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Integrated Headquarters of  
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15-A Block Hutments  
Dara Shukoh Road  
New Delhi 110011

NB/0695/TIC

22 Mar 18

**EXPRESSION OF INTEREST (Eoi) FOR PROCUREMENT OF  
THERMAL IMAGING CAMERA (TIC) FOR INDIAN NAVY**

1. The Ministry of Defence, Government of India, intends to procure **Thermal Imaging Camera (TIC)** for *IN* ships/platforms in India.
2. This Expression of Interest (Eoi) consists of two parts as indicated below:-
  - (a) **Part I.** The first part of the Eoi incorporates operational characteristics and features that should be met by the TIC. A few important technical parameters of the proposed TIC are also mentioned.
  - (b) **Part II.** The second part of the Eoi states the methodology of seeking response of Indian firms. Submission of incomplete response format will render the firm liable for rejection.

**PART-I**

3. **The Intended Use of TIC (Operational Requirements).** The SOTRs are placed at **Appendix 'A'**.
4. **Quantity Required and Anticipated Delivery Timeframe.** Quantity of systems would be mentioned in the RFPs/tenders separately, to be issued by Procurement Agencies.
5. **Important Technical Parameters.** Operational/Technical Requirements are placed at **Appendix A** of this document. Further, following details are to be submitted:-
  - (a) Feasibility to manufacture/supply equipment with the enclosed Operational/Technical Requirements (**Appendix A**). Any modification to the specifications can be suggested by the OEM with suitable justification.
  - (b) Budgetary Quotes with breakup of cost including factors such as Annual Maintenance Contract (AMC), product support package, training etc.
  - (c) Feasibility/willingness to conduct FET in India.
  - (d) Modalities for conduct of FET are to be included.

- (e) Experience in manufacturing/supplying similar equipment along with client details.
- (f) Memorandum of Understanding, if any, with respect to design aspects.
- (g) Willingness for Option Clause, including the duration for which the Option Clause would be valid.
- (h) Whether the firm would be able to comply with all provisions of DPM 09 or not. If not, Para/Clause of DPM 09 not agreed to with reasons need to be indicated.
- (j) Firm may consider EoI/RFI as advance information to obtain requisite government clearances.
- (k) The tentative delivery schedule for supply of the equipment after conclusion of the contract.
- (l) Acceptability to terms of payment as per DPM 09.

6. **Additional Specifications.** The aim of seeking this EoI is also to redraft/finalise the Technical Specifications for the said equipment with inputs from OEMs. Accordingly, a questionnaire is placed at **Appendix B**, which is to be answered.

7. The Vendor should confirm that the following conditions are acceptable: -

- (a) Solicitation of offers will be as per 'Single Stage-Two Bid System'. It would imply that a '**Request for Proposal**' would be issued soliciting the technical and commercial offers together, but in two separate sealed envelopes. The validity of commercial offers would be at least 18 months from the date of submitting of offers.
- (b) The technical offers would be evaluated by a Technical Evaluation Committee (TEC) to check its compliance with RFP as per DMP 09.
- (c) Amongst the Firms cleared by TEC, a Contract Negotiations Committee (CNC) would decide the lowest cost bidder (L1) and conclude the appropriate contract.
- (d) The Firms would be bound to provide product support for time period specified in the RFP, which includes spares and maintenance tools/jigs/fixtures/documentation for training for field and component level repairs.
- (e) The Firm would be required to accept the general conditions of contract given in the Standard Contract Document at **Chapter VI of DPM 09** placed on **www.mod.nic.in**.

**PART- II****8. Procedure for Response.**

(a) The firms must fill the form of response, as given in **Appendix C to Chapter II of DPM 09** and **Appendix D of this document**. Apart from filling details about the firm, details about the exact equipment meeting the mentioned operational/technical specifications (**Appendix B of this document**) should also be carefully filled. Additional literature on the equipment can also be attached with the form.

(b) The filled form should be dispatched to the under mentioned address: -

The Principal Director of NBCD  
Directorate of NBCD  
IHQ-MoD(N), Room No 15-A  
A Block Hutments, Dara Shukoh Road  
New Delhi 110011  
India  
Tele: 0091-11-23793514  
Fax : 0091-11-23793439  
E-Mail: [dnbcd@navy.nic.in](mailto:dnbcd@navy.nic.in)

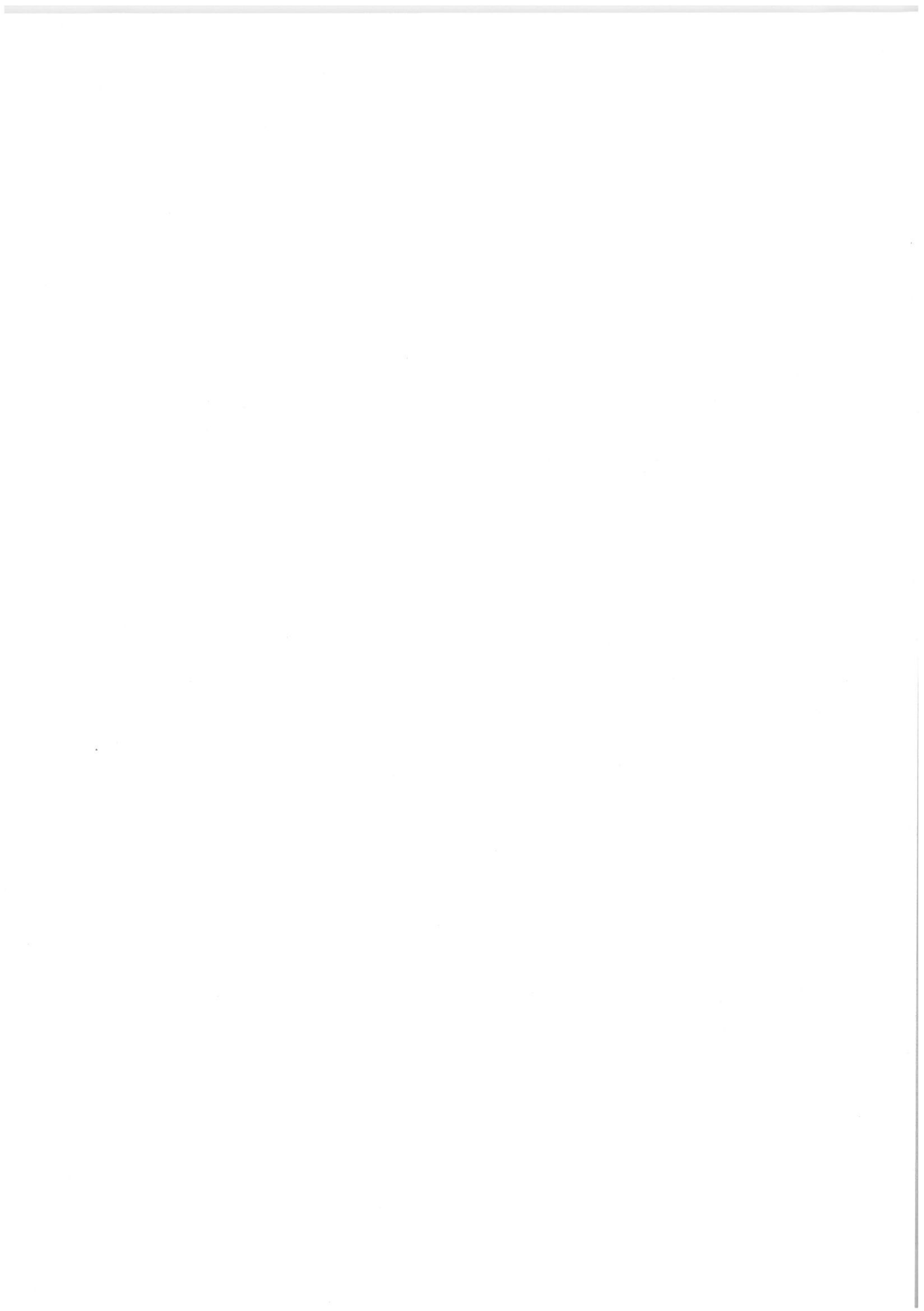
(c) Last date of acceptance of filled forms along with details sought is **four weeks** from date of hosting of EoI on the websites. The firms short listed for issuance of RFP would be intimated.

9. The Government of India invites responses to this request only from Indian firms who qualify the criteria specified in **Appendix E**. The end user of the equipment is the Indian Navy.

10. This information is being issued with no financial commitment and the Ministry of Defence reserves the right to change or vary any part thereof at any stage. The Government of India also reserves the right to withdraw it should it be so necessary at any stage. The procurement process would be carried out under the provisions of **DPM 09** available on **www.mod.nic.in**.



(Caesar Basu)  
Captain  
PDNBCD





STATEMENT OF TECHNICAL REQUIREMENTS IN RESPECT OF  
THERMAL IMAGING CAMERA,

(SPECIFICATION NO. EG/4384/01/NBCD  
DATED 05 MAY 08)

Scope

1. This SOTR lays down the requirements to be met by a portable hand held Thermal Imaging Camera (TIC) intended to be used for fire fighting applications.

Operational

2. The Thermal Imaging Camera should be:

- (a) Portable, hand held, light weight, compact and self contained unit, ergonomically designed with a well balanced center of gravity. Also the camera should be designed to optimise viewing angle for work comfort in stooped or prone positions to reduce the potential for neck strain on fire fighter.
- (b) Provided with a thermal television picture using un-cooled thermal detectors. The detector should have an MTBF of minimum 5000 hours.
- (c) Capable of providing thermal images of static and mobile objects through dense smoke (100% obscuration) and should enable the operator to locate the seat of fire up to a minimum distance of 50 meters.
- (d) Provided with a facility of connecting a cable / wireless transmission unit for relaying pictures to a remote TV screen, for providing the fire fighting party in-charge with a better overview of the situation.
- (e) Fully automatic in operation with a single on/off button with no control or adjustment required.
- (f) Provided with a fixed gripping handle affording a firm grip to a user/wearing gloves.
- (g) Should be compatibility with computer for downloading image and recording facility.
- (h) Sharp colour thermal infra red image should be provided.

Optical

3. Sensing Optics

- (a) Thermal detector utilised should be un-cooled Thermal Detector Sensor MTBF  $\geq$  5000 Hours.
- (b) Lens. The Thermal Image should be focussed onto the image tube using elements having hard protective coatings without pin holes like diamond or germanium or equivalent or better. Should have a hard anti-reflecting coating which can be cleaned with a soft cloth.

- (c) Spectral Response                      08 to 14 micro meter
- (d) Field of view not less than 45 degree
- (e) Iris. The operating control should be based on "Auto Iris Control Method" in order to protect the tube from scene temperature overloads and to prevent blooming of the picture.
- (f) Minimum Resolvable temperature difference < 1.0 Degree C
- (g) Temperature and Spatial resolution. Imaging system having MTF (Modulation Transfer Function) > 40% at 50 line pairs per picture height for temperature difference of 5 degree C is desirable.
- (h) Maximum working temperature.      260 degree C – 1000 degree C
- (j) The camera should be capable of providing instantaneous ambient and spot temperature readings to the fire fighter.

4. Viewing Optics. Should be digital image quality with 160 x 120 mm pixels resolution. Zoom facility should be provided for safer viewing by fire fighter.

#### Mechanical

5. The mechanical properties of the TIC are as follows:-

- (a) Overall size and shape :      Should be smaller in size and compact shape
- (b) Weight:                      1.2 – 1.6 kgs
- (c) Material of Case: Multi-layered Low weight, tough, fire retardant assembly with insulation lining for protecting inner electronics.
- (d) Visor: Neoprene (High Melting Point)/equivalent or better
- (e) Neck/Side Straps :      Adjustable (Polypropylene/Nomex/Kevlar or equivalent/better)

#### Electrical

6. The electrical properties to be possessed by the camera are as mentioned below: -

- (a) TIC should be operated with rechargeable Ni-MH Battery and should be capable of charging from 220 V AC supply.
- (b) The housing of the Battery Pack in the Thermal Camera should be a one-way fit, so that no fumbling / delay takes place while replacing the battery pack even in darkness or with gloved hands.
- (c) Battery Life. Minimum <sup>2 1/2</sup>/<sub>h</sub> hours on single rechargeable packs.

(d) Battery Charger - Powered from 110 or 220V (nominal mains via IEC connector on the rear face or from 24V DC supply connected via a DC jack on the rear face. Battery charger should be able to charge the entire battery pack at a time within 100 minutes.

(e) Battery Condition Indicator - Continuous colour coded indication of the available run time giving analog readout of the remaining battery life should be available on the camera. Provision of an audio alarm for indication of residual battery life is desirable.

(f) Power Consumption < 5 Watt

(g) Video Output - A video signal for remote monitor with 75 ohm impedance via a BNC socket.

(h) Maximum Endurance. 04 - 06 hours

### Environmental

7. The environmental tests recommended as per JSS-5555/ MIL STD-810D/E or equivalent for thermal imaging camera in a Naval Sheltered environment is shown in the table below:

S. No.	TESTS	TEST NUMBER
(a)	Vibration	28
(b)	High Temperature	17
(c)	Damp Heat	10
(c)	Low temperature	20
(d)	Drip Proof	11
(e)	Sealing	23
(f)	Immersion	19
(g)	Corrosion (salt)	09
(h)	Contamination	06
(j)	Bump	05
(k)	Shock or impact	24

8. The equipment manufacturer has to specify the following to evaluate the validity of the tests conducted: -

(a) The acceptable performance limits of the equipment when subjected to environment tests.

(b) Test procedure

(c) Pre-conditioning

(d) Initial measurements

(e) Final measurements.

EMI/EMC

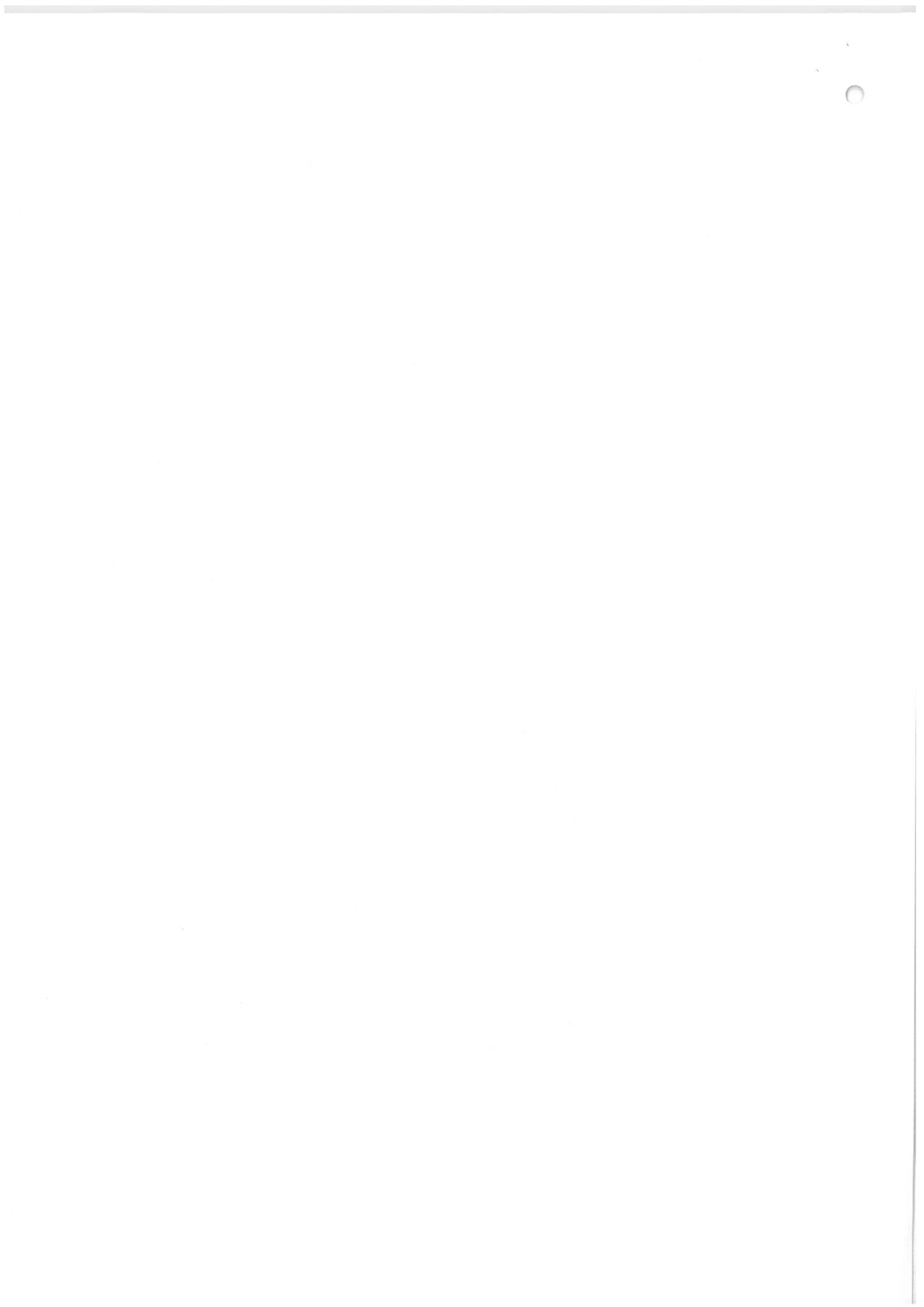
9. The camera should possess Electro Magnetic Compatibility to ensure no interference with portable radios in use during fire fighting operation. Should meet EC directive on EMC 89/336/EC as per following specification: -

- (a) EMI/EMC Specification - EN 50081 - 1(MIL STD 461B)
- (b) SUSCEPTIBILITY Specification -EN 50082 - 2 (MIL STD462)  
or equivalent standards.



**QUESTIONNAIRE FOR DETAILS IN RESPECT OF**  
**THERMAL IMAGING CAMERA (TIC)**

<b>Ser</b>	<b>Information Required</b>	<b>Data/ Information</b>
1	Can you design/supply/manufacture Thermal Imaging Cameras (TIC) for short range (Max 200 Mtr). If yes, state your company profile, technical expertise, and registrations	
2	What is the minimum and maximum temperature that can be detected by your product	
3	What is the range (in distance) of your product	
4	What is the screen size of your product	
5	Is your equipment portable, can be operated with single hand, approx weight of equipment?	
6	What is the visible screen angle?	
7	Is there provision to record image and video both in your product.	
8	What is the power supply requirements of equipment. Does your equipment have battery backup also. If yes, for how long	
9	What kind of human interface your equipment has (TFT, LED indicators, display only)	
10	Does your firm have technical centres at Mumbai, Visakhapatnam and Kochi	
11	Can your equipment be interfaced with computers/laptop for data transfer	
12	Is your firm willing to take up AMC and requisite user training post supplying the equipment	
13	What is IP rating of your equipment	
14	Is your equipment MIL grade	
15	Is your equipment certified by some Indian Govt body/ International accredited organisation/Lab	
16	Is your equipment JSS5555/MIL STD- 810D/E compliant	
17	What is the dimension and weight of the equipment	
18	Does it pin points the object with temperature	
19	Does your equipment differentiate between temperature ranges with colour coding	
20	What parts are to be replaced frequently and after how much usage/time	
21	Is equipment proposed indigenously designed and developed and what percentage is indigenised	
22	What is the approximate cost estimation and is there any suggestions for alternatives to meet the same objective as mentioned in RFI	
23	Do you have an another equipment already developed to solve the purpose mentioned in the RFI	
24	Have you supplied your equipment to any Government Body/	



<u>Ser</u>	<u>Information Required</u>	<u>Data/ Information</u>
	PSU/Defence Organisation. If yes, kindly forward details	
25	What is (Mean Time Between Failure) MTBF of your equipment	
26	Does your equipment have battery status indication and cut off charging facility when fully charged	
27	Does your equipment have rapid charging facility	
28	Does your equipment have spare battery/portable charging facility for spare battery	
29	Can your equipment see through Smoke. If yes can u quantify the specs (smoke density, penetration distance etc)	
30	What is the temperature limits of your equipment to operate	
31	Does your equipment have on spot recording and view facility (within equipment, without external interface)	
32	Can your equipment operate directly on 230 V	
33	Till what height have your equipment cleared drop test	
34	Additional Information, if any may be indicated	

**INFORMATION PROFORMA**

1. Name of the Company/Firm/ \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_  
(Company profile, in brief, to be attached).

2. Type (Tick the relevant category)  
Original Equipment Manufacturer (OEM) - Yes/No  
Authorised Firm/ - Yes/No  
(attach Firm details, if yes)  
Others (give specific details) \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

3. Contact Details: -  
Postal Address : \_\_\_\_\_  
\_\_\_\_\_  
City : \_\_\_\_\_ State : \_\_\_\_\_  
Pin Code: \_\_\_\_\_ Tele : \_\_\_\_\_  
Fax : \_\_\_\_\_ URL/Web Site: \_\_\_\_\_

4. Local Branch/Liaison Office in Delhi (if any)  
Name & Address \_\_\_\_\_  
\_\_\_\_\_  
Pin Code: \_\_\_\_\_ Tele: \_\_\_\_\_ Fax: \_\_\_\_\_

5. Financial Details :-  
(a) Category of Industry (Large/medium/small Scale): \_\_\_\_\_  
(b) Annual turn over: \_\_\_\_\_ (in INR)  
(c) Number of employees in firm: \_\_\_\_\_  
(d) Details of manufacturing infrastructure : \_\_\_\_\_

(e) Earlier contracts with Indian Ministry of Defence/Government agencies:-

Contract Number	Equipment	Quantity	Cost

6. Certification by Quality Assurance Organisation

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7. Membership of FICCI/ASSOCHAM/CII or other Industrial Associations

Name of Organisation	Membership Number

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

(a) Name of Product:- \_\_\_\_\_

(b) Description (attach technical literature): \_\_\_\_\_

(c) Whether OEM or Integrator : \_\_\_\_\_

(d) Name and address of Foreign collaborator (if any): \_\_\_\_\_

(e) Industrial Licence Number : \_\_\_\_\_

(f) Indigenous component of the product (in percentage) : \_\_\_\_\_

(g) Status (in service/design & development stage) : \_\_\_\_\_

(h) Production capacity per annum : \_\_\_\_\_

(j) Countries/agencies where equipment supplied earlier (give details of quantity supplied): \_\_\_\_\_

(k) Estimated price of the equipment. \_\_\_\_\_

9. Alternatives for meeting the objectives of the equipment set forth in the RFI.

10. Any other relevant information : \_\_\_\_\_

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

(Authorised Signatory)

**Appendix D**  
**(Refer to Para 8)**

**ADDITIONAL INFORMATION PROFORMA**

1	YEAR ESTABLISHED	
2	TYPE OF ORGANISATION SIZE/CLASSIFICATION OF YARD	
3	ORGANISATION SETUP AND AVAILABILITY OF SKILLED MANPOWER	
4	DETAILS OF DESIGN, PLANNING AND PRODUCTION FACILITIES/ INFRASTRUCTURE INCLUDING SLIPWAYS/DRYDOCKS AND WET BASIN/WATER FRONT (ATTACH BROCHURES ETC)	
5	ANNUAL BUILD CAPACITY	
6	DETAILS OF FUTURE EXPANSION AND BUSINESS DEVELOPMENT PLANNED	
7	EQUIPMENT DELIVERED IN LAST 05 YEARS. (ATTACH PREVIOUS ORDER COPIES FOR SIMILAR EQUIPMENT ONLY)	
8	ORDERS IN HAND (ATTACH ORDER COPIES FOR SIMILAR EQUIPMENT ONLY)	
9	FINANCIAL INFORMATION (IN INR FOR INDIAN FIRMS)	
	(A) ANNUAL TURNOVER IN THE LAST THREE FINANCIAL YEARS (YEAR WISE)	
	(B) PROFITS MADE	
	(C) NET WORTH =EQUITY+RESERVES	
	(D) DEBT/EQUITY RATIO	
	(E) QUICK RATIO=(CURRENT ASSETS LONG TERM DEBTS)/CURRENT LIABILITIES	
	(F) ATTACH COPIES OF CERTIFIED PUBLISHED ANNUAL REPORT SHOWING TURNOVER AND FINANCIAL STATUS IN SUPPORT OF ABOVE INFORMATION	



**MINIMUM QUALIFYING CRITERIA FOR ISSUE OF RFP TO FIRMS FOR  
PROCUREMENT OF TICs**

1. Should be a firm who has manufactured equipment of similar specifications in the past.
2. Financial status should meet the delivery period
3. Possess infrastructure and capacity (considering the existing and future work load) for undertaking the manufacturing of equipment.
4. Is the firm in possession of necessary License, details be provided.

