Fax :

Military College of Telecommunication Engineering, Mhow, Indore MP – 453441

File No _____ 2022

REQUEST FOR INFORMATION FROM VENDORS FOR LAUNCHING OF STUDENT COMMUNICATION SATELLITE IN LOW EARTH ORBIT AND ESTABLISHMENT OF EARTH STATION AT MCTE FOR TRAINING PURPOSE

1. **Description**. Communication Satellites are used by advanced militaries including Indian Army to provide ubiquitous communication coverage including remotest of the locations. They also provide a reliable redundancy to our existing communication infrastructure. Military College of Telecommunication Engineering (MCTE), the training institute of Corps of Signals, Indian Army, is planning to launch a small form factor student satellite with communication payload for training purpose as we need to train our officers on various aspects of Space technology in general and about satellite communication in specific. The project shall include satellite link planning, satellite design, communication payload design, fabrication, assembly and testing of electrical and mechanical systems of a satellite. The project will also include establishment and operation of earth station, accessing, monitoring & controlling satellite etc so that we have a pool of trained manpower available to take on the requirement of planning and providing satellite communication for future. The project should provide experience in project management, budget, schedule and mission planning & operation also.

2. This Request for Information (RFI) consists of two parts as indicated below: -

(a) Part I. The first part of the RFI incorporates operational characteristics and features that should be met under the project. Few important technical parameters of the proposed equipment are also mentioned. Additional vendor requirements are also listed.

(b) Part II. The second part of the RFI states the methodology of seeking response of vendors. **Submission of incomplete response format will render the vendor liable for rejection.**

PART I

3. This project will include design, development and fabrication of communication satellite and the details of same are given below: -

(a) **Type of Satellite**. Student satellite with communication payload.

(b) **Form factor of satellite**. Micro or smaller form factor.

(c) **Satellite Components**.

(i) Electrical Power System including integrated Battery Pack.

(ii) Solar Panels with integrated Magnetorquer coils for Attitude Control.

(iii) Mechanical systems to include structure, thermal control systems (TCS) and mechanisms.

(iv) Propulsion system.

(v) On-Board Computing System.

(vi) Telemetry, Tracking and Command System (TT&C) with antenna deployment mechanism.

(vii) Onboard GPS for position and velocity determination.

(viii) Stabilization mechanism.

(ix) Actuators.

(x) Attitude sensors.

(xi) Any other component as deemed fit by the Vendor for the successful launch and operation of the satellite including operation at Earth station.

(d) **Satellite Bus**. Satellite bus shall be designed, developed and fabricated by the Students of MCTE at Mhow under the supervision and guidance of the subject matter experts provided by the Vendor. Vendor will be required to provide all necessary components and materials for creating satellite bus.

(e) **Payload**.

(i) Payload for the satellite will be a communication payload which should be capable of providing point to point messaging services by storing and forwarding short messages in at least half-duplex mode.

(ii) The minimum data rate for data transfer should be 10 kbps.

(iii) The payload shall be designed, developed and fabricated by the Students of MCTE at Mhow under the supervision and guidance of the subject matter experts provided by the Vendor. Vendor will be required to provide all necessary components and materials for creating payload.

(f) **Orbital parameters**. Sun Synchronous Polar Orbit (SSPO) in LEO and exact orbital parameters like altitude, orbital period, inclination etc can be decided subsequently depending on the primary payload of ISRO's Launch veh.

(g) **Life of satellite (min life)**. One year

(h) **Launch vehicle**. ISRO's Launch veh Polar Satellite Launch Veh (PSLV).

(i) **Satellite Launch**. Vendor will be responsible to coordinate with ISRO regarding all issues related to launching of the satellite and will get all necessary permissions/ clerances from all agencies as mandated by Government of India.

(j) **Earth Station**.

(i) Earth station shall be capable of receiving, processing and displaying data from launched satellites.

(ii) It shall include hardware such as transceivers, antennas, workstations with data wall with associated hardware.

(iii) It shall include all relevant software which are required for smooth functioning of Earth station including facility for data processing and data archival.

(iv) Software used in Earth station should ideally be GUI based.

(v) The Earth station must be capable of tracking other satellites so that an exposure of Space Situation Awareness can be given to students.

(k) **Testing Facility**. Testing facility for testing satellite bus, payload, earth segment systems and other equipment/ systems should preferably be created in MCTE, Mhow however if the same is not feasible because of high capital cost of establishing testing facility then testing facility at vendor's location can be utilized for testing all systems, once they are designed and fabricated by Students in MCTE, Mhow.

(l) **Frequency band for satellite operation**. VHF/ UHF amateur bands or any other frequency band, however the permission for using these frequency bands should be taken from agency/ agencies as mandated by the Government of India. The process of frequency allocation is required to be done by the Vendor.

(m) **Minimum number of passes of satellite over MCTE, Mhow**. Minimum two pass per day over MCTE, Mhow.

(n) **Visibility of satellite during each pass**. 15 minutes minimum.

(o) **Training module and Documentation**. Vendor shall provide necessary documentation for each stage of project development. The Vendor shall be required to create module wise course curriculum for students for each stage of project and impart structured training.

4. **Vendor Parameters**. The vendor should be a registered company in India. It should have a Registered Office, Operations and Maintenance support team in India. The OEMs of the proposed product and services must also have their registered office, operations, maintenance and repair infrastructure in India. The vendor and the OEMs must be technically competent, financially sound and should have adequate infrastructure to set up, maintain and support the proposed networks as per following criteria:-

(a) The vendor and OEMs should have a strong financial base. Balance sheets and Profit/Loss statements for the past three years should be submitted, clearly highlighting the annual turnover.

(b) Vendor/ OEMs should have implemented / been involved in designing and launching a satellite in India or abroad.

(c) Vendor and OEM should have a well-established base and technically competent maintenance and repair facility to maintain the complete system including Earth station. Vendor is required to submit the support and repair escalation matrix along with maintenance methodology as asked in the RFI with additional details as relevant.

(d) The responder shall sign an agreement with OEM to manufacture / distribute the offered equipment in India and supply of spares for at least one year after commissioning of the project. Any obsolescence of product or plan to close the support for the product shall be mentioned.

(e) Vendor shall confirm that copy of all agreement that he shall be signing with OEMs/ Sub vendors for execution of the Turnkey solution to deliver the desired SLAs will be discussed with user and submitted to the user on conclusion of the same. OEMs shall also confirm that the proposal has been well communicated to them and that they comply with the requirements as projected in the RFI or later (RFP, Contract/ any other time) during all clarifications given before the issue of RFP.

(f) Vendor must have the capability to offer comprehensive onsite warranty of one year for complete project.

(g) Vendor and OEM of all major components must be an ISO accredited company.

(h) Vendor must confirm that there are no Patent / legal issues that might become
hindrance in implementation of the project at later stages.

(i) Must highlight and obtain the Government clearances as applicable.

6. Vendors should confirm that the following conditions are acceptable: -

(a) Categorisation. Launching of Student communication satellite and establishment of Earth station can be supplied under Buy Indian IDDM. If the proposed categorisation is not feasible, the vendor should state the desired categorisation with reasons.

(b) The solicitation of offers will be as per “Single Stage-Two Bid System”. It would imply that a “Request for Proposal” would be issued soliciting the technical and commercial offers together, but in two separate sealed envelopes. The validity of commercial offers would be at least 18 months from the date of submitting of offers.

(c) The technical offers would be evaluated by a Technical Evaluation Committee (TEC) to check its compliance with RFP.

(d) The equipment of all TEC cleared vendors would be put through a trial evaluation at a suitable location nominated by the buyer on a “No Cost No Commitment” basis. A staff evaluation would be carried out by SHQ to analyse the result of field evaluation and shortlist the equipment for introduction into service.

(e) Amongst the vendors cleared by GS evaluation, a Contract Negotiations Committee would decide the lowest cost bidder (L1) and conclude the appropriate contract.

(f) Vendor would be bound to provide product support for the entire life span of the satellite, which includes technical support, spares and maintenance tools/ software.

(g) The vendor would be required to accept the general conditions of contract given in the Standard Contract Document at Chapter VII of DAP placed on www.mod.nic.in.

(h) An integrity pact along with appropriate IPBG is a mandatory requirement in the instant case (Refer Annexure I to Appendix M of Schedule (I).

(j) Performance-cum-Warranty Bond both equal to 10% value of the contract is required to be submitted after signing of contract.

(k) ToT (if applicable) as applicable to categorisation would be need to be confirmed by Vendors.

PART – II

7. Procedure for Response

(a) Response to RFI (**Appendix A**) will be submitted at under mentioned address

Brigadier General Staff
Military College of Telecommunication Engineering,
Mhow, Indore
MP – 453441
Email : sundav.927x@gov.in

(b) In addition to providing details about company, details about the exact product meeting other generic technical specifications should also be carefully filled. Additional literature on the product can also be attached with the form.

(c) Last date of intimation of willingness to participate and acceptance of filled form **(Appendix A)** is four weeks from date of issue of RFI.

(d) In accordance with the provisions of the DAP 2020 a vendor interaction will be conducted with all interested parties subsequent to receipt of proposal. Exact date and time of the vendor interaction will be intimated to all companies who intimate their willingness to participate.

8. The Government of India invites responses to this request only from Indian Vendors who have tie ups with Original Equipment Manufacturers (OEM)/ Authorised Vendors/ Government Sponsored Export Agencies (applicable in the case of countries where domestic laws do not permit direct export by OEMs).

9. This information is being issued with no financial commitment and the Ministry of Defence reserves the right to change or vary any part thereof at any stage. The Government of India also reserves the right to withdraw it should it be so necessary at any stage. The acquisition process would be carried out under the provisions of DAP-2020.

Brigadier Dinesh Tiwari

Brigadier General Staff
Military College of Telecommunication
Engineering, Mhow, Indore
MP – 453441

Appendix A

(Refer to Para 7 of MCTE File No _____)

INFORMATION PERFORMA

(INDIAN VENDORS)

1. **Name of the Vendor/Company/Firm**

_____

_____

(Company profile, in brief, to be attached)

2. **Type (Tick the relevant category)**.

(a) Original Equipment Manufacturer (OEM) Yes/No

b) Authorised Vendor of foreign Firm Yes/No (Attach details, if yes)

(c) Other (give specific details).

_____

3. **Contact Details**.

Postal Address:_____

_____

City : _____ State : _____

Pin Code : _____ Tele : _____

Fax : _____URL/Website : _____

4. **Local Branch/Liaison Office in Delhi (India) (if any).**

Name & Address : _____

_____

Pin Code _____

Tele : _____

Fax _____

Appendix A Continued

5. **Financial Details.**

(a) Category of Industry (Large/Medium/small scale) :_____

(b) Annual Turnover: _____(in INR)

(c) Number of employees in firm: _____

(d) Details of manufacturing infrastructure: _____
_____

(e) Earlier contracts with Indian Ministry of Defence/Government agencies :-

Contract Number	Equipment	Quantity	Cost

6. **Certification by Quality Assurance Organization**.

Name of Agency	Certificate	Applicable from (Date & Year)	Valid till (date & Year)

7. **Details of Registration**.

Agency	Registration No	Validity (Date)	Equipment
DGS&D			
DGQA/DGAQA			
OFB			
DRDO			
DRDO Any other Government Agency			

Appendix B Continued

8. **Membership of FICCI/ASSOCHAM/CH or other Industrial Associations**.

Name of Organistion	Membership Number

9. **Equipment / Product Profile** (to be submitted for each product separately)

(a) Name of Product : _____

(Should be given category wise for e.g. all products under night vision devices to be mentioned together)

(b) Description (attach technical literature) :

_____

(c) Whether OEM or Integrator :

_____

(d) Name and address of Foreign collaborator (if any) :

_____

(e) Industrial License Number: _____

(f) Indigenous component of the product (in percentage):_____

(g) Status (in Service/Design development state): _____

(h) Production capacity per annum: _____

(j) Countries/agencies where equipment supplied earlier(give details of quantity Supplied : _____

(k) Estimated price of the equipment _____

10. Alternatives for meeting the objectives of the equipment set forth in the RFI.

11. Any other relevant information: _____

12. Declaration. It is certified that the above information is true and any changes will be intimated within five (05) working days of occurrence.

(Authorised Signatory)