FOG based Inertial Measurement Unit/ Inertial Navigation System (IMU/INS)

RCI has indigenously developed and qualified the technology of closed loop FOG based Inertial Measurement Units (IMU) and Inertial Navigation Systems (INS) for tactical applications in various missile systems. It has been successfully flight tested in many missions and proven its credibility through accurate performances. FOG based IMU/INS comprises of three closed loop FOG modules to sense the rotation of the vehicle (missile) about the body axes and measure the linear acceleration along the body axes using quartz accelerometers. Along with gyros and accelerometers, processing and driving electronics and power supply module will be packaged in a mechanical housing with predefined electrical and mechanical interfaces as specified by the respective users. Dedicated clean rooms with infrastructure for optical integration and testing along with electronic assembly lines and dynamic calibration facilities are required for the fabrication of FOG based IMU/INS. IMU/INS shall be subjected to various climatic and dynamic tests as specified by the users, for which elaborate Environmental test facilities will be required. FOG based IMU/INS technology is highly process oriented and requires skilled manpower supported by a strong Quality Management System to ensure the quality at each level. Authenticated QA agencies will be participating in different stages of production processes as defined in the QA matrix. FOG based IMU/INS is purely an indigenous technology developed by RCI with an import content of 20%-28% of the overall cost.

Interested Industries are requested to forward their Expression of Interest (EoI) to Director RCI, Hyderabad (with attachments of supporting documents) with a copy of Director DIITM, DRDO HQ (without attachment) on following address:-

To,

Director
Research Centre Imarat
Vigyanakancha
Hyderabad-500069
Phone : 040-24306000
Fax : 040-24306002

E-mail ID : director[dot]rci[at]gov[dot]in

Copy to

Director
Directorate of Industry Interface & technology Management (DIITM)
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**

List of Support 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.

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's

l) ISO/ ISI certification or any other certification

m) Relevant clearances form 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) PESO and DPIIT license for explosive handling if ToT is for high energy Material, explosives, propellants, and component/ system dealing with it etc.

q) Under taking form company seeking ToT that none of its Directors, Independent Directors, non-executive Directors, Key management personnel are involved in any corrupt practices, unfair means and illegal activities.

r) Details of the industrials license for defence manufacturing be provided by the industry seeking ToTs.

In addition to above following Additional Terms & Conditions included in the EOI for Identification of Industry Partner for ToT of "FOG based Inertial Measurement Unit/ Inertial Navigation System (IMU/INS)"

(a) Prior experience of at least 3 years in handling production/development of fiber optic systems for Defence/Aerospace applications. Experience in handling, assembly and testing of optical fiber, testing and characterization of passive optical components and opto-electronic

devices and usage of various optical test & measurement equipment etc will be required **(desirable)**

(b) Adequate qualified human resources, infrastructure and test equipment to carry out the integration of multi-layer PCBs and Fiber Optic assemblies. Trained manpower in PCB assembly, testing, screening as per CEMILAC procedure and integration of complex electronic modules and functional testing as per the process document are essential. Relevant infrastructure such as soldering work station, cleaning- coating setups, anti-static work benches, digital multi meters, oscilloscopes, function generators, regulated power supplies, data acquisition system etc are required **(essential)**. Knowledge and experience in the integration of optical fiber assemblies with electronic modules is **desirable.**

(c) Clean room of classes 10000-100000 for optical and electrical integration. Class 10000 clean room of min area 120 m^2 for optics **(desirable)** and class 100000 clean room of min area 200 m^2 **(essential)** will be required for electrical integration and testing. Metric optic tables and vibration isolated test benches will be required for optical integration **(desirable).**

(d) Requisite infrastructure for production of avionics systems and the system delivered should have been flight tested in Defence/Aerospace applications. Any of the system developed/produced by the firm shall be inspected and cleared by an Authorized QA agency (following all QA procedure specified) before integrated/tested with a main system **(essential).**

(e) Dynamic test & calibration set ups for inertial Sensors and Systems along with facilities for Environmental testing. Dynamic test calibration equipment includes single axis and two axis rate tables with/without thermal chambers, thermal chambers, data acquisition system, test fixtures, centrifuge etc **(desirable).**