

Extn: 21125137

Air HQ/16509/3/AS BM-II

Dec 23

**DIRECTORATE OF AEROSPACE SAFETY, RK PURAM**

**AUTOMATIC TAKE-OFF / LANDING RECORDING SYSTEM (ATORS)**

1. **Service:** Indian Air Force, Indian Army and Indian Navy
2. **Nodal Directorate:** Dte of Aerospace Safety  
**at Air HQ**
3. **Name of case:** Design development of Automatic take-Off/ Landing Recording System (ATORS)
4. **Case brief:** Aircraft operations at various types of airfields including ALGs and Helipads (Parking, start up, taxi, take-off and landing simultaneously) needs to be video recorded during day, night and in all weather conditions. The recording capability is also expected to record animals, vehicles and human activity in the zone used for aircraft operations. These recordings are necessary for debrief/training, investigations and surveillance. IAF proposes to develop dynamic automatic systems for recording of all aircraft operations in the airfield day and light in various geographical locations with minimum or no human intervention for daily operations.
5. **Proposal:** It is proposed to indigenously design, develop and manufacture Automatic take off and landing recording system for use at IAF , Army and Naval bases under the Make-II procedure of DAP 2020.
6. Indian vendors (term to include, public limited company, private limited company, partnership firms, limited liability partnership, one person company, sole proprietorship registered as per applicable Indian laws) desirous of undertaking the design/development/manufacture may submit their response, as per format placed at Appendix B, through letter, fax or email to:-

Dte of Aerospace Safety  
Room No 109  
Air HQ (RKP)  
Tele: (011) 26172738  
Email: [aerospacesafety@nic.in](mailto:aerospacesafety@nic.in)

Dte of Aerospace Design  
Room No 802, A Wing  
Air HQ (KG Marg)

Telefax: (011) 23072002  
Email: aero.design@gov.in

7. **Quantities:** Qty 100 (Tentative). The MoQ shall be divided into various categories based on the type of airfield and the location. The categories will be based on factors including length of runways, strips, number of runways, taxi tracks, helipads, geographical location, topographical requirements etc. Queries regarding details shall be discussed during interaction.

8. **Broad Technical Specification** and other detailed specifications will be finalized during feasibility interaction with participating industry. However, few broad operational requirements are as follows: -

(a) Ability to provide automatic tracking with visual and thermal recording (zoom in facility) of all take offs and landings undertaken at military bases. The solution should possess all weather (day, night and poor visibility conditions) recording capability.

(b) The equipment should provide recording of aircraft taxiing in to/out of tarmac area. All major taxi tracks, tarmacs parking areas should be covered.

(c) The entire recording, if done by multiple sensors/recorders should to be viewable/ recorded as a seamless video.

(d) The equipment should be able to simultaneously record all aircraft in the approach/ take off funnel with additional coverage to cater for deviations. The elevation angle required is minimum of 4 degrees for fixed wing aircraft. Helipads need horizontal and vertical coverage around helipads.

(e) The equipment should be capable of detecting (visually) an aircraft of the dimension of 7X7 mtrs at a distance of 9-10 kms . The aircraft should be identifiable between 6-8 kms. High resolution zoom in capability during playback of the recording is required.

(f) The system should be capable of providing live display of all the recordings. Should be capable of manual intervention to track (with capability to zoom into) the aircraft of interest. While all aircraft on ground, take off leg and approach are required to be continuously captured, solution to record panoramic view of the cct area is desirable and will be sought if technology exists.

(g) Ability to clearly discern and record change in landing configuration from 6 kms and below from threshold/ touch down zone. Complete clarity about undercarriage position is required to be established at 4 kms. This would approximately translate to 12 PPM, 18 PPM and 25 PPM at about 4 kms. Clarity

of approximately 50 PPM ( or equivalent specifications as defined by the industry) is expected between 1-2 km ( will be discussed in detail during interactions)

- (h) The system should be capable of recording multiple aircraft in formation.
- (i) Pick up and record animals, vehicles, humans in proximity of the runway / taxi track in use.
- (j) Time and date stamp, large storage capability for backup and multiple location extraction/ viewing capability is required. Alerts as decided for singular events need to be incorporated For example vehicular presence on the runway, animal on the runway etc)
- (k) Should be able to provide coverage in multiple helipad environment. It is expected that the lookup angles will cater for steeper helicopter operations.
- (l) Should be designed for flexible operations catering for solutions based on sizes of Runways/ Strips up to 4000 feet, 4000-8000 feet, above 8000 ft and helipads of smaller dimensions.
- (m) Negligible human intervention for daily usage. Should have a high component of self-maintenance capability (self-cleaning, heating, cooling, covers etc.). Restricted access/ password protection and encryption where required is a mandatory security feature.
- (n) Should be of rugged design and be able to withstand harsh weather conditions like coastal, high temperature deserts, low temp snow clad areas and high humidity areas. The design, placement of the system and material used should be as per the laid down standards that ensure the safety standards required in the zone. Any part of the equipment placed around the runway shoulders should be collapsible. Further details will be explained during interaction.
- (o) Capability of vehicle mounting and gyro stabilized platforms for special helipads and ship based recording system needs to be indicated additionally.

9. Indigenous Content (IC)/ Categorization. Successful development under Make-II category would result in acquisition from successful Development Agency (DA) through the Buy India (IDDM) category with indigenous design and development and a minimum of 50% IC.

10. **Industry Attributes**

- (a) Should be an Indian entity (as per provisions of Para 20, chapter I of DAP 2020, including additional conditions at sub paragraphs (a) and (b). **(Essential)**

**Note:** A copy of DAP 2020 is available on website for Ministry of Defence.

(b) Familiarity with QA and certification process (Desirable)

11. Interested Indian vendors may send their [proposals by 30 Dec 2023.  
It is requested that, answers to questionnaire may also be dovetailed by the industry in their response.

Interested respondents are also urged to read the provisions of “make-II” procedure at Chapter III of DAP 2020 as the project will be progressed as per these provisions.

**Gp Capt DAD**

**<Signature>**