

RF Seeker VLS178 for Airborne Applications

1) Introduction

Active RF Seeker is a compact designated airborne radar and autonomous Sensor that aids in terminal guidance of tactical missiles. Integration ToT for RF Seeker is proposed to be offered to industry.

2) Minimum facility/ capability required at the time of submission of EoI

Various test facilities are essential which require highly skilled technical manpower with domain expertise. The minimum facilities required are as follows:

- **Reliable & High Precision RF Lab** shall possess Vector Network Analyzers, RF signal Analyzers with capability to do spurious noise as well as phase noise measurements. Digital Storage Oscilloscope, Function as well as Signal generators, etc. Skilled manpower to operate above high end equipment is mandatory.
- **Advanced Digital Lab** shall be equipped with Custom FPGA based Hardware/ software facilities. Should possess adequate computing resources. Signal processing skilled manpower is essential.
- **Control Systems Lab** shall deal with electromechanical systems & simulation facilities; Manpower with both electrical as well as mechanical expertise is opted.

3) Essential Test facilities required to produce RF Seekers in bulk

The following test facilities are essential to evaluate and qualify RF Seekers. Industry partners, for manufacturing/ qualification of first Seeker, may use Test facilities at RCI as per DRDO policy.

- ✓ **Compact Antenna Test Range (CATR):** For characterizing and Measuring Antenna Patterns, particularly in Monopulse Configuration
- ✓ **Radome Test Facility:** For characterizing and Error estimation of Radome **(Compact range with additional instrumentation can serve as RTF)**
- ✓ **Additional Instrumentation & Equipment:** Signal Analysers, Vector Network Analyser, Mixed Signal Oscilloscopes, RF Power Meter/Sensor, High Voltage DC Power Supplies, RF Cables and Components, ERP Test Dome, Portable RF target simulator, etc.,.
- ✓ **Electro-Mechanical Alignment & Calibration Facility:** Anechoic RF Chamber, with Calibrated Positioners, to align and calibrate Electrical and Mechanical Null of RF Seeker

- ✓ **Radar Seeker Test Facility (RASTEF):** With anechoic RF Chamber, Target and Seeker Positioners, RF Target Echo Simulator for simulating various target profiles (*Range, Doppler, Angle, etc.*) and RF Environment (*Jamming, Clutter etc.*,)
- ✓ **Two-Axis Rate Table:** Rate Table is an essential equipment required to characterize and evaluate performance of stand-alone Gimballed stabilization System along with integrated Rate Gyroscopes

4) Requirement to issue Technology Absorption Certificate:

- a. Licensed ToT Partner to build seeker on NC-NC basis and complete QT in the stipulated time as stipulated by RCI. RCI support can be extended to industry as per DRDO Policy and Procedures in vogue.
- b. Establishment of essential & required test facilities as mentioned above.

5) Special terms & conditions for Transfer of Technology (ToT):

A. Financial Resilience:

- a. Must have annual turn-over of more than **Rs. 780 Cr** to be certified by GST returns of last three years and over and above a Net worth of entity on 31st March of last three financial years should be more than **Rs. 100 Cr.**
 - b. The applicant firm should have stable financial outlook and should not be under insolvency resolution as per Indian Bankruptcy Code at any stage of ToT process from issue of EoI to signing of LAToT.
- B.** Should have Industrial license for defence manufacturing issued by DPIIT under category 'Allied items of Defence Equipment' – 'Guidance & Navigation equipment', as per Press Note 1 of 2019 series under IDR act 1951.
- C.** Should not have been banned/black-listed from any Central Govt/ State Govt/ UT organization. A self-certificate to this effect should be submitted duly signed by authorized signatory of the firm.
- D.** Should have experience in development and timely supply of qualified seekers or any of its subsystem(s) to DRDO or any other Central/State/UT government organization or PSUs mandatorily. (Relevant supporting documents to be enclosed). Experience in any of the following subsystems:
- i. RF systems such as monopulse antenna, exciter, transmitter, receiver, etc.
 - ii. Digital Signal Processor (embedded system using FPGA)
 - iii. Servo Stabilization and Tracking System
 - iv. Any missile seeker for any other purpose

- E. Should have experience and expertise in operation and handling of advanced RF test and measurement equipment and tools. Relevant supporting documents and the experience summary to be submitted along-with a list of such tools and equipment held by the firm.
- F. Should have experience in generation of documentation as per R&QA/ RCMA/ MSQAA guidelines. (Relevant details to be furnished as applicable and permitted)
- G. Experience in obtaining CEMILAC clearance. Relevant details shall be submitted
- H. Should furnish a list of manpower held in its strength with relevant experience.
- I. Valid QMS certificate (if any) to be submitted

6) Contact details :

Industries seeking ToT should send their Expression of interest (Eoi) to Director, RCI on the following address along with duly filled 'Application cum Industry Assessment Form' with all supporting documents via email.

**Director,
Research Centre Imarat
DRDO Lab
Vignayankancha
Hyderabad – 500 069
Phone no: 040-24306000/6001
Fax No: 040-24306002
Email ID: director[dot]rci[at]gov[dot]in**

A copy of 'Application cum Industry Assessment Form' to be forwarded to Director DIIQM, DRDO HQ on the following address for information via email:-

**Director
Directorate of Industry Interface & Quality Management (DIIQM)
Room No. 447, DRDO Bhawan, DRDO HQrs,
Rajaji Marg, New Delhi-110011
Phone: 011-23013209/23015291
Fax: 011-23793008
Email: diitm[dot]hqr[at]gov[dot]in**

Application cum Industry Assessment Form

All industries are requested to fill in the form given below and provide supporting documents (as applicable). Kindly provide the reference of page no. of supporting document in the relevant field of form. The list of documents to be attached is provided in Annexure – I.

PART-1

General Information

(Please fill the form and enclose documents in support of information provided)

1.	Name of the Technology requested for Technology Transfer (Technology name and concerned Lab, Category)	RF Seeker VLS178 for Airborne Applications	Page no of enclosure
2.	Name of the industry/ organization		
3.	Complete Address and other details		
	Registered Office State Phone No Fax Email Website		
	Factory State Phone No Fax Email Website		
4.	Point of Contact Name Designation Address Mobile No Ph No Email ID		
5.	NAME OF CMD/ MD /PARTNERS/ PROPRIETOR/ etc Name Designation Address Mobile No Ph No Email ID		
6.	Date of Incorporation of company		
7.	Foreign Direct Investment in company (if any in %)		
8.	Shareholding pattern		
9.	Turn over as per Audited Balance Sheet		

	for the preceding three years. Year _____ Year _____ Year _____		
10.	Annual budget for R&D during last three years (if any) Year _____ Year _____ Year _____		
11.	Income Tax returns for the preceding three years period Year _____ Year _____ Year _____		
12.	Nature of company DPSU, Private Limited, Public Limited, Partnership, Proprietary, Ex- Serviceman Unit		
13.	Category of industry Large Scale, Medium Scale, Small Scale, Micro, Startup		
14.	MSME Registration No		
15.	Certificates of registration as a manufacturing unit, if any.		
16.	If Startup, DPIIT Registration No		
17.	UDYOG AADHAR No		
18.	PAN Number		
19.	Details of Industrial license for defence manufacturing issued by DPIIT (if any)		
20.	Details of PESO license (if any)	Not applicable	
21.	GST Number		
22.	Nature of business Manufacturing/ Sole Selling or Authorized Agent/ Assembler/ Traders/ Dealer/ Processor/ Repacker/ Others		
23.	Details of current products and services Products and services Supplied (please specify Govt/ Domestic market/ Export)		
24.	Record of past performance (e.g., Supply orders executed against of Ministry of Defence orders, Public Sectors and Paramilitary Forces, if any).		
25.	Details of registration with NSIC / SSI, DGS&D, other Defence Department, other Govt. Dept, membership of FICCI/ASSOCHAM/CII or other Industrial Association (Attach relevant copies of registration letters)		
26.	Have you already taken any technology from DRDO (If yes, give details attaching separate sheet)		

	Name of the Technology, Lab, Year, License number & Status		
27.	ISO/ ISI certification or any other certification (If yes, give details)		
28.	Relevant clearances form the authorities/ ministries (if any)		
29.	Capacity and capability to undertake developmental work and to accept attendant financial and commercial risks.		
30.	Capacity/capability to market the product through the marketing network, sales and service network, reliability to maintain confidentiality.		

PART-2

Infrastructure and other Information

1.	Total area of factory Covered (m ²), Uncovered (m ²), Bonded space available (m ²)	
2.	Ownership of factory Self-owned, partnership, rental	
3.	Electric power Sanctioned Installed Standby (if any)	
4.	Availability of adequate infrastructure (List of machines and their production capacities) and technical expertise	
5.	Name of bank & A/c No Name of bank A/c type A/c no Address of the bank Phone: Email:	

6. Details of current products:

S.No	Type	Description	Licensed/installed capacity	Annual production for preceding 3 years

7. Details of foreign collaboration, if any

S.No	Product	Name and address of collaborator	Year	Remarks

8. Details of products developed for services

S.No	Nomenclature of stores	Order No. and date	Remarks

9. Please give details of important facilities & infrastructure as per following format for:

- (a) Production
- (b) Unconventional, special m/c
- (c) Testing & quality control facilities

S.No	Description of m/c	Make & model	Qty	Date of purchase	Remarks

10. Furnish the following details with relevant certificates and documents

- (a) R&D facilities available :
- (b) Inspection quality control of raw material components :
- (c) Assistance from central agency for testing / calibration etc. :
- (d) laboratory and drawing office facility :

11. Principal customers:

S. No	Name & address	S.O No and date	Date of last supply	Products supplied	Value

12. Future plans (if any) in respect of expansion programme/ installation of additional machines/ test facilities etc.

13. Name of the technology requested for transfer

(give self-assessment of your capability to absorb the technology)

14. Details of employee as on date on firm's pay roll

PERMANENT				
Category	Post Held	Number	Qualification	Total Service
Technical	Prod. Manager Q.C. Manager Supervisor Testing Staff (QC) Skilled workers Unskilled workers, etc			
Administrative	Purchase Manager Accounts Officer			

	Office Superintendent Clerical Others, etc			
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TEMPORARY				
Category	Post Held	Number	Qualification	Total Service
Technical	Prod. Manager Q.C. Manager Supervisor Testing Staff (QC) Skilled workers Unskilled workers, etc			
Administrative	Purchase Manager Accounts Officer Office Superintendent Clerical Others, etc			

DECLARATION :

I / we confirm that the information furnished in Part 1 & 2 above is correct. In the event of any information given by me / us is found incorrect / false at any time, I / we understand our EoI for ToT will be cancelled/ rejected without notice, beside any other appropriate action against me / us.

Industry seal

Authorized signatory

Name(s) in capital

Designation and seal of authorized signatory

Date:

Place:

List of supporting documents to be attached with EoI

- (a) Memorandum and Articles of Association (Should be incorporated as per Indian Companies Act, as amended time to time)
- (b) Certificates of registration as a manufacturing unit, if any.
- (c) Audited Balance Sheet for the preceding three years.
- (d) Income Tax returns for the preceding three-year period
- (e) Details of shareholding/ownership pattern especially foreign partners/ shareholders, foreign employees, directors, etc. The company must adhere to the prevailing Govt of India policies and regulations on Foreign Direct Investment (FDI)/DIPP norms as applicable.
- (f) Annual budget for R&D during last three years.
- (g) Numbers and details of IPR or patents, etc., held by the company.
- (h) Number of technically or professionally qualified personnel employed.
- (i) Record of past performance (e.g., Supply orders executed against of Ministry of Defence orders, Public Sectors and Paramilitary Forces, if any).
- (j) Availability of adequate infrastructure (List of machines and their production capacities) and technical expertise.
- (k) List of testing and support equipment.
- (l) ISO/ ISI certification or any other certification.
- (m) Relevant clearances from the authorities/ ministries (if any).
- (n) Capacity and capability to undertake developmental work and to accept attendant financial and commercial risks.
- (o) Capacity/capability to market the product through the marketing network, sales and service network, reliability to maintain confidentiality.
- (p) Industrial license for defence manufacturing issued by DPIIT (if any).
- (q) PESO and DPIIT license for explosive handling if ToT is for high energy Material, explosives, propellants, and component/ system dealing with, it etc.
- (r) Undertaking from company seeking ToT that none of its Directors, Independent Directors, non-executive Directors, Key management personnel are involved in any corrupt practices, unfair means/ illegal activities.