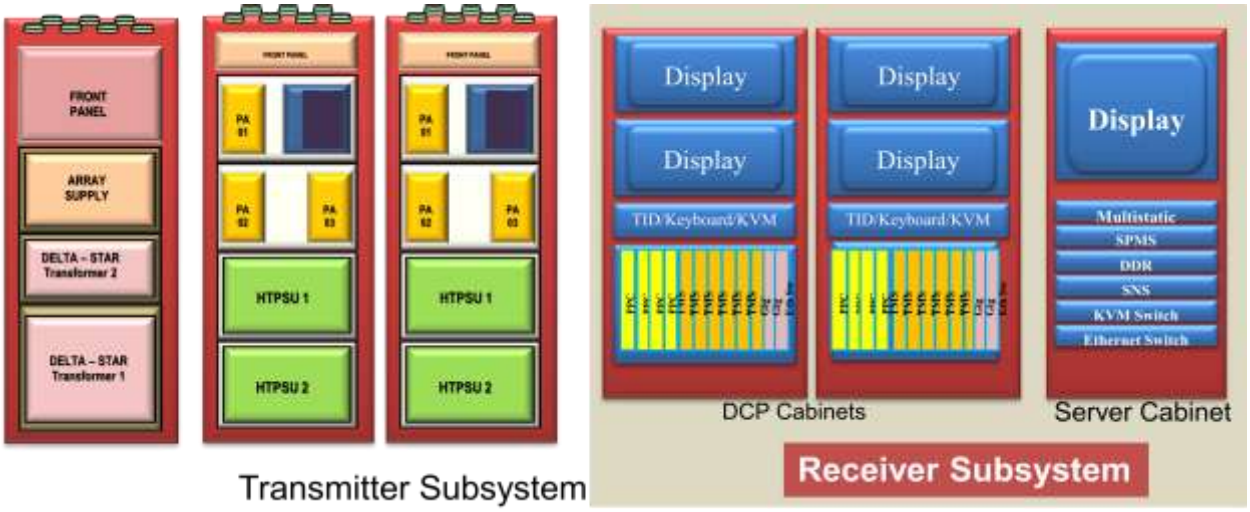
Expression of Interest

TOT OF ON-BOARD ELECTRONICS SUB-SYSTEM FOR ADVANCED LIGHT TOWED ARRAY SONAR (ALTAS)

1. Introduction

NPOL, Kochi, a premier laboratory under Defence R&D Organisation invites Expression of Interest (EOI) from Indian manufacturer(s) having sufficient experience, expertise and willingness to undertake Production of **ON-BOARD ELECTRONICS SUB-SYSTEM** for an Advanced Light Towed Array Sonar (ALTAS).



Block Diagram of On-board Electronics Sub-System

The on-board electronics Sub-system processes the information received from the Wet End Electronics and displays credentials of contact. The on-board electronics sub-system is housed in 6 cabinets. There are two numbers of Display cum processor cabinets, one power supply cabinet, two power amplifier cabinet and one data recorder cabinet

Technical specifications are enclosed at annexure 1

2. RESPONSIBILITIES OF MANUFACTURER OF ONBOARD ELECTRONICS SUB-SYSTEM

ALTAS is a multidisciplinary sonar system consisting of technologies of transducers, mechanical engineering, ocean engineering, electrical and electronics engineering, power electronics and software. Realisation of the entire sonar system under one roof may not be practical because of the diversity of technologies, know-how and skill set required. And hence the hardware content of the sonar has been realised as subsystems through specialised Indian industries and integrated as ALTAS sonar system by incorporating dedicated software developed by NPOL. The responsibility of its installation onboard a naval ship and the role of lead system integrator was undertaken by NPOL. The performance validation of the system was done under the leadership of NPOL and with the association of Indian Navy through a series of structured sea trials with real targets deployed at strategic locations. Performance validation has since been completed, the Indian Navy will shortly evaluate the system as per mutually agreed trial plan and procedure. Indian Navy has plans to induct a few ALTAS sonar systems for its front line war ships soon after evaluation trials. The purpose of this EOI is to identify one / two potential Manufacturer for ALTAS On-board Electronic System. Responsibilities of Sub-system manufacturer of 'On-board Electronic System' is further elaborated in the succeeding sections.

2.1 Supply of Sub-system to Lead System Integrator (LSI) nominated by Indian Navy/NPOL

a. Supply order will be placed on the manufacturer by a LSI nominated by Indian Navy/NPOL.
b. Manufacturer will supply the On-board electronics system as per TOT Documents. Detailed Specifications, Quality policy / program for component level to sub-system level, ATP, FAT's, HAT's and SAT's documents and BOM will be provided in the TOT documents.
c. The manufacturer will field sub-system against RFP from LSI by submitting Technical, commercial and price bids appropriately.

2.2 Organising QT/ET/ATP at the premises of sub-system manufacturer.

a. Manufacturer has to organise QT/ET at the manufacturers end as per sub-system acceptance document provided in the TOT document.

b. Manufacturer has to conduct FAT's at the manufacturers end as per sub-system Factory acceptance document provided in the TOT document before despatch of sub-system for system Integration.

2.3 Auditing of Quality Process

a. Manufacturer will ensure auditing of quality process by competent authority responsible for quality assurance as spelt out by LSI.
b. LSI will have the right to nominate Competent authority responsible for quality assurance and inspection at the manufacturers premises.

3. TOT TERMS

3.1 As per DRDO Guidelines for Transfer of Technology (TOT), the first TOT will normally be given to the industry associated during development on priority so as to ensure high quality of manufacture within the limitations in hand-holding support of DRDO.

3.2 TOT will be given on non-exclusive basis only. The number of license on non-exclusive basis will be restricted. However, additional licence if required will be given by DRDO on need basis. The intellectual property rights shall always remain with DRDO.

3.3 The amount and payment stages of TOT fee will be as prescribed by DRDO. As per current guidelines it is upto 20% of its developmental cost.

3.4 Royalty fee @ 2% of the annual sales will be applicable uniformly for all industries.

3.5 Technical assessment of the industries submitting EOI's will be carried out by a Technical assessment committee for verification of the technical and financial capability/capacity of the industry.

3.6 Eligible parties will have to sign Confidentiality & Non-Disclosure Agreement (CNDA) with DRDO for technical discussion including specifications, following which they shall be considered for giving Transfer of Technology (TOT) on non-exclusive basis.

3.7 TOT to industry will be given based on their manufacturing capability, assurance on quality and capacity of production apart from other terms and conditions.

3.8 The licencing agreement for transfer of technology (LATOT) which is to be signed will be as per the template approved by Department of Legal affairs. Ministry of Law and Justice.

3.9 DRDO shall have the march-in rights to use the IP for its own use in the interest of the Govt. of India without any restrictions, irrespective of the nature of licence granted.

3.10 DRDO shall have the right to Revoke the Licence if the company fails to adhere to the terms and conditions especially with respect to adherence of Quality.

3.11 The firm expressing interest should be technically sound to Procure/manufacture, supply and maintain the system with requisite quality standards.

4. EOI TERMS

Interested Industries may write along with their company profile, financial & technical capabilities etc. as per the following format to Director, NPOL, Kochi and copy to Director DIITM on the following addresses within 45 days of this advertisement.

Director, NPOL
DRDO, Min. of Defence,
Thrikkakara P.O.
Kochi-682021
Contact No - 0484 2424878
FAX : 0484-2424858
Email: director@npol.drdo.in

Director, DIITM
Room No 446 DRDO Bhawan
DRDO HQrs Ministry of Defence
RajajiMarg New Delhi – 110011
Contact No - (011) 23016216 / 23007446
FAX No. 011-23793008

a) Memorandum and Articles of Association (Should be incorporated as per Indian Companies Act, 1956)
b) Certificates of registration as a manufacturing unit, if any.
c) 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).
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 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.

Annexure 1

Technical Specification of Display Cum Processing Cabinet

Overall Dimension	:	600 mm(W)×480 mm(D)×1700mm(H)
Approx. weight (including electronics)	:	200 Kg
Mounting	:	Floor mounting
Connectivity	:	MIL 38999 connectors for Ethernet, USB and Power
Power Input	:	230 V 50Hz AC
Health monitoring system	:	Health monitoring system to monitor the PS, fan failures and temperature of air at different places inside the rack, shall be available over RS232/422 & Ethernet.
Off the shelf electronic components which are installed in the console:		
Display Monitor	:	20.1 inch LCD Monitor- 2 Nos
Touch input device	:	Minimum 10” TID
VPX Chassis		VPX chassis- 1 No. The VPX chassis has a custom made VPX mother board, with provision to populate 8 TI DSP Boards, 4 Power PC Boards, 2 Gigabit Ethernet boards, the required power supply, and related cooling arrangements.
TI DSP Boards		TMS boards-8 Nos.
Power Pc boards		Power PC boards-4 Nos.
VGA Boards		VGA boards in XMC/PMC-2 Nos.
KVM Switch		Two port KVM switch- 1 No.
Keyboard, trackball		101key keyboard, Backlight option and Integrated track ball with three buttons
Gigabit Ethernet boards	:	2 Nos. Managed level 3 compact Ethernet switch
A V Recorder	:	Compact Audio Video Recorder
Audio	:	Compact dual speakers and head phone, Hooter
Design of off the shelf electronic components not included in the TOT		

Technical Specification of Server Cabinet

Overall Dimension	:	600 mm(W)×480mm(D)×1700mm(H)
Approx. weight (including electronics)	:	250 Kg
Mounting	:	Floor mounting
Connectivity	:	MIL 38999 connectors for Ethernet, USB and Power
Power Input	:	230 V 50Hz AC
Health monitoring system	:	Health monitoring system to monitor the PS, fan failures and temperature of air at different places inside the rack, shall be available over RS232/422 & Ethernet.

Off the shelf electronic components which are installed in the console:		
Rugged servers	:	Rugged Server – Type1 – 3 Nos Rugged Server – Type2 – 1 No
Gigabit Ethernet boards	:	Managed level 3 compact Ethernet switch-1No.
KVM Switch		Eight port KVM switch to provide support for all the servers -1 No
Display Monitor	:	20.1 inch LCD Monitor- 1 No. Monitor, keyboard, trackball shall be mounted on a retractable tray of 1U size.
Keyboard		1 No.
Trackball		1 No.
Design of off the shelf electronic components not included in the TOT		

Technical Specification of Power amplifier cabinet

Overall Dimension	:	500mm (W) X 540mm (D) X 1700 (H)
Approx. weight (including electronics)	:	250 Kg
Mounting	:	Floor mounting
Connectivity	:	MIL 38999 connectors for Ethernet and Power
Power Input	:	380 V, 3ϕ, 50 Hz 3 wire and 230 V, 1ϕ, 50Hz
Health monitoring system	:	Health monitoring system to monitor the PS, fan failures and temperature of air at different places inside the rack
Off the shelf electronic components which are installed in the console:		
Power amplifier	:	Power Amplifier – 3 Nos
HTPSUs	:	HTPSUs – 2 Nos.
LTPSU		LTPSUs – 4 Nos.
VME/VPX Hybrid Chassis	:	6U backplane with 2 VME slots & 5 VPX slots with appropriate power supply
Single TMS Board	:	Single TMS board-1No
Design of off the shelf electronic components not included in the TOT		

Technical Specification of Power Supply cabinet

Overall Dimension	:	500mm (W) X 540mm (D) X 1700 (H)
Approx. weight (including electronics)	:	300 Kg
Mounting	:	Floor mounting
Connectivity	:	MIL 38999 connectors for Power
Power Input	:	380 V, 3ϕ, 50 Hz 3 wire
Power output		Output voltage of 3 phase 400V p-p and 230V p-n

Health monitoring system	:	Health monitoring system to monitor the PS, fan failures and temperature of air at different places inside the rack
Delta to Star Transformer with 20 KVA rating	:	Delta to Star Transformer with 20 KVA ratingwith:- Provision for Input supply of 380/400/415/440V 50Hz 3 Phase . Output voltage of 3 phase 400V p-p and 230V p-n
Delta to Star Transformer with 2 KVA rating	:	Provision for Input supply of 380/400/415/440V 50Hz 3 Phase. Output voltage of 3 phase 400V p-p and 230V p-n.
Off the shelf electronic components which are installed in the console:		
DC Linear Power Supply	:	DC Linear Power Supply – 1 No.
Design of off the shelf electronic components not included in the TOT		