Border Surveillance System

INTRODUCTION

Border Surveillance System has been developed to carry out all weather surveillance & to monitor the border area. It consists of Battle Field Surveillance Radar (BFSR) & EO payload (consists of day camera, eye-safe LRF & MWIR TI, DMC & GPS) mounted on the pan-tilt unit kept at the observation tower. It is equipped with hybrid energy source. It transmits the real-time video & data at a distance 20 km to control station through Wireless & Fiber optic link.

IRDE has designed and developed Border Surveillance System for High Altitude Border Area.

SPECIFICATIONS

<table>
<thead>
<tr>
<th>Category</th>
<th>Performance</th>
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<tbody>
<tr>
<td>Range Performance:</td>
<td>(Detection Range)</td>
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<tr>
<td>BFSR-XR:</td>
<td>10 Km (Light Vehicle); 08Km (Gp of Person)</td>
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<tr>
<td>Day Camera:</td>
<td>12 Km (Light Vehicle); 10Km (Gp of Person)</td>
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<tr>
<td>Thermal Camera:</td>
<td>10 Km (Light Vehicle); 08Km (Gp of Person)</td>
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<tr>
<td>Data &amp; Video Transmission Capability</td>
<td>Up to 20 Km over Optical Fiber transmission Cable and Wireless (LOS)</td>
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<td>Environmental:</td>
<td>Storage Temperature: - 40° to +55° C</td>
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<td></td>
<td>Operating Temperature: - 30°C to + 55°C Applicable JSS 5855-11:2009 (in conjunction with JSS 55555)</td>
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FEATURES

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<tr>
<th>Feature</th>
<th>Details</th>
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<tr>
<td>Image Processing modules</td>
<td>Image Enhancement, Video Mosaicing, Automatic change detection, Map overlay &amp; Target Profile generation Activity log, MMI Control &amp; external interface</td>
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<td>On-Site recording</td>
<td>14 days</td>
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<td>Modes of Operation</td>
<td>Radar only, EO only, Radar &amp; EO mode</td>
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<td>Integrated De-icing and</td>
<td>De-fogging module &amp; Security camera</td>
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TECHNOLOGIES INVOLVED

The development of Border Surveillance System involved the development of following technologies:

- Development of EO payload consisting of thermal & day camera, LRF, GPS and DMC
- Development of change detection unit with HMI such as image enhancement for improved detection & recognition, video mosaicing (Panoramic view), automatic change detection, Map overlay & target profile, Activity log
- Development of Hybrid renewable power source for Border Surveillance System Unit
- Development of Control unit for monitoring station
- Integration of EO Payload with radar

All the above technologies were successfully developed at IRDE (DRDO) Dehradun.

Interested industries may write to Director, IRDE, Dehradun at the following address:

1. Director, IRDE
   DRDO, Min. of Defence,
   Raipur PO
   Dehradun – 248008
   Fax: 0135-2787161/ 2787128

2. Director, DIITM,DRDO HQ,
   Min. of Defence, DRDO Bhawan,
   Room No. 447, B Block,
   Rajaji Marg, New Delhi - 110011
   Fax: 011-23793008

3. Mr. Manoj Purohit, Dy. Director (Technology)
   Phone: 0135-2782384 / +91-9634414688
Appendix G: Format for Seeking Expression of Interest (EOI)

Expression of Interest (EOI) will be sought through notification in all leading National dailies and DIFTM portal of the DRDO website (www.drdo.gov.in/drdo/English/indexCorpDir.jsp?pg=tech_commercialisation.jsp). Following information will generally be sought through the EOI:

(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)/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 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.