Expression of Interest (EoI) for Design, Development and Co-Production of Tactical Remotely Piloted Aircraft System (RPAS) Runway Independent (RWI).

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EoI-Ref.: ASBD/2023-24/RPAS (RWI)   **Date: 21-12-2023**

Expression of Interest (EoI) for identifying firm for Design, Development and Co-Production of Tactical Remotely Piloted Aircraft System (RPAS) Runway Independent (RWI).

1.0 Brief on BEML Ltd:
BEML Ltd, a 'schedule 'A' Company under Ministry of Defence, Govt. of India, plays a pivotal role and serves India's core sectors like Defence, Rail, Power, Mining and Infrastructure.
Details of BEML Ltd are available at www.bemlindia.in

2.0 Objective of the EoI:
In order to meet the Customer requirement, BEML would like to identify potential firm to jointly participate for,

- Design & Develop 2 sets of Tactical Remotely Piloted Aircraft System (RPAS) Runway Independent (RWI) along with one Ground Control Station (GCS) and one Remote Video Terminal (RVT).
- Participate in the Single Stage Composite Trials conducted by User.
- On technical qualification and receipt of contract from MoD, Manufacture and supply of 65 Nos RPAS, 26 Nos GCS and 26 Nos RVT during production stage.

The RPAS should consist of the following
  i. Aerial Vehicle
 ii. Payload (D&N)
iii. Airborne Data Relay (ADR)
 iv. Ground Control system with power source
  v. Remote Video Terminal
 vi. Communication system
vii. Transmit real-time imagery to end user

3.0 Scope of Work:

Prototype Development Stage:

The selected firm shall enter into NDA & MoU on mutually agreed terms for the following scope of work.

A. The selected firm shall design & develop 2 sets of Tactical RPAS - RWI along with one GCS and one RVT as per the technical specification provided at **Appendix – A** on No cost – No commitment (NC-NC) basis.

Note: The product should have minimum indigenization content of 50%.
Acquisition of the product by the end user shall be as per chapter 3 of Defence Acquisition Procedure 2020 and amendments there to (procedure for 'Make II' sub category of 'Make' Procedure)

B. BEML and the selected firm shall participate in Single Stage Composite Trials (SSCT) conducted by User at their location on NC-NC basis. Test report for Product Readiness Review shall be submitted as per **Appendix-B**.

C. Upon successfully qualifying technically after SSCT, BEML and the firm shall discuss mutually the scope of work and commercials for production stage. BEML will submit the commercial proposal to User.

Procurement Stage:

On successful award of the contract from MoD, execute 65 Nos of RPAS, 26 Nos of GCS and 26 Nos of RVT as per mutually agreed scope of work and commercials.

4.0 Time Line:

➢ The Prototype has to developed and offered for trials within **30 Weeks** from the date of signing of NDA & MOU

➢ The delivery of the systems during procurement stage shall be completed within **24 months** from the date of signing the contract.

5.0 Terms & Conditions:

➢ IPR – On mutually agreed T&C jointly by BEML & identified firm

➢ NDA & MOU will be signed with selected firm on mutual cooperation for the project.

6.0 Quality Requirements:

Certificates from NABL/Government accredited laboratories/ Internationally recognized laboratories to be provided for all raw materials and other components/items used by Selected firm. In case the same is not possible then a self-certification from the firm shall be issued and provision for the BEML / Customer representative to witness the subject tests shall be incorporated. Prototype shall be offered to representatives of BEML / Customer for Prototype Readiness Review.

7.0 Eligibility Criteria:

The following are the mandatory conditions to be fulfilled by the firm for responding to the EoI.

    a. Should be a recognized start-up by Department for Promotion of Industry and Internal Trade (DPIIT) under the Ministry of Commerce and Industry.

    b. Should have a Registered office in India.

    c. The firm shall be an OEM company or a JV or a consortium having track record in building an Unmanned Aerial Vehicle of minimum three years.

Only the OEM / JV / Lead firm of a consortium shall respond to this EOI. Dealers / distributors / agents / representatives need not respond.

d. The firm shall agree to co-manufacture the product under 'Buy (Indian-IDDM)' with BEML under mutually agreed Terms & Conditions.

e. The firm shall accept co-branding of the product.

f. The firm shall be ready to share complete technical details including software, hardware and engineering details to BEML Ltd for ensuring seamless support to customers. Further firm also shall provide continuous support to BEML LTD and its customers for the period of minimum 10 years

g. If firm is black listed by Govt/PSU/MoD, then it is not eligible to participate in this EoI. Firm has to confirm that it is not black listed by Govt/PSU/MoD

h. The firm / company shall have to confirm their eligibility as per Govt. guidelines mentioned below. Any bidder from a country which shares a land border with India will be eligible to Bid in any Procurement whether of Goods or Services (Including Consulting Services and non-consultancy services) or Works (Including Turnkey projects) only if the bidder is registered with competent Authority as per Ministry of Finance notification: F. No.6/18/2019-PPD dated 23.07.2020.

i. Min. Average annual turnover of the bidder, for last 03 financial years should be more than Rs. 2Cr., ending 31.3.23.

j. The bidder shall have positive Net worth (Assets-Liabilities) ending 31.3.2021.

k. Insolvency: The Bidder should not be under insolvency resolution as per IBC

8.0 Submission of the EOI

The EoI shall be submitted **before 17:00 hours of 16.01.2024 (16th January,2024)** with details of the company on letterhead, compliance to eligibility criteria with supporting documents, audited financial reports and duly filled Annexures 1, 2 & 3 through the following email only.

bemleoi@beml.co.in

Technical queries if any, may be forwarded to
aspd1@beml.co.in & asbd@beml.co.in

The office of General Manager (Aerospace Business)
Contact Ph: 080-22963206

Appendix-A

OPERATIONAL PARAMETERS

1. System Configuration.

    The Tactical RPAS (RWI) system should consist of the following sub-systems: -

    (a) Aerial Vehicle (AV)

    (b) Sensor package / Payloads (Day and Night) and Airborne Data Relay (ADR).

    (c) Ground Control Station (GCS) to include power source/generator.

    (d) Remote Video Terminals (RVT).

    (e) Inter and intra communication system.

    (f) Facility to transmit imagery in real time / near real time to the end user in the industry standard formats used by the three services.

2. Compliance of Metric System:

    The proposed Tac RPAS {RWI) will use 'SI' or 'SI' derived units.

3. Maps: The system should be compatible with the following: -

    (a) The application should be compliant to operate Maps produced in WGS 84 Datum and LCC Projection (Two Standard Parallel) based on the under mentioned user defined parameters: -

        i. Central Meridian (Origin of Longitude).

        ii. Origin of Latitude.

        iii. False Easting.

        iv. False Northing.

        v. Standard Parallel 1.

        vi. Standard Parallel 2.

    (b) Secure admin based user interface must be provided for entering the above mentioned parameter values.

    (c) Application must be compliant to Geo Tiff map file formats and Digital Elevation Model (DEM) data for elevation as an input.

    (d) The application should also be capable to ingest shape file format.

4. Geo Reference:

    (a) Indian Military Grid Reference should be based on **Defence Series Maps** (DSM) and the equipment display console should be able to simultaneously read out 10 figure Grid Reference as well as Geographical coordinates in degree-minutes-seconds format.

(b) The parameters mentioned in Paragraph 3 (a) above once fed should not be displayed / visualized anywhere in software system besides the admin console and must be stored in an encrypted form.

(c) Provision to only update/modify/delete the parameters should exist.

PERFORMANCE PARAMETERS

5. Launch and Recovery: The Tac RPA (RWI) should be possible to launch and recover from within an unprepared designated area of 50m x 50m.

6. Design and Construction.

    (a) The Tac PAS (RWI) should be capable of Vertical Take Off and Landing (VTOL) or Catapult launch.

    (b) The Aerial Vehicle (AV) and the payloads should be modular in design.

    (c) The Tac RPAS (RWI) should have low radar signature of $\leq 01m^2$.

7. Altitude (with Payload).

    (a) Operating Altitude   : Up to 4000 M (13000 ft) Above Mean Sea Level.

    (b) Altitude Ceiling   : Up to 5000 M (16000 ft) Above Mean Sea Level.

8. Endurance: With maximum All Up Weight (AUW) should be 6 hrs or more (from take-off to landing).

9. Operating Range (At all Operating Altitude): The direct Line of Sight control range from GCS should be minimum 80Km.

10. Speed (for mid fuel weight):

    (a) Maximum Speed: 100 Km/h or more.

    (b) Operating Speed: Up to 60 - 100 Km/h.

11. System Accuracy: The target acquisition accuracy for targets during flight should be better than 50 meter (CEP).

12. Navigation System.

    (a) The system should be compatible with GPS, GLONASS and IRNSS.

    (b) Geo Co-ordinate Accuracy: GPS, GLONASS and IRNSS based accuracy of geo reference co-ordinates should be 50 meter or better.

13. Mission Capabilities.

    (a) Target Acquisition: The Tac RPA (RWI) should be capable of target acquisition by day and night. The RPAS should be equipped with sensors to enable transmission   of MWIR and CCD camera imagery pictures of High Definition (HD) resolution.   The system must be able to detect, track, recognize and identify the targets.

(b) Real Time Engagement of Targets: Once a target has been acquired, the AV sensors should have-the capability of 'locking on' to the target and determine impact of incoming shells/rockets. The GCS computer should have the capability to provide the data to correct the mean point of impact of these rockets/shells, on to the target. This capability should be both day and night. It should also enable damage assessment once the target has been engaged.

(c) Integration Capability: The RPAS should be capable of providing output of relevant data through Remote Video terminal (RVT).

(d) Payload: The system should be capable of operating the Electro Optical (EO) Payloads. The Electro Optical (EO) Payloads system to carry EO payload viz CCD, and MWIR for day and night missions. CCD should have switchable panoramic mode.

TECHNICAL PARAMETERS

Aerial Vehicle:

14. Features: Essential features of the AV are as follows: -

    (a) An on-board auto pilot to control the AV.

    (b) The airframe should be constructed with lightweight composite material to facilitate low Radar Cross Section (RCS) of ≤ 01 m^2.

    (c) The design of the airframe should be modular to facilitate containerization transportation in service transport.

    (d) The design and the geometry of the fuselage should ensure variety of single or multiple payloads for day and night operations.

15. Flight Modes: The AV should be able to operate in the following flight modes: -

    (a) Fully Autonomous Mode: Follow a pre-programmed flight path. Dynamic re-programming of the flight path must be possible.

    (b) Semi-Autonomous Mode: Control of heading, air speed and altitude of the AV by the operator with other parameters being controlled by the autopilot.

    (c) Loiter Mode: Fly around a fixed point in minimum two patterns (Selectable radius circle and figure of eight).

    (d) Target Seeking Mode: Keep camera locked on to a fixed/moving target.

    (e) Camera Guide Mode: Follow a locked on moving target.

    (f) Manual Mode: Used in case the pilot physically needs to control the AV for manoeuvring (in case of autopilot failure or manual override).

(g) Return Home Mode: In case during the flight there is a break in communication (duration defined by the user) the AV should automatically change to 'Return to Home' mode. The route for Return to Home mode should be programmable by the user   before the mission and capable of being updated during the mission. The- AV should land at either the take-off location or a pre-selected way - point (user defined).

16. Structural Integrity: The airframe should last for at least 4000 flying hours or sustain not less than 1500 landings whichever is earlier.

17. Propulsion and Power Systems.

(a) Engine: Engine noise should not be audible at ground when it is flying 1000m Above Ground Level (AGL). The decibel level at 100 meter Above Ground Level (AGL) should be s 60 dBA.

(b) Fuel System: The AV should carry fuel for the maximum endurance as specified.   A single point refuelling should be possible. During flight fuel management should ensure minimum shift of center of gravity as the fuel is consumed.

(c) Power Supply: Engine   driven alternators   and   batteries   should supply electrical   power to all on board systems. Necessary margin of at least 30% of the total power for redundancy and protection devices should be provided.

The batteries should cater for back of 90 minutes to recover the RPAS safely in case of generator/ alternator failure.

18. Payloads: The system should cater for operation of Electro Optical Payloads: -

(a) **Optical Sensor (Day Video Camera, Night Camera, Medium Wave Infra-Red (MWIR) Camera and Laser Range Finder (LRF).** The RPAS should have established Gimbal Payload Assembly (GPA) to house the CCD camera. (colour), MWIR and Laser Range Finder (LRF). The GPA should have different model of operation like position mode, search mode and track mode: -

   i. The optical sensor should provide output in a digital format and housed on a Gimbal Payload Assembly (GPA) providing stabilization with pointing accuracy of 15 minutes (1/4°) and jitter isolation of 30 micro radian.

   ii. GPS/GLONASS/IRNSS and inertial Measurement Unit data should be integrated with the data from the sensors.

iii. It should be capable of being panned to 360° (continuous) and have angular coverage from +10° to -60° in elevation.

iv. The optical sensors should be capable of taking still images.

v. The minimum-observation ranges (slant ranges) to be achieved under clear weather conditions are: -

Sensor	Detection	Recognition	Identification	Target Size	Sensor Altitude
CCD Camera	15 Km	15 Km	05 Km	2.3x2.3 m	3000 m AGL. Payload should perform at higher altitudes as long as the target is within the sensor slant range capability
MWIR	10 Km	05 Km	03 Km		

vi. Colour Day Colour Day Video Camera:

(aa) Be capable of providing real time video from the day sensor of minimum 1280 x 780 pixels resolutions at not less than 20 frames per second.

(ab) Have a 30X or higher continuous optical zoom.

vii. Night Camera:

(aa) Provide real time video of minimum 640 x 480 pixels resolutions at not less than 20 frames per second.

(ab) Enable reversing the polarity of the display i.e. white hot and black hot.

viii. LRF: Maximum range of 20 Kilometre.

19. Security:

(a) A security mechanism should be provided to detect and prevent unauthorized alteration of input or transmitted data.

(b) It should have the capability of Anti-Jamming / Anti-Spoofing.

20. Permissible Initialization Period: The initialization should be operational within ten minutes of switching on.

Ground Control Station (GCS)

21. Features of GCS: The GCS should be ruggedized and of modular design and capable of rapid deployment the GCS should be **vehicle based**. The design characteristics of the GCS should offer very friendly man-machine interface and software programmable with cockpit like human factors. The GCS should feature necessary aids for planning, controlling and monitoring of complete RPAS mission as under: -

    (a) Carry out diagnostic tests on AV, payload and communication data links. There should be a self-test facility for the GCS.

    (b) Mission planning capability prior to commencement of flight and alteration to autonomous flight plan / way points during mission.

    (c) Display of all parameter essential for AV controller.

    (d) Electronic map display   with provision for selection of scales.

    (e) Record AV flight parameter during mission.

    (f) Necessary man-machine interface for the AV operator and payload operator.

    (g) Should have storage capacity of 1.0 Terabyte and UPS backup for 30 minutes.

    (h) Payload operation with image exploitation facility, target acquisition, target coordinate computation.

    (i) Post mission analysis and target folder generation.

    (j) Image recording on CD/DVD facility.

    (k) The software should comply to the relevant paragraphs of IEEE-12207 standards.

    (l) Pilot-Observer Function: It is desirable to have modular & user-friendly system for   control of EO & MWIR payload during missions. it should include following: -

        i.   Switching on/off sensor (TV/MWIR).

        ii. Selecting Field of View (FoV).

        iii. Mode selection (Rate, position, track point to window etc).

        iv. Zooming.

        v.   Real time image processing for target acquisition.

(m) Mission Planning Function: For planning, controlling and monitoring the RPAS mission with a digital map display, the system should ensure the following: -

    i.   Creating a Mission Plan: Mission plan segments attributes to include altitude, speed, position, payload control and data link control.

    ii.   Provision for up-loading mission plan into RPAS prior to flight and modifying it while in-flight.

    iii.   Capability to handle maps of different scales.

    iv.   DSM compatible.

    v.   computation and display of: -

      (aa) RPA location and track.

      (ab) Target location.

      (ac) Sensor field of view.

      (ad) Data link coverage.

    vi.   Video recording and playback facility.

22. Display: The GCS should: -

(a) Display: High Definition, sunlight readable to display imagery of all Electro Optic sensors.

(i) Screen Size   : ≥ 15 inches.

(ii) Operating system   : Windows X / latest version.

(iii) Processor   : ≥ i5 with Quad Core.

(b) Video: Display User selectable flight and mission information as an overlay on top of the video and save it for future debriefing. The mission information should include: -

    i.   Coordinates of the target.

    ii.   Altitude of target above Mean Sea Level.

    iii.   AV Position.

    iv.   Height of AV above ground level.

    v.   Distance of AV from GCS.

    vi.   Distance of AV from Target.

    vii.   Mission Time.

    viii.   Time of imagery.

    ix.   North Arrow.

(c) Map: A moving map to be provided in a resizable window with the following facilities.

    i.   Map to be synchronized both in position and scale to the video as per specified zoom.

    ii.   Display the current position and heading of the AV as an icon.

    iii.   There should be facilities to: -

        (aa) Change between 3D and 2D view.

        (ab) Annotate the map.

        (ac) Allow free movement (dragging) of the map, Centre the map on the cameras ground track, Centre the map on a specific area, see the map from the cameras point of view, fix the map so that it does not change with the movement of the AV and resynchronize the map to the AV as desired.

        (ad) Measure distance between ground points.

        (ae) Enlarge and reduce the map (Zoom in / out) up to 10X.

Remote Video Terminal (RVT)

23. The RVT should be capable of being remotely located within the communication range of the AV of minimum 20 Km and be tuned to the AV's downlink frequency. It should be ruggedized portable computer based with a resolution of minimum 1280 x 780 pixels, screen size of ≥ 13 inches and have the following facilities: -

    (a) Simultaneous display of live video and a synchronized moving map in resizable windows in real time.

    (b) Record and replay the optical sensor output, telemetry and mission flight data. A solid-State Disk (SSD) of minimum 1 TB must be provided

    (c) Provide video freeze frames (Snapshots) and video clippings of the live feed data from the optical sensors. Suitable software should be provided for subsequent annotation of the extracted snapshot / video clipping with icons provided by the vendor.

    (d) Upload digital maps from an external CD / DVD / Hard disk.

    (e) Cater for minimum of 8 hours of continuous operations with an additional minimum 8 hours spare battery for back up provided.

    (f) Provide video output through an HDMI port.

24. Display: The RVT Should:

    (a) Video: Display User selectable flight and mission information as an overlay on top of the video and save it for future debriefing. The mission information should include: -

        i.   Coordinates of the target.

        ii.   Altitude of target above Mean Sea Level.

        iii.   AV Position.

        iv.   Height of AV above ground level.

        v.   Distance of AV from RVT.

        vi.   Bearing (Azimuth) of AV from RVT.

        vii.   Mission Time.

        viii.   North arrow.

        ix.   Time of imagery.

        x.   Communication link status.

    (b) Map: A moving map to be provided in a resizable window with the following facilities: -

        i.   Map to be synchronized both in position and scale to the video as per specified zoom.

        ii.   Display the current position and heading of the AV as an icon.

        iii.   There should be facilities to:

            (aa) Change between 3D and 2D view.

            (ab) Annotate the map.

            (ac) Allow free movement (dragging) of the map, Centre the map on the cameras ground track, Centre the map on a specific area, see the map from the cameras point of view, fix the map so that it does not change with the movement of the AV and resynchronize the map to the AV as desired.

            (ad) Measure distance between ground points.

            (ae) Enlarge and reduce the map (Zoom in / out) up to 10X.

Data Link Frequency management

25. The Tac RPAS (RWI) should have a suitable uplink and downlink with the GCS in S/C Band (2 GHz to 6 GHz) secured with **256-bit** AES encryption or **higher standards**. The transmission must be digital. The RPA should be scalable to alternate frequency as per Indian Army requirement at a subsequent stage.

26. Adequate channel spacing should be available between controlling channel frequencies (upward and down link) to enable interface free simultaneous ops from the same general area of operations. The frequencies available in the band width should not interfere with the frequencies of the existing systems.

27. The system should have the capability for selecting desired frequencies by the pilot.

28. The Data link system should provide the facility to create and embed an encryption layer. It should not be limited to pre-set / pre-programmed spread spectrum sequences. The GCS should have the necessary interface to enable user to embed its coding layer on the RPAS Data link.

29. The antenna should automatically track the AV in flight.

30. There should be no mutual interference when two GCS operate in close vicinity of 1000 meters.

31. Environmental Conditions: The RPAS and payload should be capable of satisfying the environmental requirements as specified in the relevant paragraphs of MIL-STD-810G and JSS-55555. The RPAS should withstand exposure to rainfall rate of 15 mm per hour.

    (a) Humidity: 95 % non-condensing at 40° C

    (b) Operating Temperature:

        i.   Minimum   : Between minus 20°C to minus 10°C

        ii. Maximum   : Between 40° C to 45°C

    (c) Storage and Transportation Temperature: Minus 20° C to 55° C

    (d) Wind Conditions: Up to 25 Knots

    (e) Rain Conditions: 15mm pe hour

    (f) Internal equipment to be ruggedize as per MIL-STD-810G / JSS-55555. Tac RPAS RWI and its associated components should comply to the environmental parameters as laid down in Table 3-1 of JSS-55555.

    (g) Sand and Dust: Comply with the requirement as per MIL-STD-810G / JSS-55555.

    (h) The Optoelectronic equipment's (Day and Night) should comply to the relevant paragraphs of JSS-5855-11-2019 standards.

MAINTAINNABILITY & ERGONOMIC PARAMETERS

32. General: The system should have minimum maintenance requirements and maintenance   should be simple. The maintenance schedule of RPAS should ensure quick detection of causes of failure and replacement of faulty elements.

33. Maintenance of Equipment: The system should be modular in construction for ease of repair and maintenance. Air vehicle test / check equipment should be provided to test out the gyroscope, engine and the electronic equipment of the vehicle, as well as the airframe.   The compliance of compatibility of Electromagnetic Interference / Electromagnetic Compatibility (EMI / EMC) standards as per relevant paragraphs of MIL-STD-461E/461F should be ensured. An analyser (similar to Flight Data Recorder) of in-flight behaviour of the air vehicle should be provided should the air vehicle not function as required.

34. BIT Facilities:

    (a) Software based.

    (b) Capable of being run automatically and manually.

    (c) Capable of online and off-line functioning.

    (d) Generate reports in formats compatible with commercially available software.

35. Mandatory Requirements: NO departure shall be made from these Preliminary Services   Quality Requirements without the prior authority, in writing of Directorate of Standardisation / DG CD / ADB.

Appendix-B

Test Report for Prototype Readiness Review

The following reports are required to be presented during Prototype Readiness Review

1. **Security:**

    (a) A security mechanism should be provided to detect and prevent unauthorized alteration of input or transmitted data.

    (b) It should have the capability of Anti-Jamming / Anti-Spoofing.

2. **Data Link Frequency Management:**

    The Tac RPAS (RWI) should have a suitable uplink and downlink with the GCS in S/C Band (2 GHz to 6 GHz) secured with **256-bit** AES encryption or **higher standards**. The transmission must be digital. The RPA should be scalable to alternate frequency as per Indian Army requirement at a subsequent stage.

3. **Data Link System:**

    The Data link system should provide the facility to create and embed an encryption layer. It should not be limited to pre-set / pre-programmed spread spectrum sequences. The GCS should have the necessary interface to enable user to embed its coding layer on the RPAS Data link

4. **Environment Conditions:**

    The RPAS and payload should be capable of satisfying the environmental requirements as specified in the relevant paragraphs of MIL-STD-810G and JSS-55555

ANNEXURE-1

Evaluation sheet for selection

SN	Criteria	Score	Details sought	Remarks from Firm
1	Inhouse facilities for Design, Analysis and Testing for new UAV program a) Design Software's b) Analysis Software's c) Subsystem Testing & Evaluation	04 04 02	Firm to furnish details as evidence to justify the compliance.	
	Max Score	**10**		
2	Expertise available for development of critical aggregates through indigenized sources a) Auto Pilot b) Telemetry c) Camera d) Power Plant (IC Engine) e) GCS & RVT	02 02 02 02 02	Relevant supporting documents for the efforts made by the firm to be furnished	
	Max Score	**10**		
3	Inhouse manufacturing facilities a) Mould preparation b) Dust free Layup shop c) Cold storage facility d) Autoclave e) Inspection facility with view room	02 02 02 02 02	Actual photos of facilities available with brief specifications are to be furnished by the firm	
	Max Score	**10**		
4	Average experience in design, development & testing of UAV a) 5 - 10 years b) Less than 5 years	06 04	Relevant supporting documents to be furnished by the firm	
	Max Score	**10**		
5	Intellectual a) Incubated by IIT/IISc/DRDO/CISR b) Patents filed c) Indigenization of aggregates d) Global OEM's technology partnership	02 03 03 02	Relevant supporting documents to be furnished by the firm	
	Max Score	**10**		

SN	Criteria	Score	Details sought	Remarks from Firm
6	UAV orders executed during past 03 years a) > Rs. 50 Cr b) > Rs. 25 Cr	06 04	Relevant supporting documents such as PO copies / customer acknowledgement to be furnished by the firm.	
	Max Score	**10**		
7	UAV orders on Hand a) > Rs. 50 Cr b) > Rs. 25 Cr	06 04	Relevant supporting documents to be furnished by the firm	
	Max Score	**10**		
8	Type of UAV's developed a) Fixed Wing with VTOL b) Fixed Wing	06 04	Relevant supporting documents to be furnished by the firm	
	Max Score	**10**		
9	Availability of inhouse expert manpower a) Airframe b) Avionics c) Telemetry d) IC Engines e) Licensed Test Pilot	02 02 02 02 02	Relevant supporting documents to be furnished by the firm	
	Max Score	**10**		
10	Mandatory Requirements for VTOL types of UAV a) Technical knowhow b) Prior experience in developing gasoline engine UAVs with long endurance (4 – 6 hrs.) c) Testing & Trial reports of past programs	04 04 02	Relevant supporting documents to be furnished by the firm	
	Max Score	**10**		

Notes:

1. Firm with highest score will be considered for the proposed association.
2. In case, the firm with highest score is not willing to associate, the next highest scored firm will be considered.

ANNEXURE-2

<u>UNDERTAKING</u>

This is to certify that _____ (Name of the Firm) has not been banned / black listed / debarred from Trade by any PSU/Government of India / Autonomous Institution/any State Government in India / Central or State Government undertaking for corrupt or fraudulent practices or non-delivery, non-performance

I / we hereby certify that all the information given above is factual.

Signature with date of Authorized signatory

Name: _____

Designation: _____

Firm's Seal: _____

ANNEXURE-3

<u>UNDERTAKING</u>

This is to certify that _____ (Name of the Firm) has _____ number of arbitration cases pending and details regarding the same is furnished below.

1.
2.
3.

I / we hereby certify that all the information given above is factual.

        Signature with date of Authorized signatory

        Name: _____

        Designation: _____

        Firm's Seal: _____