.5,00,000/-** shall invariably be submitted by you along with your offer. Offer without EMD will be rejected. The EMD shall be submitted in the form of Demand Draft/Bankers Cheque/FD receipts or Bank Guarantee drawn in favour of Accounts Officer, LPSC and payable at Thiruvananthapuram/Bengaluru. Submission of EMD is exempted in respect of Registered vendors, Foreign vendors, CPSU/CPSE, MSE, KVIC, NSIC. Vendors seeking exemption from payment of EMD shall submit necessary proof like registration number, copy of relevant valid certificates along with your offer, failing which the said offer will be rejected. The EMD of a vendor will be forfeited if the vendor withdraws or amends their tender or deviates from the tender in any respect within the validity period of the tender.

2) Purchase / Price Preference to MSEs

Purchase/Price preference will be applicable to the product reservation admissible to the Micro and Small Enterprises. Purchase/Price Preference shall be extended to the MSEs under the Public Procurement Policy for MSEs formulated under the Micro, Small and Medium Enterprises Development Act, 2006. The participating MSEs in a tender, quoting price within the band of L-1 + 15% may also be allowed to supply a portion of the requirement by bringing down their price to the L-1 price, in a situation where L-1 price is from someone other than an MSE. Such MSEs may be allowed to supply upto 20% of the total tendered value. In case of more than one such eligible MSE, the supply will be shared equally.

3) Security Deposit

On acceptance of the order, you shall submit an interest free amount equivalent to 10% of the total contract/order value towards security deposit. This security deposit is collected towards the performance of the Contract. The said Security Deposit shall be submitted either in the form of Bank Guarantee/Demand Draft/PDR receipts duly endorsed in the name of the centre. The Security Deposit will be returned to you on successful completion of the Contractual obligations; failing which it shall be forfeited/adjusted.

4) Offer Validity

Your offer shall be valid for 120 days from the date of tender opening. In case you offer validity less than 120 days, the said offer is liable for rejection which may please be noted.

5) Liquidated Damages:

If you fail to deliver the ordered items satisfactorily within the time specified or any extension thereof, Liquidated Damage @ 0.5%(zero point five percent) of the order value or part thereof the un-delivered items for each calendar weeks of delay shall be recovered from your bill. However total Liquidated Damage shall not exceed 10%(ten percent) of the order value.

- 6) Tender fee **Rs.590/- (Rupees Five Hundred and ninety only)** shall be payable only in the form of Bank draft in favour of Accounts Officer, LPSC, Valiamala payable at Trivandrum and the same shall be enclosed along with Part-I, Techno-Commercial Bid, **without which your offer will not be considered.**

Instruction to Indigenous Suppliers:

- 7) Our Normal payment terms are 100% within 30 days after receipt and Successful Installation and acceptance of the item at our site. Please confirm acceptance in your quotation.
- 8) Please specify GST percentage, if any, in your offer.
- 9) Your offer should reach us on or before the due date and time i.e, 19.10.2017 at 16.00 hrs IST. Offer received after the due date and time will not be considered. Offers received through fax or email will not be considered.

COMPLIANCE STATEMENT FOR COMMERCIAL TERMS**To be filled and furnished along with your quote**

Sl. No.	Description (Commercial terms & conditions)	Compliance to Col. (2) [YES/NO]	If 'NO' Specify deviations explicitly	Remarks
(1)	(2)	(3)	(4)	(5)
1.	P & F charges, if any, please mention percentage/amount in Col.5.			
2.	GST applicable (Please mention percentage of GST in Col. 5).			
3.	ISRO is exempted from payment of Customs Duty vide Notification No.12/2012-Customs dated 17.03.2012. (We will provide Customs Duty Exemption Certificate in case of Import Orders/ imported supplies/ High Sea Sales).			
4.	Installation Charges, if any, (Please mention the percentage / amount in Col.5).			
5.	Delivery Term :- <ul style="list-style-type: none"> • FOR LPSC, VALIAMALA/BENGALURU • In case of Foreign orders, FOB or FCA 			
6.	Freight charges, if any. If 'YES' please mention the percentage / amount in Col.5.			
7.	Delivery Period (Please mention in Col.5)			

Sl. No.	Description (Commercial terms & conditions)	Compliance to Col. (2) [YES/NO]	If 'NO' Specify deviations explicitly	Remarks
(1)	(2)	(3)	(4)	(5)
8.	<p>Payment Term :-</p> <p>(a) 100% payment shall be made through RTGS within 30 days of receipt and acceptance of the item at our site. Please note that advance payment shall be entertained only against submission of Bank Guarantee from a Nationalized / Scheduled Bank for equal value of advance valid till the completion of supply / acceptance plus three months claim period.</p> <p>(b) In case of foreign orders, Payment term shall be SIGHT DRAFT.</p>			
9.	<p>Liquidated Damages (LD) :- Since delivery is the essence of this order, LD @ 0.5% per week or part thereof subject to a maximum of 10% of the order value for the delayed period of supply.</p>			
10.	<p>Warranty :- Warranty for the offered item shall be from the date of installation/acceptance of the item at our site. Please mention the warranty period, if any, in Col. No.5</p>			
11.	<p>Performance Bank Guarantee (PBG) :- You have to submit a PBG from a Nationalized / Scheduled Bank for 10% of the order value at the time of supply valid till the completion of warranty period plus 60 days claim period.</p>			
12.	<p>Security Deposit (SD) :- 10% value of the order shall be deposited with LPSC within 10 days from the date of the Purchase Order towards security deposit in the form of Bank Guarantee towards performance of the Contract. (This will be returned by LPSC immediately on execution of the order satisfactorily as per order terms. If not, the amount will be forfeited). <i>(SD will be applicable for order value greater than Rs.5 L only)</i></p>			
13.	<p>Insurance :- Being a Govt. Of India Dept., we don't want insurance at our cost and hence we will not provide insurance. Please ensure the safe delivery of the ordered item.</p>			

Sl. No.	Description (Commercial terms & conditions)	Compliance to Col. (2) [YES/NO]	If 'NO' Specify deviations explicitly	Remarks
(1)	(2)	(3)	(4)	(5)
14.	Validity of Offer :- The offer shall be valid for 90 days from the date of opening.			
15	Special conditions against Indian Agents submitting quotations in Foreign Currency.			
15 a	The tenders received from Indian agents on behalf of their foreign Principals/OEMs (in cases where the Principals/OEMs also submit their tenders simultaneously for the same item/product in the same tender) the same will be not be considered.			
15 b	In case two or more tenders are received from an Indian agent on behalf of more than one foreign Principal/OEM, in the same tender for the same item/product will not be considered.			
16 -a	Foreign Principal's pro-forma invoice indicating the commission payable to the Indian Agent and nature of after sales service to be rendered by the Indian Agent.			
16-b	Copy of Agency agreement with the Foreign Principal, precise relationship between them and their mutual interest in the business.			
16-c	The enlistment of the Indian Agent with Director-General of Supplies & Disposals under the Compulsory Registration Scheme of Ministry of Finance.			
17	Purchase/Preference to MSEs Purchase/Price Preference shall be extended to the MSEs under the Public Procurement Policy for MSEs formulated under the Micro, Small & Medium Enterprises Development Act 2006. Necessary authenticated documentary evidences shall be submitted along with your offer. MSEs will be exempted from submission of EMD.			
18	The Tenders submitted by you shall be compulsorily signed and unsigned tenders will be summarily excluded from the procurement process			

GOVERNMENT OF INDIA
DEPARTMENT OF SPACE
LIQUID PROPULSION SYSTEMS CENTRE
PURCHASE DIVISION
VALIAMALA P.O, THIRUVANANTHAPURAM

Tender No: TL~~56~~ 20/602926/01

Due on: 19/10/2017

Tenderer's Ref. No:

Date:

TENDER FORM

From:

.....

.....

To: The Purchase & Stores Officer,
Liquid Propulsion Systems Centre
Valiamala P.O, Thiruvananthapuram - 695 547

Dear Sir,

I/We hereby offer to supply the stores detailed below at the price hereunder quoted and agree to hold this offer open till I/We shall be bound to supply the stores hereby offered upon the issue of the Purchase Order communicating the acceptance thereof on or before the expiry of the last mentioned date. You are at liberty to accept any one or more of the items of stores tendered for or any portion of any one or more of the items of such stores. I/We notwithstanding that the offer in this tender has not been accepted in whole, shall be bound to supply to you such items and such portion or portions of one or more of the items as may be specified in the said purchase Order communicating the acceptance:

Sl. No.	Description	Quantity	Unit	Rate	Delivery Date
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.....
.....

NOTE: All the rates should be given both in figures and words.

Place at which delivery will be made:

Date by which the ordered items will be supplied :

2. I/We have understood the items of the tender annexed to the invitation to tender and have thoroughly examined the specification/drawing and/or pattern quoted or referred to herein and / are fully aware of the nature of the stores required and my / our offer is to supply the stores strictly in accordance with the requirements subjects to the terms ad conditions stipulated in the enquiry and contained in the purchase order communicating the acceptance of this tender either in whole or in part.

GOVERNMENT OF INDIA
DEPARTMENT OF SPACE
LIQUID PROPULSIONS SYSTEMS CENTRE
PURCHASE AND STORES DIVISION

Form No. DOS:PM:20

TERMS AND CONDITIONS OF TENDER

1. Tenders should be sent in sealed envelopes superscribing the relevant tender No, and the due date of opening. Only one tender should be sent in each envelope.
2. Late tenders and delayed tenders will not be considered.
3. Sales Tax and/or other duties/levies legally levied
4. ble and intended to be claimed should be distinctly shown separately in the tender.
5. 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.
6. a) Your quotation should be valid for 90 days from the date of opening of the tender or any other period as specified in the tender enquiry. Offer with validity lesser than that specified is liable for exclusion from the procurement process.
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.
7. (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 non-acceptance 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.
8. 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.
9. Corrections, if any, must be attested. All amounts shall be indicated both in words as well as in figures. Where there is difference between amount quoted in words and figures, amount quoted in words shall prevail.
10. 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.
11. 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.

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

TERMS & CONDITIONS OF TENDER

1. **DEFINITIONS:**

- (b) The term 'Purchaser' shall mean the President of India or his successors or assigns.
- (c) The term 'Contractor' shall mean, the person, firm or company with whom or with which the order for the supply of stores is placed and shall be deemed to include the Contractor's successors, representative, heirs, executors and administrators unless excluded by the Contract.
- c) The term 'Stores' shall mean what the Contractor agrees to supply under the Contract as specified in the Purchase Order including erection of plants & machinery and subsequent testing, should such a condition is included in the Purchase Order.
- d) The term 'Purchase Order' shall mean the communication signed on behalf of the Purchaser by an Officer duly authorised intimating the acceptance on behalf of the Purchaser on the terms and conditions mentioned or referred to in the said communication accepting the tender or offer of the Contractor for supply of stores or plant, machinery or equipment or part thereof.

2. **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.

3. **SECURITY DEPOSIT:**

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 10(b) hereof and/or to recover from the Contractor, damages arising from such cancellation.

4. **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 as to whether the nature of the defects requires renewal or replacement, shall be final, conclusive and binding on the Contractor.
- (f) **Performance Bank Guarantee:** To fulfil guarantee conditions outlined in clause 4 (a) to (e) above, the Contractor shall, at the option of the purchaser, furnish a Bank Guarantee (as prescribed by the purchaser) from a Bank approved by the purchaser for an amount equivalent to 10% of the 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.
- (g) All the replacement stores shall also be guaranteed for a period of 12 months from the date of arrival of the stores at purchaser's site.

- (h) Even while the 12 months guarantee applies to all stores, in case where a greater period asked for by our specifications then such a specification shall apply in such cases the period of 14 months referred to in para 4 (b) & (c) shall be the 'asked for' guarantee period plus two months.

5. **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.

6. **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.

7. **TEST CERTIFICATE:**

Wherever required, test certificates should be sent along with the despatch documents.

8. **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 that 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. 8 (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.

9. **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.

10. **DELIVERY AND LIQUIDATED DAMAGES:**

- (a) The time for and the date of delivery of the stores stipulated in the Purchase Order shall be deemed to be the essence of the Contract and delivery must be completed on or before the specified dates.
- (b) Should the Contractor fail to deliver the stores or any consignment thereof within the period prescribed for such delivery, the purchaser shall be entitled at his option either
- (i) to recover from the Contractor as agreed liquidated damages and not by way of penalty, a sum of 0.5% per week of the price of any stores which the Contractor has failed to deliver as aforesaid or during which the delivery of such store may be in arrears subject to a minimum of 10%, or
- (ii) to purchase from elsewhere, without notice to the Contractor on the account and at the risk of the Contractor, the stores not delivered or others of a similar description (where others exactly complying with the particulars, are not, in the opinion of the purchaser, readily procurable, such opinion being final) without cancelling the Contract in respect of the consignment (s) not yet due for delivery, or
-

- (iii) to cancel the Contract or a portion thereof and if so desired to purchase or authorise the purchase of stores not so delivered or others of a similar description (where others exactly if complying with the particulars are not, in the opinion of the purchaser, readily procurable, such opinion final) at the risk and cost of the Contractor.

In the event of action being taken under sub-clause (ii) & (iii) of clause 10 (b) above, the Contractor shall be liable for any loss which the purchaser may sustain on that account, provided that the re-purchase or if there is an agreement to re-purchase then such agreement is made within six months from the date of such failure. But the Contractor shall not be entitled to any gain on such re-purchase made against default. The manner and method of such re-purchase shall be at the discretion of the purchaser, whose decision shall be final. It shall not be necessary for the purchaser to serve a notice of such re-purchase on the defaulting Contractor. This right shall be without prejudice to the right of the purchaser to recover damages for breach of Contract by the Contractor.

11. EXTENSION OF TIME:

As soon as it is apparent that the Contract dates cannot be adhered to, an application shall be sent by the Contractor to the purchaser. If failure, on the part of the Contractor, to deliver the stores in proper time shall have arisen from any cause which the purchaser may admit as reasonable ground for an extension of the time (and his decision shall be final) he may allow such additional time as he considers it to be justified by circumstances, of the case without prejudice to the purchaser's right to recover liquidated damages under clause 10 thereof.

12. ERECTION OF PLANT & MACHINERY:

Wherever erection of a plant or machinery is the responsibility of the Contractor as per the terms of the Contract and in case the Contractor fails to carry out the erection as and when called upon to do so within the period specified by the purchaser, the purchaser shall have the right to get the erection done through any source of his choice. In such an event, the Contractor shall be liable to bear any additional expenditure that the purchaser is liable to incur towards erection. The Contractor shall, however, not be entitled to any gain due to such an action by the purchaser.

13. PAYMENT:

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

14. MODE OF PAYMENT:

Normally payment will be made for the accepted stores within 30 days from the date of receipt of the materials.

15. RECOVERY OF SUM DUE:

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

16. INDEMNITY:

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

17. ARBITRATION:

In the event of any question, dispute or difference arising under these conditions or any conditions contained in the Purchase Order or in connection with this Contract (except as to any matter the decision of which is specially provided for by these conditions), the same shall be referred to the sole arbitration of the Head of the Purchase office or some other person appointed by him. It will be no objection that the arbitrator is a Government servant, that he had to

deal with matter to which the Contract relates or that in the course of his duties as Government servant he has expressed views on all or any other matters in dispute or difference. The award of the arbitrator shall be final and binding on the parties of this Contract.

If the arbitrator be the Head of the Centre/Unit -

- (i) In the event of his being transferred or vacating his office by resignation or otherwise, it shall be lawful for his successor-in-office either to proceed with reference himself, or to appoint another person as arbitrator, or
- (ii) In the event of his being unwilling or unable to act for any reason, it shall be lawful for the Head of the Centre/Unit to appoint another person as arbitrator.

If the arbitrator be a person appointed by the Head of the Purchase Office - In the event of his dying, neglecting or refusing to act or resigning or being unable to act, for any reason, it shall be lawful for the Head of the Centre/Unit either to proceed with the reference himself or appoint another person as arbitrator in place of the outgoing arbitrator.

Subject as aforesaid the Arbitration & Conciliation Act 1996 and the rules thereunder and any statutory modifications thereof for the time being in force shall be deemed to apply to the arbitration proceedings under this Clause. The Arbitrator shall have the power to extend with the consent of the purchaser and the Contractor the time for making and publishing the award. The venue of arbitration shall be the place as purchaser in his absolute discretion may determine. Work under the Contract shall, if reasonably possible, continue during arbitration proceedings.

In the event of any dispute or difference relating to the interpretation and application for the provisions of the Contracts, such dispute or difference shall be referred by either party to Arbitration of one of the Arbitrations in the Department of Public Enterprises. The Arbitration Act 1996 shall not be applicable to arbitration under this clause. The award of the Arbitrator shall be binding upon the parties to the dispute provided however any party aggrieved by such award may make a further reference for setting aside or revision of the award to the Law Secretary, Department of Legal Affairs, Ministry of Law & Justice, Govt. of India. Upon such reference, the dispute shall be decided by the Law Secretary or the Special Secretary / Additional Secretary when so authorized by the Law Secretary, whose decision shall bind the parties finally and conclusively. The parties to the dispute will share equally, the cost of arbitration as intimated by Arbitrator.

18. COUNTER TERMS AND CONDITION OF SUPPLIERS:

Where counter terms and conditions printed or cyclostyled conditions have been offered by the supplier, the same shall not be deemed to have been accepted by the Purchaser, unless specific written acceptance thereof is obtained.

19. SECURITY FOR PURCHASE OF MATERIALS:

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