

EW Suite for LCA Mk1A

The EW Suite for LCA Mk1A jointly developed by CASDIC, Bangalore and DLRL, Hyderabad consists of Radar Warning Receiver (RWR) system & Advanced Self Protection Jammer (ASPJ) Pod. The Indigenous RWR system is a state of the art EW system which is configured based on latest RF and Digital technologies. It is a fully digital solution with powerful, real-time signal processing using complex and state of the art algorithms.

The Advanced Self Protection Jammer (ASPJ Pod) is designed for installation on the outboard station of LCA Aircraft. The purpose of the system is to provide protection to the aircraft against ground based acquisition radars, fire control radars, anti-aircraft artillery and airborne multimode radars. Advanced Self-Protection Jammer Pod is a state of the art jammer system based on Active Phased Array (APA), ultra wide band DRFM and in-built cooling system. ASPJ Pod consists of various subsystems such as Exciter Receiver Processor (ERP), Active Transmit Receive Unit (ATRU), Vivaldi Antenna Array Unit (VAAU) and Air Cycle Machin (ACM) based cooling system.

CASDIC & DLRL has developed the EW suite through various Industry Partners. The supply chain for the LRUs, Subsystems & Components have been established. The Industry partner sourcing the ToT is required to source the LRUs, Subsystems & Components from the supply chain specified by DRDO, integrate, test, certify and deliver the EW suite for LCA Mk1A aircraft as per IAF requirement.

The EW system is currently undergoing developmental flight trials on LCA. QT of few LRUs has been completed and few LRUs are currently undergoing QT. Production clearance of the system will be obtained by CASDIC post completion of developmental trials and completion of QT of the system.

The Industry Partner sourcing the ToT, will also be responsible for establishing System Test Rig, Automatic Test Equipment, Ground Handling and Ground support equipment required for the production and maintenance of the EW system. The Industry partner sourcing the ToT of the EW Suite is required to establish a MOU with the supply chain specified by DRDO for production and maintenance of the LRUs / Subsystems / Components of the EW Suite and also should be capable of producing & supplying 10-12 EW systems per year as per the requirement of IAF.

Format for Seeking Expression of Interest (EOI)

Expression of Interest (EOI) will be sought through notification on DRDO website or (if required) in leading National dailies. In EOI advertisement, DRDO will publish one page write up on the technology along with a photograph of the product for the understanding of the industry. Following information will generally be sought through the 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 equipments.
- (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.

Additional Terms & Conditions included in the EOI for Identification of Industry Partner for ToT of EW Suite for LCA Mk1A

Following additional terms and conditions are included in the EOI proposed to be published for identification of the Industry Partner for ToT of EW Suite for LCA Mk1A

1.0 Organizational capability

1.1 Company should have 10+ years of experience in production of complex airborne mission systems such as Avionics / Radar / EW Systems. Proof towards experience in production of airborne mission systems to be provided in the following format

Sl. No	Details of the item produced	Supply order No and Date	Approx. Cost of Supply Order
1.			
2.			

1.2 Company should have 10+ years of experience in integration and testing of mission systems such as Avionics / Radar / EW Systems for airborne applications. Proof towards experience in Integration Testing to be provided in the following format,

Sl. No	Details of the systems Integrated and Tested	Integration test reports of the Systems integrated	Supply order No value and Date
1.			
2.			

1.3 Company should have executed aerospace projects for Indian / global aerospace OEMs. Proof towards the same to be provided in the following format,

Sl. No	Details of the aerospace projects executed	User for which Aerospace project was executed.	Supply order No value and Date
1.			
2.			

1.4 Company should have at least 5 years of experience in Design & engineering of aerospace mission systems. Proof towards the same to be provided as indicated below,

Sl. No	Details of the projects in which design and engineering was carried out	Details of the PDR, DDR or CDR reviews carried out in connection with the design and engineering work.	Supply order No value and Date
1.			
2.			

1.5 Company should have experience in generating necessary production documents and standards of Preparation of LRUs / Systems. Proof towards the same to be provided in the following format,

Sl. No	Details of the production documents generated for LRUs/ Systems	Document No and Date	Program for which production document was generated.
1.			
2.			

1.6 Company should have experience in certification of mission systems for airborne applications. Proof towards the same to be provided in the following format,

Sl. No	Details of the system which was certified for airborne application	CEMILAC clearance letter Number and Date	Program for which certification from CEMILAC was obtained.
1.			
2.			

2.0 Technical & Infrastructure

2.1 Company should have infrastructure towards Design & engineering of aerospace mission systems. Details of the infrastructure towards the same to be provided in the following format,

Sl. No	Criteria	Details
1.	Details of the software available with the Industry for design and engineering work	
2.	Details of Hardware Available with the Industry for design and engineering work.	
3	Details of qualified manpower available with the Industry	

2.2 Company should have facilities for precision manufacturing of aerospace components.

List of Machines and other production facilities to be provided as proof.

2.3 Company should have large scale production capability of airframe assemblies and Line Replaceable Units. Proof towards the same to be provided in the following formats

Sl. No	Criteria	Details
1.	Number of Assembly lines currently operational at the Industry for Production of LRUs / Air frame / Systems	
2.	Number of Personnel employed in each of the Assembly lines	
3	Production capability of each of the assembly line	

2.4 Company should have necessary test & inspection facilities for Component level, PCB Level and LRU level inspection. Proof towards the same to be provided in the following format,

Sl. No	Criteria	Details
1.	Test and inspection facilities such as CMM, Digital Height gauge etc.	
2.	Number of Personnel employed in test and inspection facilities.	

2.5 Company should have necessary integration and test facilities for airborne mission systems. Details to be provided in the following format.

Sl. No	Criteria	Details
1.	Details of the integration test rig / test facility	
2.	Program for which integration test facility is established.	
3	DGAQA Clearance certificate for integration test facility	

2.6 Company should have trained manpower towards certification of software for airborne application and SDLC documentation, testing of RF systems, Digital Systems and Mechanical systems and generation of technical documentation. Proof towards the same to be provided in the following format,

Sl. No	Criteria	Details
1.	Details of the trained manpower towards certification of software for airborne application and SDLC documentation.	
2.	Details of Trained manpower towards testing of RF systems, Digital Systems and Mechanical systems	
3	Details of manpower allocated for generation of technical documentation	

3.0 Quality

3.1 Company must possess

- a) AS 9100 or equivalent Quality certifications
- b) NADCAP or equivalent approvals for the test and inspection facilities.

Certificates from the relevant certification agencies should be enclosed as proof.

3.2 Company should be AFQMS certified or should have coordinated product clearance through DGAQA for production of units for airborne application. Proof towards the same to be enclosed.

4.0 Financial

4.1 Company should furnish consolidated turnover for last three years. The company should have a yearly turnover of more than 200 crores for the last three years based on the financial statements audited under the relevant companies Act.

5.0 Mode of ToT

5.1 The Lab will provide only System Level ToT to the Industry. Industry Partner need to source the LRUs from the supply chain specified by Lab. The necessary know-hows and procedures for system integration and testing of the EW suite will be provided to the Industry. The LRU level documents such as Assembly drawings, PCB Schematics, Gerber Data, RF Module Schematics etc. required for fabrication of the LRUs will remain with the supply chain and will not be provided to the Industry as part of ToT. Compliance towards this mode of ToT should be provided by the Industry as part of response to EOI.