

BRIEF OF PROJECT: LOW LEVEL LIGHT RADAR (IMPROVED)
{LLLR (I)} UNDER MAKE II CATEGORY

1. **Name of the Proposal.** Low Level Light Radar (Improved).
2. **Use Directorate in SHQ.** Directorate General of Army Air Defence (AAD-8)
3. **Brief Description.** PLA along with PLAAF has undertaken rapid infrastructure improvements to enhance its capability to operate in the region posing an increased air threat along the Northern Borders. To mitigate the same there is a need for maintaining a high degree of operational readiness to cater for unforeseen situations. Low Level aerial surveillance along Northern Borders is very restricted due to the terrain configuration, providing an easy ingress route to aerial platforms. **To plug this critical vulnerability there is an urgent need to procure low level surveillance and tactical control radars.** The radar being proposed is to be an Active Electronically Scanned Artillery, 3D radar which can provide low level surveillance of over 50 Km and provide tactical control of Air Defence weapons.
4. **Operational Justification.**
 - (a) The operational criticality of seamless low level surveillance of all types of aerial targets (aircraft, helicopter, drone etc) & concomitant tac control of Army Air Defence weapon to destroy the aerial threat needs no emphasis. The Army Air Defence is mandated to provide Army Air Defence protection to vital assets in Tactical Battle Area (TBA) in mountainous terrain and in support of mobile & mechanised operations. The execution of the responsibility requires provision of light weight, easily portable and technologically advanced radar system incorporating passive detection & efficient ECCM capability.
 - (b) 54 x Low Level Light Radar (LLLR) are auth to Army Air Defence. The Operational requirement is getting further accentuated with our prolonged deployment along Northern Border. The LLLR has been included in Positive Indigenised List, suggesting that adequate industrial and scientific capacity exists to design, develop and manufacture the Low Level Light Weight Radar (Improved) to meet the operational requirement of Indian Army.
5. **Approximate Quantity.** 40 (including two class room variants).
6. **Approximate Cost.** Not Known.
7. **Technical Parameters.** The key operational / Tech requirements of the proposed Low Level Light Weight Radar (Improved) are as under :-
 - (a) **Technology.** Active Electronically Steerable Antenna, based on GaN T/R Modules & digital beam forming.

(b) **Range.** Capable of detecting and providing 3D data of aerial objects with following specifications :-

- (i) RCS of 2 sqm target - Upto 50 Km.
- (ii) RCS of 1 sqm target - Upto 25 Km
- (iii) RCS of 0.1 m² or more - Upto 18 Km
- (iv) RCS of 0.01 m² or more - Upto 9 Km
- (v) RCS of 0.001 m² or more - Upto 4 Km

(c) **Weight.** Not to exceed 175 kg excluding the weight of power supply unit and packaging.

(d) **Trasprotability.** Capable of transportability by air, vehicle & sea. The radar should be so packaged to facilitate in its ease of protability.

(e) **Tgt Handling Capability.** > 100 targets.

(f) The radar should have a passive detection system.

(g) It should be capable of being deployed at altitude upto 5000m MSL and be able to be mounted on vehicles for operation with mechanised / mobile formation.

(h) **Speed of Target.** Upto 850 m/s.

(j) **Target Update Rate** ≥ 30 .

(k) The radar should be able to transmit target coordinate to AAD wpn system and exercise tactical control on them.

8. **Indigenous Content.** $\geq 50\%$.

9. **Additional Information.**

- (a) Elevation Coverage - $\geq 70^{\circ}$ (incl negative elevation coverage)
- (b) Range Accuracy - $\leq 50m$
- (c) Operating Termerature - (-) 30^oC to (+) 50^oC
- (d) Operating Winds - 40 Knots or more

10. **Contact Details.**

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