

Expression of Interest (EOI) RF SEEKER

SEEKER DEPARTMENT
BAPL Hyderabad



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1 Introduction

BrahMos Aerospace Private Limited, a joint venture between India's Defence Research and Development Organization (DRDO) and Russia's NPO Mashinostroyeniya, is a leading aerospace and defense corporation specialized in Design, Development and Production of supersonic cruise missile systems. BrahMos missile, a versatile weapon deployable from multiple platforms, the company plays a critical role in enhancing India's defense capabilities and is actively pursuing advancements in missile technologies, solidifying its position as a key player in the global defense sector.

BAPL invites Expressions of Interest (EOI) from qualified manufacturers for supply of **RF Seeker** for integration into BAPL's critical defense systems. Hereinafter, the 'RF Seeker' can be termed as 'device or product' in this document.

Responses should demonstrate adherence to relevant military standards, robust quality control procedures, a proven track record in delivering reliable solutions for demanding defense applications, and capability to produce minimum 5 systems per month (with capacity to enhance).

Intending Manufacturing Industries[s] are advised to read the EOI document, Terms and Conditions and other details carefully relating to the work contemplated in the procurement of product.

2 Objective

The EOI aims to develop new vendors qualifying to the technical requirements of device under consideration. The information collected will be used to identify suitable partners for subsequent phases of vendor establishment activity.

3 Eligibility Criteria

Interested Manufacturing Industries must meet the following minimum criteria in order to apply for EOI:

- a) The Manufacturing Industries must be an Indian Registered Partnership / LLP / Company with a majority stake of the company held by a Resident Indian Citizen.
- b) The average annual turnover of the interested partner during the last three years shall be at least **INR 200 Cr.** Audited Annual Financial Statements in support of the same shall be



furnished. The long-term credit rating by ICRA/CRISIL or equivalent as on date of submission of EOI shall be "A" or above.

c) The industry shall demonstrate the following capabilities:

- i. Develop and produce airborne RADAR Seekers, Radar Tx and Radar Rx, RF/ Microwave components, RF / digital signal processing hardware and software, solid state Tx/Rx, TwTs, TRMs, RF hardware, Communication protocols etc. for military applications. Experience in design and fabrication of Active Electronic Scanned Array (AESA) is preferable.
- ii. The industry shall possess fully established and functional in-house capabilities for end-to-end design, development, integration, testing, and manufacturing of RF Seekers. Core activities including system architecture design, RF/analog and digital hardware design, embedded software/firmware development, antenna design, RF simulations, system integration, and functional/performance testing shall be carried out in-house. The industry shall submit documentary evidence of in-house infrastructure, qualified technical manpower, and past project execution in support of this requirement.
- iii. In-house capability for carrying out functional tests, EMI, EMC and Entest with documentary evidences of test facilities.
- iv. If the industry is intending to outsource any of the sub systems, assemblies or carry out tests from its Indian sources, the validation / eligibility criteria for those sub-vendors to be submitted.
- v. To produce minimum 5 systems / month (with roadmap for enhancement) as its production capability, production process and skill set of man power.

d) QMS Certifications such as AS9100D is mandatory, and the valid Certification shall be submitted along with EOI

e) SAMAR Level 4 Certification / CIS/equivalent Certification is mandatory, and the valid Certification shall be submitted along with EOI.

f) Experience in design, development and manufacturing of IPC/MIL – Class 3 certified product is mandatory. Supporting document to be submitted.

g) Experienced technical manpower availability – skilled manpower in precision soldering (certified to J-STD-001 or equivalent), electromechanical assembly (certified to IPC-610 & IPC 620 – Class 3 or equivalent) is Mandatory. Supporting document to be submitted.

h) Experience on working with inspection agencies viz., MSQAA, R&QA, RCMA etc. is mandatory and supporting document to be submitted.



- i) Data and Cyber Security Certification (ISO 27001 or equivalent) is mandatory. Supporting document to be submitted.
- j) Prior experience of RF product design, prototyping, RF circuit design & RF PCB layout, embedded systems development and testing capabilities to latest technology and as per standards in vogue. Supporting document to be submitted.
- k) Minimum experience of 10 years in manufacturing and Supply of Airborne RADAR for Defense/Aerospace industry. Shall be supported with contract references. Contracts without proof of delivery and acceptance shall not be considered for meeting this criterion. However based on capability assessment if the industry is found suitable, minimum experience norm can be relaxed. BAPL reserves the right to request the industry to provide additional documentary evidences for verification of claimed capabilities.
- l) Must have inhouse facilities such as Custom-built Automatic Test equipment for RADAR Seeker, RF Test and Measuring equipment, RF high power measurement facility, antenna pattern measurement facility, Electrical and mechanical alignment facility (CMM).
- Or shall have MOU with accredited test facilities
 - In case if any of the process is sub-contracted, requirements of this EOI shall apply and responsibility to ensure them lies with Tier-1 Manufacturing Industries. Subcontracted processes shall be accessible to BAPL for audit/assessment.
- m) Cleanroom environments of minimum class 10000 shall be maintained for storage of sensitive components/Soldering/potting & conformal coating.
- n) Obsolescence Management: Shall have a documented and effective procedure to monitor and manage obsolescence of components/sub-systems. Warehouse of stockpile of for 30 years of product life support. Experience on Obsolescence Management to be shown as supporting document.
- o) Component procurement & Inventory management shall comply to J-STD-033, IPC 1601, MIL STD 2073 or as per standards in vogue. Supporting document to be submitted.
- p) Counterfeit Detection: Shall procure components only from OEM or OEM Authorised Dealers with Authorization Letter.
- q) Technical capability to design PCB as per IPC-2221 or equivalent and ensure PCB fabrication and assembly (SMT, THT, mixed technology) as per IPC 600, J-STD-001, IPC 610 – Class 3, MIL-STD-2000 or equivalent. Supporting document to be submitted.
- r) Capability to carry out comprehensive testing (Inhouse/ NABL labs) to validate the functionality and reliability of the product under specified operating conditions as per technical specification. Supporting document to be submitted.



- s) The manufacturer shall ensure minimum service life of 25 years for device manufactured for BAPL. Supporting document for this capability to be submitted.
- t) Rework, Modification and Repair of Electronic Assemblies shall comply to IPC-7711/7721 or equivalent. Supporting document to be submitted.
- u) Failure rate of last three financial years shall be declared; zero rejection is preferred. Supporting document to be submitted.
- v) Higher Indigenous content is mandatory. Use of indigenous components is preferred. FE content to be specified for each of Viz. components, modules, assemblies, software, workmanship etc.
- w) BAPL reserves the right to request the industry to demonstrate a similar system during the EOI evaluation process. The industry shall be fully capable of demonstrating a similar fully functional working system to BAPL, and shall provide all necessary technical personnel, documentation, and test setup required for the demonstration. Failure to demonstrate a similar system, as per BAPL's satisfaction, may lead to disqualification from the evaluation.

4 EOI Submission

Interested Manufacturing Industries are requested to submit their response as per Format enclosed in **Annexure-A as per Demand Notification.**

5 Evaluation Criteria

The evaluation of responses will be based on the following criteria:

- Technical capabilities and experience in defence applications in particular to Radar Seeker design and development.
- Capabilities, Knowledge & Workmanship skills in RF design & RF Systems Engineering of Radars.
- Production capacity and lead time for high-reliability products.
- Quality management system and compliance with defence/military standards.
- Financial stability and references in the defense sector.
- Infrastructure/Facility evaluation.
- Security Certifications and its compliance.
- Indigenous content extent

The shortlisted Industries will be called up for further processing of the device mentioned in Demand Notification.



6 IP Rights

IP rights of this product shall solely belong to BAPL. The industry shall not have rights to sell, donate or give the product as a whole or any of its sub-assemblies including the software / firmware or any specific modules developed for the product to any third party without the permission of BAPL.

7 Confidentiality

All information provided by BAPL in response to this EOI will be treated as confidential and may be subject to non-disclosure agreements.

8 Disclaimer

This EOI does not constitute a commitment for placement of contract/P.O and BAPL reserves the right to accept or reject any or all of the responses.

9 Contact Information

For any inquiries, please contact: Refer demand notification



Expression of Interest

Demand Notification Ref.: _____

Demand Notification Date: _____

S.No.	Particulars	Details to be filled up by FIRM	Supporting Document
a.	Name of the Firm & Address		Company Registration Document with State/Central Government
b.	Firm's Contact Person & Details		
c.	Category of Industry*		
d.	Nature of the Company (Pvt. Ltd. / Ltd./PSU/DPSU etc.)		
e.	Organizational structure		Self-attested document
f.	The annual turnover of previous three (3) financial year.		Annual Financial Statements
g.	What is the core competence of the company?		-
h.	What are principal products(s)?		-
i.	How long has company been in business as presently		-



S.No.	Particulars	Details to be filled up by FIRM			Supporting Document
	organized?				
j.	✓ Tick the appropriate field		In-House	Sub-Contract	Self-Attested document
		Antenna Subsystem	Design/Fabrication/ Testing	Design/Fabrication/ Testing	
		Transmitter Sub-system	Design/Fabrication/ Testing	Design/Fabrication/ Testing	
		Receiver Sub-system	Design/Fabrication/ Testing	Design/Fabrication/ Testing	
		Digital Sub-system	Design/Fabrication/ Testing	Design/Fabrication/ Testing	
		Gimbal Sub-System	Design/Fabrication/ Testing	Design/Fabrication/ Testing	
		AESAs based Antenna Sub-system	Design/Fabrication/ Testing	Design/Fabrication/ Testing	
		RF Simulations			
		Embedded Software & Firmware Development			
		System integration, functional and performance testing			
k.	Details of Test facilities for carrying out functional tests				Self-Attested document



Annexure - A

S.No.	Particulars	Details to be filled up by FIRM	Supporting Document
	(RF measuring equipment's, environmental test chambers , CMM, CATF, ATE's etc) , EMI-EMC and Entest.		
l.	List of available equipment and machinery (e.g., SMT placement machines, CNC machines etc).		Self-Attested document
m.	List of principal Subcontractors, along with processes subcontracted		-
n.	List of principal customers to whom the vendor supplied stores in the past two (2) years.		-
o.	List of principal companies and /or Government agencies which have surveyed and approved the firm with scope of approval.		Copy of attestation document
p.	Contract /S.O. No. from Defence/Missile complex Labs along with status of order. (Completed/Ongoing /Short closed))		-
	Experience on working with inspection agencies viz., MSQAA, R&QA,		



Annexure - A

S.No.	Particulars	Details to be filled up by FIRM	Supporting Document
	RCMA etc.		
q.	Certification - Quality (ISO/AS/SAMAR)		Copy of latest certificate
r.	Employee Strength (Design, Quality, Production, (Skilled / Semi- Skilled/Casual Other)		-
s.	Certification of skilled manpower (IPC 610/620 Class-3)		Copy of latest certificate
t.	Attrition rate of employee		-
u.	Failure incidences reported by customer in last three years in PPM and percentage		
v.	Average import percentage in products manufactured and delivered in last financial year		-
w.	Security compliance certification (If any). Shall specify the road map and certification plan if not existing.		Copy of latest certificate/ Road Map



Annexure - A

S.No.	Particulars	Details to be filled up by FIRM	Supporting Document
x.	Details of Experience in Active Electronic Scanned Array (AESA) based systems		
y.	Maximum PCB size and complexity handled		
z.	Production capacity - Lead time for prototype and production runs		
aa.	Inventory Management System		
ab.	Obsolescence Management		
ac.	Controlled Storage Facility		
ad.	Cleanroom details		
ae.	Cybersecurity and data security practices		ISO 27001 or equivalent

*Category of firm	Definition
RF Components	Firms having facilities for manufacturing of MIL grade RF components including connectors, microwave nature, etc.
RF Assemblies	Firms having facilities for manufacturing of RF assemblies of Radars, Microwave Systems, etc.
RF Systems	Firms having manufacturing facilities for RF systems encompassing RF systems engineering and design.
Other	Firms not falling in any of the previous types, shall specify details in the form.

Note : The firm shall enclose supporting documents as applicable

Declaration: The details provided above are true and it is understood that BAPL reserves the right to accept or reject the EOI filed herein.

Authorized Signature with Name & Company Stamp.

