HAL/HD/BD/RFI/DBMRH/AEW/RFI Date: 16th Oct 2024

**Sub: Request for Information (RFI) for Design development and supply of Airborne Early Warning (AEW) for DBMRH.**

Hindustan Aeronautics Limited (HAL), a Navratna Public Sector Company, is a pioneer in Aircraft Industry in South Asia (www.hal-india.co.in).

2. Avionics Division, Hyderabad an AS 9100D certified division of HAL is engaged in Production, Manufacture and Maintenance of Avionics fitted on various Rotary wing/ Fixed wing aircrafts, with the state-of-the-art technologies.
3. Deck based Multi Role Helicopter (DBMRH) are Medium Lift and Multi Role, 13-ton category Helicopters having pilot and co-pilot in a side-by-side seating configuration. DBMRH shall be fitted with state-of-the-art Airborne Early Warning (AEW) system.
4. Flight worthy and certified AEW needs to be available in a time span two years from release of purchase order and subsequently production supplies in next few years.
5. Also, the vendor shall be capable to support the proposed system for a minimum of 30 years (considering the life of a helicopter) in service i.e. after completion of production.
6. The goal shall be to maximize the Indigenous content in Units for fruitful long-term association of OEM and HAL to provide satisfactory services to end customer.
7. **Objective and scope of Request for Information (RFI):**
   a) Avionics Division of Hindustan Aeronautics Limited (HAL), Hyderabad– 500042, India is looking for the supply of latest AEW System for DBMRH from D&D/ Production/ Supplying partners.

   b) The requirements of AEW system for DBMRH is enclosed at **Annexure- I**. It is requested to provide a **comprehensive technical proposal** along with point-to-point compliance to requirements provided by HAL. In addition, vendor may also provide technical details of any similar / superior / already airworthy product in a separate Annexure, if available.

   c) Interested companies from the defence / aerospace manufacturing sector, having experience in Design, development, manufacturing, Installation & Commission are requested to forward following detailed information:
      i. Company's profile (As per **Annexure II**)
      ii. Details of experience in Design, Development and manufacture of airworthy parts/systems.
      iii. Details of delivered / similar / superior / already airworthy AEW system: Designed, Developed and supplied by the company for Helicopter applications.

   d) Technical proposal addressing following:

i. Supplier to indicate mode of engagement with HAL-Hyderabad i.e
    a. Supplies through collaboration with HAL
    b. Direct Supplies (Indian Supplier / Foreign Supplier)

ii. Willingness to offer Transfer of Technology (ToT) for Manufacturing (ToT-Mfg) and Maintenance (Repair & Overhaul ToT-RoH) of AEW System to HAL-Hyderabad.

iii. Key technologies with extent of Know-how and know-why, proposed under ToT to be mentioned with its extent of Range and Depth.

iv. Time frame / lead time & plan: For design and supply of D&D Units. Parts to be made available by Jun 27 for fitment on DBMRH Prototype. Completion of D&D activities and setting up of production facility within T0+60 Months.

v. Rough Order of Magnitude (ROM) Cost Information as per **Annexure- III**.

vi. Indigenous content (Definition of IC as per DAP2020) offered to HAL & Workshare offered to HAL (In % of Unit cost for IC and % of work share of total Program)

vii. Other details of the AEW system (which may be relevant to the proposal) which is not mentioned in the requirements.

viii. Details of testers/simulators for acceptance and/or maintenance testing at HAL and/or at Customer bases.

ix. Plan for Make in India, in case of foreign OEMs.

x. FRD (Facility Requirement Document) as per **Annexure-IV**.

xi. Information on off-the-shelf items which are closely meeting the requirements (if any).

**8. Information and instruction for potential supplier:**

a) Supplier with proven expertise in design, manufacturing and supply of similar types of parts for helicopter program shall participate in the RFI and details of similar product designed, manufactured and cleared to airworthiness to be provided.

b) In case of Foreign OEMs, RFI proposal should confirm whether any specific clearance and export permission, Licenses are required from Government of seller's country for supply of subject item to HAL and for ~~Civil &~~ Military applications. If so the estimated time period for obtaining of same to be indicated.

c) The prospective industry partners shall provide brief on Quality Management System (including process control) being followed.

d) The technical details enclosed are only tentative in nature and are subject to change and may be considered only as advance information for market exploration. HAL will freeze technical scope on responses to subject RFI as deemed necessary at the time of issuing RFP (Request for Proposal) at HAL's discretion.

e) The potential supplier can propose suitable and proven solution to meet HAL requirement.

f) This document is not intended to form the basis of any decision to purchase/finalize contract and it does not constitute an offer or invitation or solicitation of an offer to purchase.

g) HAL is looking for a potential supplier for the subject requirement with long term relationship.

h) Based on evaluation of RFI proposal received, HAL shall finalize technical requirement and float RFP (Request for Proposal) at HAL's discretion.

i) Supplier to provide Budgetary quote, per annum production capacity, warranty (24 Months), etc. Details of cost may also include product support package, training, additional details as deemed appropriate.

j) Certification details like Military certified. If no certification, vendor to provide details demonstrating capability / capacity in coordinating with regulatory agencies RCMA and DGAQA / DGCA for similar products.

**9. Other Conditions:**

a) Participation in RFI does not guarantee that RFP will be offered.

b) HAL has the right to use the information provided by the Industry Partners for future issuance of the tender.

c) HAL reserves the right to accept/reject any or all the RFI without assigning any reason and also will not be responsible for postal delays.

d) OEM/Vendor should provide confirmation (with documents in support of the same) on the Ownership of Intellectual Property Rights in the Product. Ownership of such IPR should also define both Product as well as Process Patents.

e) OEM/Vendor should indemnify HAL for breach of any 3rd Party IPRs by OEM/Vendors.

f) The Technical information shared by vendor/OEM will be shared with Platform Design & Development Division of HAL for DBMRH and if required with end customer also for the purpose of finalization of final Technical specifications for RFP.

g) Vendor/OEM to provide detailed technical specification of items offered against this RFI including environmental conditions.

10. The RFI project proposal (including the preliminary technical proposal and budgetary price proposal with lead time details etc) duly completed and signed shall be sent to

| | |
|---|---|
| Name: | Mr. S B R Jawaharlal,<br>Addl. General Manager (A&T and BD) |
| Address: | Business Development Department, Avionics Division,<br>HAL PO, BALANAGAR, HYDERABAD 500042 |
| Tele: | 040-2382 2605, Fax: 040 2387 8187 |
| E-Mail: | jawaharlal.s@hal-india.co.in or marketing.hyd@hal-india.co.in. |

**PoC– Mr. SBR Jawaharlal**,

Contact details 040-2377 0068

11. Due date for submission of RFI proposal in complete is **15 calendar days from release of RFI**.

## GENERAL INFORMATION

| Sl. No. | Description |
|---|---|
| 1. | **Company Profile:** Please submit your company profile in detail, indicating Type of the Company, Organization chart, Number of years in business, areas of expertise/technical competence, Man Power, Previous supply track record (for supply of same/similar materials/equipment/Tools/system etc.) with customer references (particularly for Aircraft Industry), International Accreditation if any, Inspection Procedure/Quality Assurance Standards/System, Production Facilities, Products Range. |
| 2 | Involvement of any Agents and Middlemen: No involvement of Agents or Middlemen in India or abroad in any capacity whatsoever is permitted at any stage in relation with this RFI, subsequent RFQ and the resultant contract/Order. Vendors should specifically indicate if any of their office or contact exist in India or abroad providing the details and extent of the activities handled and provide the details of the employees, address of the office/ location, phone and fax numbers. Offers and all correspondence/ communications should be addressed directly to HAL. No agency commission in any form is payable to any Agent/ Middlemen or any third party in India or abroad. If anything, contrary to the above is noticed by or is made known to HAL, HAL has the right to disqualify the offer or cancel the contract, forfeit all payments and take actions as deemed fit. |
| 3 | **Immunity to Government of India**:<br>It is understood and agreed that the Government of India is not a party to contract if finalized in due course against specific RFQ to be floated by HAL at its sole discretion and has no liabilities, obligations or rights hereunder. It is expressly understood and agreed that HAL is an independent legal entity with power and authority to enter into contracts solely on its own behalf under the applicable Laws of India. Vendor shall agree, acknowledge and understand that HAL is not an agent, representative or delegate of the Government of India. It is further understood and agreed that the Government of India is not and shall not be liable for any acts, omissions, commissions, breaches or other wrongs arising out of the contract. Accordingly, Vendor expressly waives releases and foregoes any and all actions or claims against the Government of India arising out of contract, not to sue the Government of India as to any manner, claim, cause of action or anything whatsoever arising out of or under this agreement. |
| 4 | Vendors/OEMs shall not raise any dispute/s suits, claims and/or litigation of whatsoever nature maybe, against HAL pertaining to the terms and conditions of this RFI. HAL reserves right to sue or can initiate necessary legal action/s against Vendors/OEMs for making false representations/misrepresentations or not adhering to the terms and conditions of this RFI. |
| 5 | No Agent /Agents of Third party/parties are engaged by HAL in the process of procurement of any materials for HAL. HAL is also not responsible for any person/firm expressing or pretending to express himself /herself/themselves to be the agent or third-party representing HAL in the process of procurement of the materials. It is advised to deal directly with PoC mentioned in the document. |
| 6 | All communications, technical discussions will be held only with OEMs. Hence all potential suppliers (OEMs) are requested to adhere to the same and respond /communicate directly with HAL. No third party is permitted at any stage.<br>The response to RFI shall be submitted by OEMs only. |

Annexure 'I'

## 1.0 REQUIREMENT FOR AIRBORNE EARLY WARNING (AEW) SYSTEM

The AEW System should meet the following requirements:

1. The Radar should have following modes of operation: -
   a Air to Air
   b Air to Surface
   c Combined mode (Air: Surface:: 4:1 duty cycle)
2. The radar should be conformal.
3. System to be able to operate continuously for 10 hours of flight duration.
4. The AEW radar should ensure at least the following performance: -
   a. Frequency: Radar Operating in frequency band less than 6GHz.
   b. Radar Beam Coverage (Horizontal): 360 deg, Coverage (Vertical): At least +60 deg to -60 deg
   c. Detection Range of 0.15 m2 target RCS (Sea skimming at 5 m above surface, in sea state 1 to 5): > 150 km maneuvering at 2000 kn.
   d. Detection Range of 0.4 m2 target RCS: > 200 km
   e. Detection Range of 2 m2 target RCS: > 300 km
   f. Surface ships of >10 m2 RCS: > RHR
   g. Auto/Tracking of targets: > 2000 targets
   h. Air Target velocity threshold: 50 kn – 3300 kn
   i. Surface target velocity threshold: 0 to 50 kn
   j. Polarisation: Horizontal/Vertical/ Circular or as per optimum performance.
   k. Target manoeuvre (radial velocity) tolerance without lock-breaks: >9 g
   l. Weather mode: Up to 40 nm
   m. Target Height detection: Sea Level- 45000 ft (beyond the blind zones below and above the helicopter).
   n. Stealth/ Anti-jamming Features: LPI mode, Sectorial Transmission, pulse compression, frequency hopping, PRF hopping and such other contemporary stealth/ anti-jamming features should be provided. Such features should be smartly activated by the processor upon detection of jamming/ interference at receiver.
   o. Radar tactical picture refresh rate : > 10 Hz
   p. Time from Start to warm up to detection: <1.5 min

q. Blind Zone: <5km above and below helicopter (7000 to 10000 ft height of deployment).

r. Display Type, Size and Range Scale: Multi-Sensor fused display with scalable ranges upto 600 km.

s. Altitude of operations of aircraft: Sea level to 10000 ft.

t. EMI / EMC Compliance: Mil STD 461H.

u. Shock and Vibration tolerance: Mil STD 810H.

5. MMI of radar display along with ARPA (off centric EBL, VRM, F Cursor) features and fighter control algorithms and pre-fed interception patterns to be formulated and integrated in consultation with the IN user.
6. Radar display has to be integrated with ESM, IFF, AIS, Moving map, Nav routes/ waypoints etc as selection based layered overlay/ underlay.
7. Weight of the AEW Radar System is under 700 Kg and Power budget is 30 KW.

**Annexure 'II'**

## OEM INFORMATION PROFORMA

1. Name of the OEMs/Company/Firm (Company profile in brief, to be attached)
2. Original Equipment Manufacturer(OEM): Yes/No
3. Contact Details.
4. Indian Branch(Contact details) (if any)
5. Category of Industry(Large/Medium/Small-scale):…….
6. Financial Details (Past three years balance sheet):…….
7. **Certification by Quality Assurance Organization**.

| Name of Agency | Certification | Applicable from (Date & Year) | Valid till (Date & Year) |
|---|---|---|---|
| | | | |
| | | | |
| | | | |

**8. Details of Registration in India.**

| Agency | Registration No | Valid till (Date) |
|---|---|---|
| GeM | | |
| DGQA/DGAQA/DGNAI | | |
| OFB | | |
| DRDO | | |
| Any other Government Agency | | |

**9. Equipment/Product Profile(to be submitted for each product separately)**

(a) Name of Product :…….
(Should be given category wise as per DAP 2020)

(b) Description (attach technical literature):…….

(c) Whether OEM or Integrator :……..

(d) Industrial License Number :…….

(e) Indigenous component of the product (in percentage):…….

(f) Status (in service/design & development stage):

(g) Production capacity per annum:

(h) Experience in Manufacturing of relevant systems.....

(i) Countries/agencies where Equipment supplied earlier (give details of quantity supplied):

……

(j) Estimated price of the Equipment……..

(k) Product List……..

(l) Details of orders supplied during Last five Years……..…

(m) Necessary certification as applicable……

10. Alternatives for meeting the objectives of the Equipment set forth in the RFI.

11. Any other relevant information:……..

12. **Declaration**: It is certified that the above information is true and any changes will be intimated at the earliest.

(Authorized Signatory)

**Annexure 'III'**

## COST INFORMATION

| Sl. No. | Item | Qty | Price |
|---|---|---|---|
| **1** | NRE for D&D | | |
| **1.1** | Aircraft survey, PDR, CDR, Ground Trail, Rig Integration, Flight Trial etc. | **No of event** | **In % of ROM Cost** |
| **1.2** | Necessary documentation Eg: Tech Spec, System Design Document, Weight and CG analysis, De-rating analysis, Reliability analysis, Software Requirement Document, Software Test Plan, Software ICD, VDD, SVD,E-ICD, QTP, QTR, SOF test reports and any other relevant Document as required by certifying agencies etc. | **No. of Docs** | **In % of ROM Cost** |
| **1.3** | D&D Unit Cost | | **In currency** |
| **2** | NRE for Production: | | |
| **2.1** | Program management | **No of event** | **In % of ROM Cost** |
| **2.2** | Test Equipment (TTGE/STTEs, O Level & I Level) | **No. of TEs** | **In % of ROM Cost** |
| **2.3** | Production related Documentation: Eg: BOM, Gerber file, Set Delivery list, ATP, ATR, M-ICD, CMM, Operational & Maintenance, User Manual etc. | **No of Docs** | **In % of ROM Cost** |
| **2.4** | Training | **Man Days** | **In % of ROM Cost** |
| **2.5** | Technical Assistance | **Man Days** | **In % of ROM Cost** |
| **2.6** | Floats for Unit | **No. of unit** | **In currency** |
| **2.7** | Spares for Test Equipment | **No. of spares** | **In currency** |
| **2.8** | License Fee/Royalty ( If applicable) | | **In % of ROM Cost** |
| **2.9** | Std Test Equipment | | **In % of ROM Cost** |
| **3** | Production Unit cost | | **In currency** |
| **4** | Total ROM Cost (i.e. Project ROM Cost) | | **In currency** |

Any other associated cost

**Annexure 'IV'**

## Facility requirement Document (FRD) for Production of unit

| Sl. No. | Facility | Requirement |
|---|---|---|
| 1 | Power Supplies | +28V DC, 115V AC, three phase @ 400 Hz ….. |
| 2 | Vibration facility | X, Y, Z Axis<br>Sine: 1000kgf, Max (Including Fixture) Volume: Upto 250 mm(L)X 200mm (W) X 200 mm (H)….. |
| 3 | ESS | +/- temp range, rate of temp change… |
| .. | EMI/EMC | .. |
| .. | .. | etc |