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Dte Gen of Army AD
General Staff Branch
D-1 Wing, Sena Bhawan
IHQ of MOD (Army)
DHQ PO, New Delhi-110011

50058/Make-II/ LBRM/ 3 /GS/AAD-7

17 Mar 2023

(Vendors Concerned)

GRANT OF EXTENSION OF TIMELINES FOR SUBMISSION OF EXPRESSION OF INTEREST (Eol) RESPONSE FOR PROCUREMENT OF VERY SHORT RANGE AIR DEFENCE SYSTEM (LASER BEAM RIDING) (VSHORADS [LBR]) UNDER MAKE-II

Dear Sir/Madam,

1. Refer Expression of Interest (Eol) of **Very Short Range Air Defence System (Laser Beam Riding) (VSHORADS (LBR))** hosted on DDP website (Make in India Projects) on 13 Feb 2023.

2. It is informed that as per provisions Para 26 and 28 of ibid Eol, the Eol response submission date was 10 April 2023. The **last date of submission of Eol response has now been extended by the Competent Authority to 08 May 2023 (extended by Four Weeks)** instead of 10 Apr 2023.

3. The revised timelines for submission of the Eol response of **Very Short Range Air Defence System (Laser Beam Riding) (VSHORADS (LBR))** are now as under:-

- (a) **Submission of Queries on Eol** - 14 April 2023.
- (b) **Pre-response meeting** - 27 April 2023.
- (c) **Submission of responses to the Eol** - 08 May 2023.

4. The applicable Paras of ibid Eol of **Very Short Range Air Defence System (Laser Beam Riding) (VSHORADS (LBR))** hosted on DDP website (Make in India Projects) are now amended as under :-

(a) **Para 26.** The responses to this Eol must be submitted on **08 May 2023, between 0900h and 1700h. A drop box will be placed at Sena Bhawan (Gate No 4) only on 08 May 2023 for all representatives of firms to physically deposit the EOI response document. The soft copy of response documents is required in MS Word and PDF format.**

(b) **Para 28 (Pre Eol Response Meeting).** A pre-response meeting will be held on **27 April 2023 at 1100 hrs at Directorate General of Army AD, Room No 602 (Army AD Conference Hall), D1 Wing, Sena Bhawan, New Delhi-110011.** Vendors are required to submit their queries/clarifications/amplifications in writing to this office **by 14 April 2023.**

Rest no change.



Achha
(Ajay Verma)
Colonel
Member Secretary
For Chairman PFT

INVITATION FOR EXPRESSION OF INTEREST (EOI) FOR PROCUREMENT OF QUANTITY 200 x LAUNCHERS & 1200 x MISSILES OF VERY SHORT RANGE AIR DEFENCE SYSTEM LASER BEAM RIDING (VSHORADS (LBR)) UNDER MAKE II CATEGORY OF DAP-2020

References : Defence Acquisition Procedure - 2020.

Appendices :

- Appendix A :** Preliminary Service Qualitative Requirements for Very Short Range Air Defence System Laser Beam Riding (VSHORADS(LBR)).
- Appendix B :** Commercial Evaluation Criteria.
- Appendix C :** Technical Evaluation Criteria.
- Appendix D :** Correctness Certificate.
- Appendix E :** Confidentiality Agreement.
- Appendix F :** EoI Compliance Certificate.
- Appendix G :** Information Performa.

1. **Introduction.** The versatility of VSHORAD missiles has been regularly proved in battle including the recent Russo Ukrainian conflict. Current VSHORAD missile system world over utilize two diverse guidance technologies of Laser Beam Riding (LBR) and IR Homing. The current VSHORAD missiles in the inventory of Indian Army (IA) and Indian Air Force (IAF) are all with IR homing guidance systems. Iгла 1M VSHORAD missile system presently in service with IA and IAF, was inducted in 1989 and was planned for de-induction in 2013. The system has already outlived its life and currently no serviceable missiles are available. The IR Homing guidance systems are susceptible to IR counter measures and have difficulties in engaging low IR signature targets like drones and UAVs. It is proposed to replace the IR Homing technology system with two technologies, one which is IR Homing based and other which is based on Laser Beam Riding technology. VSHORADS (LBR) missile will have the capability to engage all types of aerial targets and an added capability to engage those with low IR signature such as RPAs and Drones. The system can be deployed to destroy aerial targets in remote areas using a small detachment. The Optical sight system allows for target tracking, laser unit will project a laser information field on the target and missile rides on the laser beam to achieve hit on the target.

2. **Objective.** The objective of this invitation of Expression of Interest (EoI) is to seek responses from eligible Indian Vendors for the development of prototype and further procurement of Very Short Range Air Defence System Laser Beam Riding (VSHORADS (LBR)).

3. **Layout** The Eol has been convened in following parts:-

- (a) Part I : General Information.
- (b) Part II : Scope of the Project.
- (c) Part III : Evaluation Criteria.
- (d) Part IV : Procedure for submission of response to the Eol.
- (e) Part V : Miscellaneous.

PART I : GENERAL INFORMATION

4. **Nomenclature**. Very Short Range Air Defence System Laser Beam Riding (VSHORADS(LBR))

5. **Categorisation**. The project is categorised as under :-

- (a) **Prototype Development Phase**. 'Make-II' in accordance with Para 5 (b)(i) of Chapter III of Defence Acquisition Procedure 2020.
- (b) **Procurement Phase**. 'Buy (Indian-IDD)' with $\geq 50\%$ indigenous content in accordance with Para 6 (d) of Chapter III of Defence Acquisition Procedure 2020.

6. **Quantity**.

(a) **Prototype Development Phase**. The following equipment is required:-

S No	VSHORADS (LBR)	Qty
(i)	Launcher	02 (Two)
(ii)	Missile	04 (Four)

(b) **Procurement Phase**. The following equipment is required:-

S No	VSHORADS (LBR)	Qty			Remarks
		IA	IAF	Total	
(a)	Launcher (MoQ)	100	100	200	
(b)	Missile (MoQ)	700	500	1200	

7. **Make II Procedure**. In accordance with Chapter III of DAP-2020 and amendments thereof (as applicable).

PART II : SCOPE OF THE PROJECT

8. **Scope.** The existing and futuristic threat along Northern borders and Western front warrants a multiple technology approach for VSHORADS Missile systems. The current inventory of VSHORADS in Indian Army (IA) is only IR homing type that have difficulty in engaging low IR signature targets like Drones and UAVs. **VSHORADS (Laser Beam Riding) are highly effective in engaging such targets.** Furthermore, IR counter measures employed by aerial targets necessitate the need for an alternate technology. VSHORADS (LBR) will be deployed as Terminal weapon system to give Air Defence protection to the vital assets. The system is man portable and can be easily deployed in mountainous and High Altitude Area (HAA) terrain prevalent in the Northern, Western and Eastern Borders.

9. **Preliminary Services Qualitative Requirements (PSQR) of the Proposed Very Short Range Air Defence System Laser Beam Riding (VSHORADS (LBR)).** Extract of **PSQR No 110** of the Very Short Range Air Defence System Laser Beam Riding (VSHORADS(LBR)) is attached as **Appendix A.**

Timelines and Critical Activities

10. **Time Lines & Milestones.** Tentative time lines for the project are given at as under :-

S No	Activity	Remarks	Timelines
(a)	Issue of Eol	By Project Facilitation Team (PFT)	T ₀
(b)	Eol Responses Submission	By Eol respondents (Indian Vendors)	T ₀ + 8 weeks
(c)	Eol Responses Evaluation	By Project Facilitation Team (PFT)	T ₀ + 8 to T ₀ + 14 weeks
(d)	Issue of Project Sanction Order for Development of Prototype	To selected DAs, those meeting evaluation criteria	T ₀ + 14 to T ₀ + 16 weeks
(e)	Design and Development of Prototype and Prototype Readiness Review	Selected DAs will develop the prototype and Prototype Readiness Review will be conducted for following. (i) To confirm completion of design & development of prototypes as per PSQR prior to commencement of User Trial Readiness Review. (ii) More than one review may be conducted, as required. Dates will be promulgated by the PFT as per progress of the project.	T ₀ + 16 to T ₀ + 68 weeks

S No	Activity	Remarks	Timelines
(f)	Trials, Conversion of PSQRs to GSQRs, Solicitation of Commercial offer and Contract	As per Chapter II of DAP 2020 and amendments thereof(As applicable)	-

Development of Prototype and Trials

11. All possible and reasonable assistance and any clarification related to functional or operational aspect of development as sought by DAs will be provided by Project Facilitation Team (PFT).

12. After the prototype has been developed as per PSQR given at **Appendix A**, the PFT would conduct Prototype Readiness Review as per Chapter III of DAP 2020 and amendments thereof (as applicable). Service HQ will formulate the 'Trial Directive' which will incorporate the parameters for validating the 'Essential Parameters'. Necessary technical literature pertaining to the design & material will be provided by the DAs for the conduct of Prototype Readiness Review to ensure matching of prototype specification with PSQR as per with Chapter III of DAP-2020 and amendments thereof(as applicable).

Deliverables

13. The project is envisaged to have the following deliverables:-

(a) **Prototype Development Stage.** The following equipment is required :-

S No	VSHORADS (LBR)	Qty	Remarks
(i)	Launcher	02 (Two)	
(ii)	Missile	04 (Four)	

(b) **Procurement Stage.** Very Short Range Air Defence System Laser Beam Riding (VSHORADS (LBR)) as per the following details :-

S No	VSHORADS(LBR)	Qty			Remarks
		IA	IAF	Total	
(i)	Launcher	100	100	200	
(ii)	Missile	700	500	1200	

(c) **Warranty.** A warranty of Two (02) years will be required for the VSHORADS (LBR) System and all its deliverables.

(d) **Maintenance Aspects.** Post warranty of 2 years, a suitable Engineering Support Package (ESP) comprising of MRLS (Two Years), Technical Literature, Special Maintenance Tools (SMTs), Special Test Equipment (STE), Test Jigs (TJs) and Fixtures and adequate training and training aggregates will be provided by the Seller.

Details of Trials/ Assistance to be Provided

14. The following trials will be conducted/assistance will be provided :-

(a) **Trials.** As per relevant paras of Chapter III of DAP 2020 and amendments thereof (as applicable) a Single Stage Composite Trials will be carried out.

(b) **Assistance to be Provided.** Assistance to Vendor will be provided based on the merit of the request received by PFT. The vendor will be liable to bear the expenses of repair/replacement of the facility and all necessary insurance coverage in case of any damage occurring to equipment/property/personnel resulting from the testing of the job of vendor.

Solicitation of Commercial Offers

15. A commercial Request for Proposal (RFP) for 'Buy (Indian-IDDM)' phase would be issued to DA(s) as per DAP 2020 and amendments thereof (as applicable) for soliciting their commercial offers.

Multiple Technological Solutions

16. Multiple technologies solutions are not acceptable.

PART III : EVALUATION CRITERIA

Commercial Evaluation Criteria

17. EoI respondents will furnish their response to the Commercial Evaluation Criteria as per format given at **Appendix B**.

18. **Technical Evaluation Criteria.** The respondents to this EoI are required to furnish information about their Technical Capability as per format given at **Appendix C**. Compliance/information' is also required to be submitted as per the proposed solution offered by the DA for Very Short Range Air Defence System Laser Beam Riding (VSHORADS (LBR)).

19. **Indigenous Content (IC).** Indigenous Content (minimum of 50%) is to be achieved. Post successful development under Make-II would result in acquisition from successful DAs through 'Buy (Indian-IDDM)' category with indigenous design and development. The Indigenous Content \geq 50% to be in accordance to Para 21 of Chapter I of DAP 2020.

20. **Additional Information.** Additional information required to be furnished as part of the EoI response is given at **Appendix G**.

21. **Foreign Collaboration.** If the EoI Respondent is collaborating/plans to collaborate with a foreign technology provider, the nature of such collaboration and the technology areas being transferred must be stated in the response (**Please refer Para 16 of Appendix G**).

22. **Rejection Criteria for Selection as DAs.** The following may lead to rejection of EoI response :-

- (a) Failure to meet Commercial Evaluation Criteria given at **Appendix B**.
- (b) Failure to offer/meet/comply with Technical Evaluation Criteria given at **Appendix C**.
- (c) Failure to submit certificates as mentioned at **Appendices D to F** of the EoI.
- (d) Failure to offer compliance to any of the terms and conditions given in the EoI.
- (e) Any other parameter of the response considered inadequate by the MoD, Government of India.

PART IV : PROCEDURE FOR SUBMISSION OF RESPONSE TO THE EoI

23. **Guidelines for Submitting EoI Responses.**

(a) The responses should be submitted strictly as per the formats given in respective Appendices. The vendors will submit their response on **Appendices B to F**. The response will be marked by pen on a printout of **Appendices B to F**. Any additional info may be entered by pen in remarks column. Additional information as per **Appendix G** will be submitted separately as per the given format.

(b) All responses and Appendices should be submitted in a single file / folder. Supporting documents / additional references should be submitted in a separate folder with proper reference mentioned against each parameter / sub parameter in respective appendices.

(c) Any supporting document/evidence without any reference to specific parameter of criteria will not form part of the assessment.

24. The EoI respondent shall submit three (03) copies of response to the EoI, clearly marking one copy as '**Original Copy**' and **second & third as 'Duplicate Copy and Triplicate Copy'**. The response will be submitted on print out of **Appendices B to F** uploaded alongwith the EoI. In the event of any discrepancy between them, the original copy shall govern/prevail. Each page of the response will bear the signatures of the authorised signatory of the company. The DA shall also submit a soft copy of the response to this EoI in a CD/DVD.

25. The Envelopes shall be Addressed as under :-

Secretary, Project Facilitation Team
Army Air Defence Directorate/AAD-7
Integrated HQ of MoD (Army)
Room No 608, D1 Wing, Sena Bhawan
DHQ PO, New Delhi – 110011
Tele No : 34001 & 32779
E-mail ID : skyplan-94@gov.in

26. The responses to this Eol must be submitted on the day **10 April 2023, between 0900h and 1700h. A drop box will be placed at Sena Bhawan (Gate No 4) only on 10 April 2023 for all representatives of firms to physically deposit the EOI response document. The soft copy of response documents is required in MS Word and PDF format.**

27. Confidentiality Agreement. The Company will be required to sign and honour the 'Confidentiality Agreement' with MoD Govt of India. The 'Confidentiality Agreement' will be furnished by each Eol respondent at the time of submission of Eol responses as per format given at **Appendix E.**

PART V : MISCELLANEOUS

28. Pre Eol Responses Meeting A pre-response meeting will be held on **27 March 2023 at 1100 hrs at Directorate General of Army AD, Room No 602 (Army AD Conference Hall), D1 Wing, Sena Bhawan, New Delhi-110011.** Vendors are required to submit their queries / clarifications / amplifications in writing to this office by **16 March 2023.**

29. Guidelines for penalties in business dealings with entities as promulgated by Government from time to time will be applicable on procurement process & bidders.

30. The Pre-Contract Integrity Pact (PCIP), listed as detailed in Paragraph 119 of Chapter II of DAP-2020, shall apply mutatis mutandis to the 'Buy (Indian-IDDM)' phase of 'Make' project.

31. Respondent would be subject to disqualifications if they make false, incorrect, or misleading claims in their response to this Eol. A 'Correctness Certificate' as per the format at **Appendix D** will be furnished as part of the response.

32. An Eol Compliance Certificate will be submitted as per **Appendix F.**

33. Please acknowledge the receipt of this invitation for Eol.

File No : 50058/VSHORADS (LBR)/ 05 /GS/AAD-7

Dated : 09 Feb 2023



Aveha
(Ajay Verma)
Colonel

Secretary, Project Facilitation Team
VSHORADS (LBR)

Enclosures : Appendices A to G

PRELIMINARY STAFF QUALITATIVE REQUIREMENTS FOR VERY SHORT RANGE
AIR DEFENCE SYSTEM LASER BEAM RIDING (VSHORADS-LBR)

INTRODUCTION AND OPERATIONAL EMPLOYMENT OF EQUIPMENT

1. **Introduction.** Very Short Range Air Defence Systems (VSHORADS) due to versatility have proved their worth in operations world over. Low IR signature aerial targets, including drones and UAVs with their lethality and multifarious utility have proliferated in the battle field. To meet the evolving dynamic air threat, Army Air Defence requires VSHORADS Laser beam riding as Terminal Defence Systems.
2. **Aim.** To define Qualitative Requirement of VSHORADS Laser beam riding VSHORADS (LBR).
3. **System Visualisation.**
 - (a) The system should comprise of a launcher with suitable sighting system and a missile to engage targets both by day and night.
 - (b) The system should be man portable and operated by not more than two personnel.
 - (c) It should have the capability to engage fighter & transport aircraft, helicopters (including hovering helicopters) all types of Unmanned Aerial Vehicles (UAV) and Unmanned Combat Aerial Vehicle (UCAV) within the existing range and height parameters of engagement.
4. **Proposed Service Employment.**
 - (a) The VSHORADS (LBR) will be used by Army Air Defence as Terminal defence System against dynamic threat of aircrafts, helicopters, UAVs and UCAVs.
 - (b) The VSHORADS (LBR) is proposed to be employed in the following configurations:-
 - (i) Man portable.
 - (ii) In service vehicle based (2.5 T class Vehicle).

ESSENTIAL PARAMETERS - A

Operational Parameters

5. The VSHORADS (LBR) will be compact and will have the facility of quick deployment and redeployment in battle field with following parameters:-

S No	Parameter	Requirement
(a)	Terrain	The system is proposed to be employed across all terrain in the country. These are as follows :- (i) High Altitude Areas - 4500m and above. (ii) Plains / Riverine. (iii) Desert.
(b)	Climatic Conditions	VSHORADS (LBR) should be able to operate under all weather conditions including snow bound locations:- (i) <u>Operating Temp.</u> (aa) Min Temp – Minus 20 ⁰ C. (ab) Max Temp – upto 45 ⁰ C.
(c)	Weight of system	The missile and launcher should be man portable. Weight of complete system including one missiles should Not be more than 90 Kg.
(d)	Length of missile	Not more than 2 mtr.
(e)	Range	Effective Range of missile Not less than 7000m.
(f)	Effective Height of engagement	3500m or more.
(g)	Types of target	The missile should be effective against all types of aircrafts, helicopters, UAVs and UCAVs including aerial targets with low IR signature in battle field including poor visibility conditions due to smoke and fog more than 10 lumen (Twilight Condition).
(h)	Deployment time	The system should be deployable from transportation mode to firing mode within 5 mins and standby mode to firing mode within 10 sec.
(j)	Transportability	System must be transportable in vehicles, ships, trains and aircraft.

Technical Parameters

6. The VSHORADS (LBR) must be a man portable type of missile and must fulfil the following technical parameters / capabilities: -

S No	Parameter	Requirement
(a)	Missile Guidance	Laser Beam Riding guidance and immune to jamming.
(b)	Length of missile	Not more than 2 mtr.
(c)	Light Weight: The system should be man portable :- (i) One operable missile including Launching Tube	Not more than 30 kgs.
	(ii) Complete Man Portable Firing Station including one operable missile, sight system, supporting Stand and Power Pack	Not more than 90kgs.
(d)	Range:	(i) Effective Range. Not less than 7000m.
		(ii) Minimum Range. Should not be more than 500m.
(e)	Effective Height of Target Engagement	(i) Maximum. 3500m or more.
		(ii) Minimum. Should not be more than 10m at ranges of 500m or more.
(f)	Target Speed	Max target speed for :- - Approacher 500 m/s - Receder 400 m/s
(g)	Single Shot Kill Probability	(i) Fighter Aircraft - Not less than 0.80
		(ii) Helicopters - Not less than 0.90
		(iii) UAVs and UCAVs – Not less than 0.70
(h)	Fuze	Proximity or Direct hit Fuze.
(j)	Warhead	Fragmentation type / sub-munition with explosive charge.
(k)	Self-Destruction	Missile/ sub-munition should self-destruct on command to prevent fratricide/on missing target.

S No	Parameter	Requirement
(l)	Launching Unit	It should have the following characteristics:- (i) The Launcher should be able to slew 360 deg in Azimuth. (ii) The elevation of target engagement should at least be from -5 deg to 35 deg. (iii) Provide a system to indicate target detection, tracking initiation and lock on. (iv) There should be a counter to indicate number of missiles fired by the launcher. (v) Should be capable of firing a minimum of 350 missiles .
(m)	Sighting Sys	(i) Electro optical Day and night sight. (ii) Range – not less than 12 Kms. (iii) Field of view :- (aa) Wide mode ≥ 8 deg x 8 deg (ab) Narrow mode ≥ 2 deg x 2 deg (iv) LRF – min 10 KM range
(n)	Cueing system	Using a radio/line link with an interphase device, the system should have provision of being cued to the target by input from radar.
(o)	Power Supply Source	(i) Utilising indigenous Light weight, long life rechargeable and reusable battery with not less than of 300 charge discharge cycle. (ii) Should be able to fire minimum 20 missile or minimum 4 hours of operations without battery change / re-charged.
(p)	System Reliability	The system should sustain minimum 10 continuous engagements/ simulated engagements without any hardware/ software stoppage.
(q)	EMI /EMC	The system should be EMI/ EMC compatible with existing systems in IA and as per 461 E.
(r)	BITE	The system should have Built in Test equipment to check the serviceability of launcher and missile parameters.

Maintainability & Ergonomic Parameters

7. The VSHORADS (LBR) must fulfil the following maintainability and ergonomic parameters / capabilities: -

S No	Parameter	Requirement
(a)	Shelf Life	The shelf life of missile should be Not less than 15 years and extendable up to 25 years when stored in temperature controlled condition as existing in service missile storage depots.
(b)	Packing Material & Water Proofing	The storage and transportation container/ box must be waterproof when exposed to tropical condition of rain and humidity .
(c)	Carriage	The missile should be easy to carry by side/cross sling. Easy to carry packaging harness/boxes to be provided for Launch mechanism and sight. The launcher stand should be foldable/telescopic to reduce size for transportation.

8. **Maintenance.**

(a) The launcher should not need storage in a controlled environment and should require minimum maintenance.

(b) The missile in launching tube must be maintenance free. For any periodic or pre-firing tests, the essential specialized testing equipment is to be provisioned. The testing equipment must be portable, function in field conditions and capable of being mounted on high mobility vehicles and in testing room configuration.

(c) The night sight & Laser guidance unit should not require storage in controlled environment or field level maintenance. The repair, testing and maintenance at the depot would need ESP.

ESSENTIAL PARAMETERS – ‘B’

9. Nil.

ENHANCED PERFORMANCE PARAMETERS – ‘A’

10. Nil.

DETAILS OF DRAFTING TEAM

Prepared By	: Col Ajay Verma, Col AD (GM-SP)
Verified By	: Brig OP Vaishnav, SM, VSM, Brig AD (Acqn & Sustenance)
Address	: DG AAD/ AAD-7, Room No 608, D-1 Wing, Sena Bhawan
Contact Details	: 34001 & 32779

COMMERCIAL EVALUATION CRITERIA

Evaluation Criteria

1. Name of the Vendor.
2. Evaluation Criteria

S No	Criteria	Vendor Submission	Remarks (if Any)
(a)	Nature of the Company (refer Para 6(b) of Chapter III of DAP-2020)	Indian / Joint Venture	(Supporting Documents to be attached).
(b)	Ownership status (refer Para 6(b) of Chapter III of DAP-2020)	Compliant / Non-compliant	
(c)	Category of Industry	Large / Medium / Small / Micro / OFB / Start Up	
(d)	Registration Details	Yes / No	
(e)	Minimum average turnover for last three financial years from date of issue of EoI (5% of AoN Cost)	Average more than 237.5 Cr / less than 237.5 Cr	
(f)	Net worth of previous financial year ending 31 Mar 2022.	Positive / Negative	
(g)	DIPP License details.		

Station :

Signature

Company Seal

Date :

Note :

1. All submissions must be on printed copy of Appendix as uploaded on MoD website and should be supported by referenced documents duly authenticated.
2. Any input with incorrect or missing reference will not assessed.

TECHNICAL EVALUATION CRITERIA

S No	Criteria and Sub Criteria	Vendor Response	Remarks (if Any)
1.	Indigenous content will be minimum 50% as per DAP-2020	Compliant/ Non Compliant	
2.	Indigenous design as per provision of DAP-2020	Compliant/ Non Compliant	
3.	<u>Timelines.</u>		
	(a) Development of prototype incl Prototype Readiness Review - 52 weeks	Compliant/ Non Compliant	
	(b) Delivery of complete items as per delivery schedule 24 to 36 Months.	Compliant/ Non Compliant	
4.	Confirmation of capability to develop and provide equipment to meet user requirements specified in Appendix 'A' (PSQR).	Compliant/ Non Compliant	
5.	Proposed system configuration (broad design details).	Provided/ Non Provided	
6.	<u>Nature of Business.</u> Manufacturing entity or System Integrator of defence equipment and not a trading company.	Compliant/ Non Compliant	
7.	<u>Experience.</u> Min 02 yrs, experience in broad areas of manufacturing of missiles, launchers, explosives and other related equipment (Details to be provided with the response). If not, than cumulative experience of at least 03 years in above areas, resulting in gaining of competence for manufacturing the proposed product (Details of Existing manufacture related infrastructure /R&D/Quality control facilities to be provided)	Compliant/ Non Compliant	

S No	Criteria and Sub Criteria	Vendor Response	Remarks (if Any)
<u>PSQR Requirements</u>			
<u>Introduction and Proposed Employment of the System</u>			
8.	<u>Introduction.</u> Very Short Range Air Defence Systems (VSHORADS) due to versatility have proved their worth in operations world over. Low IR signature aerial targets, including drones and UAVs with their lethality and multifarious utility have proliferated in the battle field. To meet the evolving dynamic air threat, Army Air Defence requires VSHORADS Laser beam riding as Terminal Defence Systems.	Compliant/ Non Compliant	
9.	<u>Aim.</u> To define Qualitative Requirement of VSHORADS Laser beam riding VSHORADS (LBR).	Compliant/ Non Compliant	
10.	<u>System Visualisation.</u> (a) The system should comprise of a launcher with suitable sighting system and a missile to engage targets both by day and night. (b) The system should be man portable and operated by not more than two personnel. (c) It should have the capability to engage fighter & transport aircraft, helicopters (including hovering helicopters) all types of Unmanned Aerial Vehicles (UAV) and Unmanned Combat Aerial Vehicle (UCAV) with in the existing range and height parameters of engagement.	Compliant/ Non Compliant	

S No	Criteria and Sub Criteria	Vendor Response	Remarks (if Any)
11.	<p>4. <u>Proposed Service Employment.</u></p> <p>(a) The VSHORADS (LBR) will be used by Army Air Defence as Terminal defence System against dynamic threat of aircrafts, helicopters, UAVs and UCAVs.</p> <p>(b) The VSHORADS (LBR) is proposed to be employed in the following configurations:-</p> <p>(i) Man portable.</p> <p>(ii) In service vehicle based (2.5 T class Vehicle).</p>	Compliant/ Non Compliant	
<u>Operational Parameters</u>			
12.	<p>The VSHORADS (LBR) will be compact and will have the facility of quick deployment and redeployment in battle field with following parameters:-</p>		
	<p>(a) <u>Terrain.</u> The system is proposed to be employed across all terrain in the country. These are as follows :-</p> <p>(i) High Altitude Areas - 4500m and above.</p> <p>(ii) Plains / Riverine.</p>	Compliant/ Non Compliant	
	<p>(iii) Desert.</p>		

S No	Criteria and Sub Criteria	Vendor Response	Remarks (if Any)
	<p>(b) Climatic Conditions. VSHORADS (LBR) should be able to operate under all weather conditions including snow bound locations:-</p> <p>(i) Operating Temp.</p> <p>(aa) Min Temp – Minus 20⁰ C.</p> <p>(ab) Max Temp – upto 45⁰ C.</p>	Compliant/ Non Compliant	
	<p>(c) Weight of system. The missile and launcher should be man portable. Weight of complete system including one missiles should Not be more than 90 Kg.</p>	Compliant/ Non Compliant	
	<p>(d) Length of Missile. Not more than 2 mtr.</p>	Compliant/ Non Compliant	
	<p>(e) Range. Effective Range of missile Not less than 7000m.</p>	Compliant/ Non Compliant	
	<p>(f) Effective Height of Engagement. 3500m or more.</p>	Compliant/ Non Compliant	
	<p>(g) Types of Target. The missile should be effective against all types of aircrafts, helicopters, UAVs and UCAVs including aerial targets with low IR signature in battle field including poor visibility conditions due to smoke and fog more than 10 lumen (Twilight Condition).</p>	Compliant/ Non Compliant	
	<p>(h) Deployment Time. The system should be deployable from transportation mode to firing mode within 5 mins and standby mode to firing mode within 10 sec.</p>	Compliant/ Non Compliant	
	<p>(j) Transportability. System must be transportable in vehicles, ships, trains and aircraft.</p>	Compliant/ Non Compliant	

S No	Criteria and Sub Criteria	Vendor Response	Remarks (if Any)
Technical Parameters			
13.	The VSHORADS (LBR) must be a man portable type of missile and must fulfil the following technical parameters / capabilities: -	Compliant/ Non Compliant	
	(a) Missile Guidance. Laser Beam Riding guidance and immune to jamming.	Compliant/ Non Compliant	
	(b) Length of missile. Not more than 2 mtr.	Compliant/ Non Compliant	
	(c) Light Weight. The system should be man portable. (i) One operable missile including Launching Tube- Not more than 30 kgs. (ii) Complete Man Portable Firing Station including one operable missile, sight system, supporting Stand and Power Pack – Not more than 90 kgs.	Compliant/ Non Compliant	
	(d) Range. (i) Effective Range. Not less than 7000m. (ii) Minimum Range. Should not be more than 500m.	Compliant/ Non Compliant	
	(e) Effective Height of Target Engagement:- (i) Maximum. 3500m or more. (ii) Minimum. Should not be more than 10m at ranges of 500m or more.	Compliant/ Non Compliant	

S No	Criteria and Sub Criteria	Vendor Response	Remarks (if Any)
(f)	<p>Target Speed. Max target speed for :-</p> <ul style="list-style-type: none"> - Approacher 500 m/s - Receder 400 m/s 	Compliant/ Non Compliant	
(g)	<p>Single Shot Kill Probability.</p> <ul style="list-style-type: none"> (i) Fighter Aircraft - Not less than 0.80 (ii) Helicopters - Not less than 0.90 (iii) UAVs and UCAVs – Not less than 0.70 	Compliant/ Non Compliant	
(h)	<p>Fuze. Proximity or Direct hit Fuze.</p>	Compliant/ Non Compliant	
(j)	<p>Warhead. Fragmentation type / sub-munition with explosive charge.</p>	Compliant/ Non Compliant	
(k)	<p>Self-Destruction. Missile/ sub-munition should self-destruct on command to prevent fratricide/on missing target.</p>	Compliant/ Non Compliant	
(l)	<p>Launching Unit. It should have the following characteristics:-</p> <ul style="list-style-type: none"> (i) The Launcher should be able to slew 360 deg in Azimuth. (ii) The elevation of target engagement should at least be from -5 deg to 35 deg. (iii) Provide a system to indicate target detection, tracking initiation and lock on. (iv) There should be a counter to indicate number of missiles fired by the launcher. (v) Should be capable of firing a minimum of 350 missiles. 	Compliant/ Non Compliant	

S No	Criteria and Sub Criteria	Vendor Response	Remarks (if Any)
	<p>(m) Sighting Sys.</p> <p>(i) Electro optical Day and night sight.</p> <p>(ii) Range – not less than 12 Kms.</p> <p>(iii) Field of view :-</p> <p>(aa) Wide mode ≥ 8 deg x 8 deg</p> <p>(ab) Narrow mode ≥ 2deg x 2 deg</p> <p>(iv) LRF – min 10 KM range</p>	Compliant/ Non Compliant	
	<p>(n) Cueing system. Using a radio/line link with an interphase device, the system should have provision of being cued to the target by input from radar.</p>	Compliant/ Non Compliant	
	<p>(o) Power Supply Source.</p> <p>(i) Utilising indigenous Light weight, long life rechargeable and reusable battery with not less than of 300 charge discharge cycle.</p> <p>(ii) Should be able to fire minimum 20 missile or minimum 4 hours of operations without battery change / re-charged.</p>	Compliant/ Non Compliant	
	<p>(p) System Reliability. The system should sustain minimum 10 continuous engagements/ simulated engagements without any hardware/ software stoppage.</p>	Compliant/ Non Compliant	
	<p>(q) EMI /EMC. The system should be EMI/ EMC compatible with existing systems in IA and as per 461 E.</p>	Compliant/ Non Compliant	
	<p>(r) BITE. The system should have Built in Test equipment to check the serviceability of launcher and missile parameters.</p>	Compliant/ Non Compliant	

S No	Criteria and Sub Criteria	Vendor Response	Remarks (if Any)
<u>Maintainability & Ergonomic Parameters</u>			
14.	<p>The VSHORADS (LBR) must fulfil the following maintainability and ergonomic parameters / capabilities: -</p> <p>(a) <u>Shelf Life</u>. The shelf life of missile should be Not less than 15 years and extendable up to 25 years when stored in temperature controlled condition as existing in service missile storage depots.</p> <p>(b) <u>Packing Material & Water Proofing</u>. The storage and transportation container/ box must be waterproof when exposed to tropical condition of rain and humidity.</p> <p>(c) <u>Carriage</u>. The missile should be easy to carry by side/cross sling. Easy to carry packaging harness/boxes to be provided for Launch mechanism and sight. The launcher stand should be foldable/telescopic to reduce size for transportation.</p>	Compliant/ Non Compliant	
15.	<p><u>Maintenance</u></p> <p>(a) The launcher should not need storage in a controlled environment and should require minimum maintenance.</p> <p>(b) The missile in launching tube must be maintenance free. For any periodic or pre-firing tests, the essential specialized testing equipment is to be provisioned. The testing equipment must be portable, function in field conditions and capable of being mounted on high mobility vehicles and in testing room configuration.</p> <p>(c) The night sight & Laser guidance unit should not require storage in controlled environment or field level maintenance. The repair, testing and maintenance at the depot would need ESP.</p>	Compliant/ Non Compliant	

16. **Compliance Certificates.**

- (a) Correctness Certificate (As per Appendix D) : Compliant / Non Compliant.
- (b) Confidentiality Agreement (As per Appendix E) : Compliant / Non Compliant.
- (c) EoI Compliance Certificate (As per Appendix F) : Compliant / Non Compliant.

Station:

Signature

Company Seal

Date :

Note :

1. All submissions must be on printed copy of Appendix as uploaded on MoD website and should be supported by referenced documents duly authenticated.
2. Any input with incorrect or missing reference will not be assessed.

RESTRICTED

CORRECTNESS CERTIFICATE

Appendix D

(Refers to Para 31 of Eol)

CORRECTNESS CERTIFICATE

It is certified that information submitted in the documents as part of the response to Expression of Interest for the project of Very Short Range Air Defence System Laser Beam Riding (VSHORADS (LBR)) is correct and complete in all respects. It is acknowledged that the company will be disqualified from further participation if any information provided is found to be incorrect.

Signature with Company Seal

Note :

1. All submissions must be on printed copy of Appendix as uploaded on MoD website and should be supported by referenced documents duly authenticated.
2. Any input with incorrect or missing reference will not assessed.

RESTRICTED

Appendix E

(Refers to Para 27 of Eol)

CONFIDENTIALITY AGREEMENT

1. It is certified that Expression of Interest document for the project Very Short Range Air Defence System Laser Beam Riding (VSHORADS (LBR)) will not be shared with any agency in part or full any other agency. Only relevant details, as applicable, will be shared with technology partners including foreign technology partners. However, the Eol document itself will not be shared with any technology partners.

2. The company understands the security sensitivity of such an operational systems and any information pertaining to deployment and usage of the system including system scaling will not be discussed with third party without a written permission from the Project Facilitation Team. The company understands that failure to observe this agreement will lead to disqualification from the project.

Signature with Company Seal

Note :-

1. All submissions must be on printed copy of Appendix as uploaded on MoD website and should be supported by referenced documents duly authenticated.
2. Any input with incorrect or missing reference will not assessed.

EoI COMPLIANCE CERTIFICATE

It is certified that all the aspects mentioned in the Expression of Interest for the procurement of Very Short Range Air Defence System (VSHORADS (LBR)) are being complied to. It is acknowledged that the company will be disqualified from further participation if any aspect mentioned in Expression of Interest is not complied with.

Signature with Company Seal

Note :

1. All submissions must be on printed copy of Appendix as uploaded on MoD website and should be supported by referenced documents duly authenticated.
2. Any input with incorrect or missing reference will not assessed.

Appendix G

(Refers to Para 23 of EoI)

INFORMATION PERFORMA

1. Name of the Company.
2. Name of CEO with Designation.
3. Address of the Registered Office.
4. Address of the Factory / Factories.
5. Company Website(s).
6. Date of Incorporation.
7. Brief History of the Company.
8. Category of Industry (Large / Medium / Small / Micro).
9. Nature of Company (Public Limited/ Private Limited).
10. **General Information of Company.**
 - (a) CIN
 - (b) Shareholding pattern.
 - (c) Details of ISO, Quality Assurance and other Certification.
11. **Financial Information:-**
 - (a) Revenue and Net Profit during the last three Financial Years.
 - (b) Present Net Worth of the Company.
 - (c) Credit Rating/*s from RBI/SEBI approved agencies.
12. Nature of Business (Manufacture / Trader / Sole selling or Authorised Agent/ Dealer / Assembler / Processor / Re packer/ Service Provider). Please give broad product range as applicable

13. Details of Current Products :-
 - (a) Type / Description.
 - (b) Licensed / Installed Capacity.
 - (c) Annual Production for Preceding 3 Years.
14. Credit Rating.
15. Details of IPRs if any.
16. Details of Foreign Collaborations if any planned for execution of project.
17. Technology Received from abroad and assimilated / planned for execution of project.
18. Products Already Supplied :-
 - (a) To Indian Army / Air Force / Navy.
 - (b) PSUs.
 - (c) DRDO and its Laboratories.
 - (d) Ordnance Factories.
 - (e) Any other Defence Organisation.
 - (f) To other Principal Customers.
19. Details of Developmental Facilities :-
 - (a) R&D Facilities Available.
 - (b) Number of Technical Manpower.
 - (c) Percentage of Total Turn-Over Spent on R&D during the Last Three Years.
20. Turn-Over during the last Three financial Years.
21. Any other relevant information.
22. Contact Details of the Executive nominated to co-ordinate with the Assessment Team (Please provide telephone, mobile and e-mail address).

Station:

Signature

Company Seal

Date :