



TENDER NOTICE NO.03/2011-2012

For and on behalf of the President of India, Senior Purchase and Stores Officer, ISTRAC, Bangalore, invites Sealed Tenders for the supply of the following items:-

| Sl. No | Tender No. | Description of Items | Qty. | Tender Fee (including VAT) Non refundable or Non transferable | Last date for receipt of Sealed quotations (DUE DATE & TIME) | Tender opening date and time |
|--------|------------------------------------|--|--------|---|--|------------------------------|
| 01 | TRIB 2011 000 186-01 (SINGLE PART) | SUPPLY OF 6.3M & 3.8M TX-RX ANTENNA WITH AZ-EL-POL MOTORS, ANTENNA FOUNDATION WORKS, INSTALLATION AND COMMISSIONING | 01 LOT | Rs.228/- | 28/02/2012 3.00 PM (IST) | 29/02/2012 10.30 AM (IST) |
| 02 | TRHQ 2011 000 323-01 (SINGLE PART) | COMPREHENSIVE ANNUAL MAINTENANCE CONTRACT FOR CENTRAL AIRCONDITION SYSTEMS INSTALLED AT SCC, PEENYA, BANGALORE FOR A PERIOD OF ONE YEAR | 01 LOT | Rs.228/- | 28/02/2012 3.00 PM (IST) | 29/02/2012 10.30 AM (IST) |
| 03 | TRHQ 2011 000 389-01 (SINGLE PART) | CAMC FOR CENTRAL AIRCONDITIONING SYSTEM AT 1)MOX-1 & MOX-2 CAMPUS, ISTRAC, BANGALORE AND 2)IRNSS, IDSN, BYALALU, BANGALORE FOR A PERIOD OF TWO YEARS | 01 LOT | Rs.228/- | 28/02/2012 3.00 PM (IST) | 29/02/2012 10.30 AM (IST) |
| 04 | TRHQ 2011 000 441-01 (SINGLE PART) | COMPREHENSIVE ANNUAL MAINTENANCE SERVICE CONTRACT FOR 18 NOS. UPS AT IDSN, BYLALU, BANGALORE FOR A PERIOD OF THREE YEARS | 01 LOT | Rs.228/- | 01/03/2012 3.00 PM (IST) | 02/03/2012 10.30 AM (IST) |
| 05 | TRIB 2011 000 282-01 (DUAL PART) | SUPPLY, INSTALLATION AND COMMISSIONING OF GEOLUT PROCESSING SYSTEM AS PER INTERNATIONAL COSPAS-SARSAT SPECIFICATIONS | 01 LOT | Rs.228/- | 01/03/2012 3.00 PM (IST) | 02/03/2012 10.30 AM (IST) |

Detailed Specifications, Terms & Conditions are available in the Tender documents, in respect of Item Sl.Nos.1, 2, 3, 4, & 5. For the Item Sl. Nos.1, 2, 3 & 4 it is proposed to follow SINGLE PART SYSTEM & for Item Sl.No.5 TWO PART SYSTEM (Part-I 'Technical and Commercial Terms & Conditions' and Part-II: "Price") and Tenderers are requested to go through the "Important Instructions for Two Part Tender, Annexure-'X' to be followed while preparing their Quotation/Offer in response to this "Two Part" Tender Notice. For Sl. No.5 Technical bid only will be opened on the tender opening date & time.

- Note:** 1. The tender/bids will be opened in the presence of tenderers or their authorized representatives.
2. Tenderers should bring authorisation letter/identification while attending opening of the tenders.

While making request for tender documents, the following points shall be noted:

1. Only brief specifications are furnished here. Detailed specifications are available in the tender documents and the quotations should be in the prescribed form only.
2. Separate requests shall be made for tender document indicating tender number and item together with prescribed tender fee to the Senior Purchase and Stores Officer, ISRO Telemetry, Tracking and Command Network (ISTRAC), Plot No.12 & 13, 3rd Main, 2nd Phase, Peenya Industrial Area, **Bangalore-560 058** only. The envelopes containing such request shall indicate "**Request for Tender Document**" only and "Tender Number and due date **should not be** mentioned on the envelope.
3. The tender fees should be in the form of crossed demand draft from any Nationalised Bank, payable at Bangalore in favour of **Accounts Officer, ISTRAC, Peenya, Bangalore-560 058**. Money Order, Cash or Cheque will not be accepted. The date of demand draft should not be prior to the date of this advertisement/ website intimation.
4. In the event of any date indicated above is a declared holiday, the next working day shall become operative for the respective purpose mentioned therein.
5. Late/Delayed offers will not be accepted and will summarily be rejected.
6. ISTRAC, Bangalore will not be responsible for any delay/loss of documents in transit.
7. Right to accept or reject any quotation in full or part thereof without assigning any reason whatsoever is reserved.
8. Tender documents are also available on ISRO website, www.isro.gov.in Interested tenderers may, at their own option, download the tender documents from the website and submit their offers along with the prescribed tender cost (in the form of Bank draft) as per details in the tender notification. **(Please note that in case DD towards cost of Tender Documents is not enclosed with the quotation, your quotation is liable for rejection).**

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GOVERNMENT OF INDIA
DEPARTMENT OF SPACE
ISRO TELEMETRY TRACKING AND COMMAND NETWORK (ISTRAC)
BANGALORE-58
PURCHASE DIVISION

Telephone : 080-2837 6383 / 2809 4555
Fax : 080-2809 4061
Grams : ISTRAC
E Mail : purchase@istrac.org

Plot No. 12 & 13, 3rd Main, 2nd Phase
Peenya Industrial Area
Bangalore - 560 058 INDIA

Our Ref.: **TRIB 2011000186-01**
(SINGLE PART)
(To be quoted in all correspondence)

Date: **27/01/2012**

Invitation to Tender

To,

M/s

Dear Sirs,

Please submit your sealed quotation, in the Tender Form enclosed here along with the description catalogues / pamphlets / literature, superscribed with Our Ref.No. and Due date for the supply of the following items as per the terms & conditions mentioned in Annexure (enclosed). Please ensure that your quotation reaches this office not later than **28/02/2012 at 1500 hrs.**

| Sl. No. | Description | Quantity Required |
|---------|--|-------------------|
| 1. | 6.3 M C-Band Tx-Rx Antenna with AZ-EL-pol motors | 01 No. |
| 2. | 3.8 M C-Band Tx-Rx Antenna with AZ-EL-pol motors | 06 Nos. |
| 3. | 6.3 M Antenna Foundation Works, Installation and Commissioning | 01 LOT |
| 4. | 3.8 M Antenna Foundation Works, Installation and Commissioning | 03 LOTS |
| | Detailed Specifications, Mandatory requirements/conditions as per Annexure enclosed. | |
| | NOTE: | |
| | 1. Tender Notice + Invitation to Tender + Tender Form – 03 Pages | |
| | 2. Detailed Specification enclosed – 06 Pages | |
| | 3. Important instructions to Tenderers - IMPORTS – 01 Page | |
| | 4. General Instructions to Tenderers and Terms & Conditions of Purchase (FORM NO.P005) – 06 Pages | |
| | 5. Tenders shall be opened in the presence of attending Tenderers or their authorized representatives on 29/02/2012 at 10.30 Hrs at ISTRAC, Plot No.12 & 13, 3rd Main, 2nd Phase, Peenya Industrial Area, Bangalore – 560 058. | |
| | 6. The tender fee of Rs.228/- towards Tender Document in the form of DD drawn in favour of Accounts Officer, ISTRAC, Bangalore - 560 058 obtained from Nationalised Bank, payable at Bangalore should be enclosed along with the quotation. Money order, Cash or Cheque will not be accepted. The date of demand draft should not be prior to the date of this advertisement / website intimation. | |
| | (Total pages: 16) | |

Delivery at **ISTRAC , BANGALORE**

Delivery Required: Earliest

Yours faithfully,

(C S BASAVANNA)
Sr. Purchase & Stores Officer
For and on behalf of the President of India
(The Purchaser)

TENDER FORM

From:

Tender No. **TRIB 2011000186-01**

Due on **28/02/2012 upto 3.00 PM**

Purchase & Stores Officer (PURCHASE)

Tenderer 's Ref.:

Dear Sir,

I/We hereby offer to supply the stores detailed below at the price hereunder quoted and agree to hold the offer open till I/We shall be bound to supply the stores hereby offered upon the issue of the Purchase Order/Contract/Agreement communicating the acceptance thereof on or before the expiry of the last mentioned date. You are liberty to accept any one of the items of stores tendered for or any portion of any one or more of the items of such stores. I/We notwithstanding that the offer in this tender has not been accepted in whole shall be bound to supply to you such items and such portions of one or more of the items as may be specified in said Purchase Order communicating the acceptance.

| Sl. No. | Description | Unit | Qty. | Unit Rate | Delivery Date |
|---------|-------------|------|------|-----------|---------------|
|---------|-------------|------|------|-----------|---------------|

(Note: All the rates should be given both in figures and words)

| | | |
|---|---|-----------------------------|
| Place at which delivery is required | } | ISTRAC- Bangalore |
| Delivery Period | | As per invitation to tender |
| Date by which the supplies are required | | |

I/We have understood the terms of the tender annexed to the invitation to tender and have thoroughly examined the specification drawing and or pattern quoted referred to herein and are fully aware of the stores required and my/our offer is to supply to the stores strictly in accordance with the requirements subject to the terms and conditions contained in the Purchase Order /Contract/Agreement communicating the acceptance of this tender either in whole or in part.

Signature of Tenderer

Date

Phone No.

(SEAL)

SPECIFICATIONS OF 6.3M ANTENNA

| Sl. No. | PARAMETERS | Specifications | |
|----------------|------------------------------------|--|---|
| 1. | Antenna size/type | 6.3 m diameter solid shaped parabolic dish with Cassegrain feed system for both Tx/Rx. | |
| 2. | Mount | Elevation over azimuth <ul style="list-style-type: none"> • Limited steerable (90 to 270 deg in two slots) in Az with motors for ON/OFF drive • Limited steerable (5 to 85 deg) in El with motors for ON/OFF drive | |
| 3. | F/D ratio | 0.35 nominal | |
| 4. | Surface accuracy of main reflector | 1 mm for normal wind conditions (75 km/h) or equivalent of $\leq \lambda/50$ | |
| 5. | Sub-reflector | Suitable sub-reflector | |
| 6. | Feed and Polarization | Suitable feed to support <ul style="list-style-type: none"> • Linear polarization • Motorized rotation, suitable motors to be provided • 4 -port (2-Tx, 2-Rx) | |
| 7. | Frequency band | Receive | 3625 to 4200 MHz |
| | | Transmit | 5850 to 6425 MHz |
| 8. | Gain (mid band +/- 0.5 dBi) | Receive | 46 dBi |
| | | Transmit | 49.5 dBi |
| 9. | G/T | 3625 to 4200 MHz | 27 dB/ K with 35 K LNA at 23 deg Elevation |
| 10. | VSWR | 1.3:1 max | |
| 11. | Feed insertion loss | Transmit/ Receive | <0.20 dB |
| 12. | Feed isolation | Receive to Receive & Transmit to Transmit | 30 dB min |
| | | Transmit to receive | 90 dB (min) with internal TRF 120 dB (min) with external TRF |
| 13. | Cross polarization discrimination | >30 dB for Linear Polarization | |
| 14. | Feed ports interfaces | Transmit | CPR 137 G |
| | | Receive | CPR 229 G |
| 15. | Radiation pattern | As per ITU – R.S.580-5 Shall confirm INTELSAT STANDARD-G in C-band | |

| | | | |
|-----------|---------------------------------|---|---|
| 16 | Maximum power handling capacity | 3 KW (CW) | |
| 17 | Mechanical Parameters | Drive speed | 1440 RPM of motor (2 HP), shall drive the antenna at an average speed of 0.08 deg/sec with screw jack mechanism |
| | | Pointing accuracy | 1/5 th of 3-dB beam width |
| | | Reflector structure | Aluminium Alloy |
| | | Mount structure | Steel (Galvanized) |
| | | Foundation | Penetrating Type |
| | | Antenna Reflector | Multi panel construction |
| 18 | Environmental | Appropriate protection against Salt, Pollutants and Contaminants as Encountered in Coastal and Industrial Areas | |
| | | Solar radiation | 1000 KCal/h/m ² , (360 deg BTU/h/ft ²) |
| | | Humidity | 95% at 40 ^o C |
| | | Temperature | 0 ^o C to 50 ^o C |
| | | Rainfall | 50 mm / hour continuous |
| | | Shock & vibration | Shall withstand normal shocks and vibration encountered during transport installation and operations. |
| | | Wind velocity | Normal: 75 kmph Survival: 200 kmph |
| 19 | Installation related | <ul style="list-style-type: none"> • Installation and commissioning including antenna foundation to be carried out at ISTRAC, ground station SHAR, near Chennai. • One set of tool kit, lubricating gun and accessories to be handed over to ISTRAC after installation. • Suitable operating & maintenance manuals will have to be supplied. | |
| 20 | Inspection | The system should be offered for inspection at factory before despatch. | |
| 21 | Warranty | Min 3-Year | |

MANDATORY REQUIREMENTS/ CONDITIONS

- 1) This antenna is planned to operate in INTELSAT satellite in linear polarization. Vendor shall obtain clearance for “INTELSAT operations”, and provide relevant document/certificates (Refer: IESS 601 Document http://www.intelsat.com/_files/resources/earthstations/IESS-601E.pdf)
- 2) The vendor shall enclose the detailed technical specifications, catalogues along with the quote. The quotes received without the technical specifications or information data sheets, will not be considered for evaluation.
- 3) The vendor shall enclose a compliance table with actual values of the product for all the indented specifications. The quotes received without the compliance statement (in detail) will not consider for evaluation.
- 4) If there is any additional hardware required meeting any of the above specifications, it shall be separately mentioned in the technical compliance table. Also the details of the additional cost if there are any, to meet the any of the above specifications shall be separately quoted.
- 5) The vendor shall provide separate quote for the optional features and shall clearly mention the impact of its non-availability.
- 6) The vendor shall clearly mention in the quote regarding any export license requirements from the country of the origin and also the details required for the End user Certificate, etc. The required formats shall be enclosed along with the quote.
- 7) The agents/resellers who are quoting on behalf of the principals shall enclose the Authorization letter from the principal for quoting the product.
- 8) Detailed Documentation (Hard copy & Soft copy) of the items to be supplied along with the unit
- 9) Vender has to complete the installation and provide the test results after the installation for acceptance.

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SPECIFICATIONS OF 3.8M ANTENNA

| Sl. No. | PARAMETERS | SPECIFICATIONS |
|----------------|--|--|
| 1 | Antenna size/type | 3.8m diameter solid shaped parabolic dish with Prime Focus feed system for both Tx/Rx. |
| 2 | Mount | Elevation over azimuth <ul style="list-style-type: none"> Limited steerable (90 to 270 deg in two slots) in Az with motors for ON/OFF drive Limited steerable (5 to 85 deg) in El with motors for ON/OFF drive |
| 3 | F/D ratio | 0.35 nominal |
| 4 | Surface accuracy | 1 mm for normal wind conditions (75 km/h) or equivalent of $\leq \lambda/50$ |
| 5 | Feed type | Prime focus |
| 6 | Feed Polarization | <ul style="list-style-type: none"> Linear polarization, Motorized rotation, suitable motor to be provided 2 port (1-Tx, 1-Rx) |
| 7 | Frequency of operation | RX : 3625 – 4200 MHz |
| | | TX : 5850 – 6425 MHz |
| 8 | Gain (Mid band +/- 0.5 dBi) | RX Gain: 41.5 dBi |
| | | TX Gain: 45 dBi |
| 9 | G/T (Full Rx Band) | 22.5 dB/ K minimum with 35K LNA at 23 deg elevation |
| 10 | VSWR | 1.3:1 |
| 11 | Feed insertion loss (Transmit / receive) | < 0.20 dB |
| 12 | Feed Isolation | 80 dB (min) with internal Transmit-Receive Filter |
| | | 110 dB (min) with external Transmit-Receive Filter |
| 13 | Cross Pol Discrimination | >30 dB (On axis) |
| 14 | Feed ports Interface | TX: CPR 137 G |
| | | RX: CPR 229 G |
| 15 | Radiation Pattern | As per ITU – R.S.580-5 Shall confirm INTELSAT STANDARD-G in C-band |
| 16 | Maximum power handling capacity | 1 KW (CW) |

| | | | | |
|----|---------------------|---|--|--|
| 17 | Mechanical | Drive speed: | 1440 RPM of motor (1HP), shall drive the antenna at an average speed of 0.08 deg/sec with screw jack mechanism | |
| | | Pointing accuracy | 1/5 th of 3-dB beam width | |
| | | Reflector structure | Aluminium Alloy | |
| | | Mount structure | Steel (Galvanized) | |
| | | Foundation | Penetrating Type | |
| | | Antenna Reflector | Multi panel construction, suitable for standard cargo flight loading for transporting. | |
| 18 | Environmental | Appropriate protection against Salt, Pollutants and Contaminants as Encountered in Coastal and Industrial Areas | | |
| | | Solar radiation | 1000 KCal/h/m ² , (360 deg BTU/h/ft ²) | |
| | | Humidity | 95% at 40 ⁰ C | |
| | | Temperature | 0 ⁰ C to 50 ⁰ C | |
| | | Rainfall | 50 mm / hour continuous | |
| | | Shock & vibration | Shall withstand normal shocks and vibration encountered during transport installation and operations. | |
| | | Wind velocity | Normal: 75 kmph Survival: 200 kmph | |
| 19 | General requirement | <ul style="list-style-type: none"> • Installation and commissioning including antenna foundation to be carried out at following places <ul style="list-style-type: none"> ○ Lucknow ○ Trivandrum ○ Portblair • One set of tool kit, lubricating gun and accessories to be handed over to ISTRAC after installation. • Suitable operating & maintenance manuals will have to be supplied. | | |
| 20 | Inspection | The system should be offered for inspection at factory before despatch. | | |
| 21 | Warranty | Min 3-Year | | |

MANDATORY REQUIREMENTS/ CONDITIONS

1. This antenna is planned to operate in INTELSAT satellite in linear polarization. Vendor shall obtain clearance for “INTELSAT operations”, and provide relevant document/certificates (Refer: IESS 601 Document http://www.intelsat.com/_files/resources/earthstations/IESS-601E.pdf)
2. The vendor shall enclose the detailed technical specifications, catalogues along with the quote. The quotes received without the technical specifications or information data sheets, will not be considered for evaluation.
3. The vendor shall enclose a compliance table with actual values of the product for all the indented specifications. The quotes received without the compliance statement (in detail) will not consider for evaluation.
4. If there is any additional hardware required meeting any of the above specifications, it shall be separately mentioned in the technical compliance table. Also the details of the additional cost if there are any, to meet the any of the above specifications shall be separately quoted.
5. The vendor shall provide separate quote for the optional features and shall clearly mention the impact of its non-availability.
6. The vendor shall clearly mention in the quote regarding any export license requirements from the country of the origin and also the details required for the End user Certificate, etc. The required formats shall be enclosed along with the quote.
7. The agents/resellers who are quoting on behalf of the principals shall enclose the Authorization letter from the principal for quoting the product.
8. Detailed Documentation (Hard copy & Soft copy) of the items to be supplied along with the unit
9. Vender has to complete the installation and provide the test results after the installation for acceptance.

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IMPORTANT INSTRUCTIONS

PLEASE SPECIFICALLY INDICATE THE FOLLOWING POINTS IN YOUR QUOTATIONS:-

1. PRICES ON 'EX-WORKS' DULY PACKED OR ON "FCA INTERNATIONAL AIR PORT" BASIS AND ALSO INCLUDING AGENCY COMMISSION PAYABLE TO YOUR INDIAN AGENTS, IF ANY.
2. INDIAN AGENTS ADDRESS AND PERCENTAGE OF AGENCY COMMISSION INCLUDED IN ABOVE F.O.B./EX-WORKS PRICE. (THIS WILL BE PAID TO THE INDIAN AGENTS IN INDIAN RUPEES ONLY) AND NOT IN FE. PLEASE ENCLOSE COPY OF AGENCY AGREEMENT ENTERED INTO WITH YOUR PRINCIPALS INDICATING THE NATURE OF AFTER SALES SERVICES OF INDIAN AGENTS, PRECISE RELATIONSHIP & MUTUAL INTEREST IN THE BUSINESS.
3. MEASUREMENT / WEIGHT: NETT/GROSS OF THE CONSIGNMENT AND ESTIMATED AIR FREIGHT CHARGES FROM YOUR INTERNATIONAL PORT TO BANGALORE (INDIA). IN CASE OF AN ORDER, YOU SHALL USE AIR WORTHY PACKAGE (AS APPLICABLE) DULY CERTIFIED WITH DOCUMENTS – PHYTO – SANITARY CERTIFICATE (AS PER QUARANTINE ORDER 2003).
4. ESTIMATED SEA – FREIGHT (IF APPLICABLE) CHARGES FROM YOUR F.O.B. SEA – PORT TO CHENNAI (MADRAS) SEA – PORT, INDIA (ICD-Bangalore).
5. YOUR BANKER'S ADDRESS.
6. WHETHER ANY EXPORT LICENCE IS REQUIRED FROM FOREIGN PRINCIPAL'S GOVERNMENT, IF SO, PLEASE CONFIRM WITH DETAILS.
7. OURS BEING A GOVERNMENT OF INDIA ORGANISATION, WE PREFER "SIGHT DRAFT" TERMS OF PAYMENT. PLEASE CONFIRM ACCEPTANCE OF THE SAME. NO ADVANCE PAYMENT: L/C IN EXCEPTIONAL CASES ONLY.
8. TECHNICAL CATALOGUE / LEAFLET SHOULD BE ENCLOSED WITHOUT FAIL.
9. PLEASE CONFIRM WHETHER YOU ARE AUTHORISED TO QUOTE ON BEHALF OF YOUR PRINCIPALS AND IF SO, PLEASE ENCLOSE A COPY OF SUCH AUTHORISATION WITH YOUR QUOTATION.
10. THE FAX OFFER / PROFORMA INVOICE OF YOUR PRINCIPALS SHOULD ACCOMPANY YOUR QUOTATION.
11. FOREIGN SUPPLIERS ARE REQUESTED TO SEND THEIR OFFER INDICATING THE COMMISSION PAYABLE TO THE INDIAN AGENT DIRECTLY TO US FOR CONSIDERATION.
12. COUNTRY OF ORIGIN.
13. BANK CHARGES ON LC/SD (BOTH WITHIN INDIA AND OUTSIDE INDIA) SHALL BE TO YOUR ACCOUNT.

IMPORTS**INSTRUCTIONS TO TENDERERS AND GENERAL TERMS AND CONDITIONS OF PURCHASE****I. Instruction to Tenderers:**

1. The Tenderers should submit quotations in duplicate in a sealed envelope, subscribing the Tender No. & due date of opening and complete in all respects with technical specifications including pamphlets & catalogues.
2. A Proforma Invoice may also be given which should contain the following information
 - (a) The FOB value, the C&F value for import by Sea-freight/Air freight upto and for air parcel post upto Bangalore should be separately indicated.
 - (b) **Agency Commission:** The amount of commission included in the price and payable to the Indian Agents of the Contractor shall be paid directly to the Indian Agents by the Purchaser in equivalent Indian Rupees on the basis of an Invoice from him applying T.T. buying rate of exchange ruling on the date of placement of the Purchase Order and which shall not be subject to any further exchange variations. This payment will be released to the Indian Agents immediately after receipt and acceptance of the items by the Purchaser.
 - (c) The Contractor shall Invoice only for the nett amount payable to him after deducting the amount of Agency Commission included in the Invoice which would be paid to the Indian Agents directly by the Purchaser. However, the Contractor's Invoice should separately reflect the amount of commission payable to his Indian Agent.
 - (d) The earliest delivery period and country of origin of the Stores.
 - (e) Banker's name and address of the contractor.
 - (f) The approximate nett and gross weight and dimensions of the packages/cases.
 - (g) Recommended spares for satisfactory operation for a minimum period of one year.
 - (h) Details of any technical service, if required for erection, assembly, commissioning and demonstration.
3. The FOB & C&F prices quoted should be inclusive of all taxes, levies, duties arising in the tenderers country.
4. The offer should be valid for a minimum period of 120 days from the due date of opening of the tender.
5. Samples, if called for, should be sent Free of all charges.
6. Late tenders will not be considered. Quotations by cable must be followed by detailed offers.
7. Offers made by Indian Agents on behalf of their principals, should be supported by the Proforma Invoice of their principals.
8. The details of Import Licence will be furnished in the Purchase Order.
9. The authority of person signing of tender. If called for, shall be produced.
10. Instruction/Operation manual containing all assembly details including writing diagrams should be sent wherever necessary in duplicate. All documents/correspondence should be in English language only.
11. The purchaser reserves the right to accept or reject the lowest or any other offer in whole or in part without assigning any reason.
12. It is expressly agreed that the acceptance of the stores contracted for is subject to final approval in writing by the Purchaser.
13.
 - (a) Part shipment is not allowed unless specifically agreed to by us.
 - (b) As far as possible stores should be dispatched by Indian Flag vessels/Air India or through any Agency nominated by us.
14. Inspection/Test Certificate should be provided for the goods after testing it thoroughly at the Contractors works if any inspection by Lloyds or any other testing agency is considered necessary, it shall be arranged by contractors.
15. Where erection or assembly or commissioning is a part of the contract it should be done immediately on notification. The contractor shall be responsible for any loss/damages sustained due to delay in fulfilling this responsibility.
16. For items having shelf life, those with maximum shelf life should be supplied, if order is placed.
17. Applicable price preference, if any to Public Sector Undertaking etc. shall be applicable.

II. Terms & Conditions:

1. Definitions:

- (a) The term 'Purchaser' shall mean the President of India or his successors or assigns.
- (b) The term 'Contractor' shall mean, the person, firm or company with whom or with which the Order for the supply of stores is placed and shall be deemed to include the Contractor's Successors, representatives, heirs, executors and administrators unless excluded by the contract.
- (c) The term 'Purchase Order' shall mean, the communication signed on behalf of the Purchaser by an officer duly authorized intimating the acceptance on behalf of the Purchaser on the terms & conditions mentioned or referred to in the said communication accepting the Tender or offer of the Contractor for supply of Stores or plant machinery or part thereof.
- (d) The term 'Stores' shall mean, what the Contractor agrees to supply under the contract as specified in the Purchase Order.

2. Prices:

Tenders offering firm prices will be preferred. Where a price variation Clause is insisted upon by a tenderer, quotations with a reasonable ceiling should be submitted. Such offers should invariably be supported by the base price taken into account at the time of tendering & also the formula for any such variations.

3. Terms of Payment:

- 3.1 Our's being a Government of India, Department the normal terms of payment are by Sight Draft. However, other terms of payment like establishment of Letter of Credit may be considered by the Purchaser on such terms and conditions as may be agreed upon.
- 3.2 The Sight Draft/Letter of Credit will be operative on presentation of the under mentioned documents :-
 - a. Original Bill of Lading/Airway Bill.
 - b. Commercially certified Invoices describing the stores delivered, quantity, unit rate and their total value in triplicate. The Invoice should indicate the discounts, if any, and Agency Commission separately.
 - c. Packing List showing individual dimensions and weight of packages.
 - d. Country of Origin Certificate in duplicate.
 - e. Test Certificate
 - f. Declaration by the Seller that the contents in each case are not less than those entered in the Invoice & the quality of the Stores are guaranteed as per the specifications asked for by the Purchaser.
 - g. Warrantee & Guarantee Certificates vide Clause 20.

4. Import Licence:

Reference to Import Licence No. and date and contract number and date shall be prominently indicated in all the documents vide para 3.2.

5. Demurrage:

Supplier shall bear demurrage charges if any incurred by the Purchaser due to delayed presentation of shipping documents as prescribed in Para 3.2. to the Bankers within reasonable time (say within 10-12 days) from the date of bill of lading for sea consignments and within 3-4 days from the date of Air Way Bill for Air consignments.

6. Address of Indian Agents:

7. Guaranteed Time of Delivery:

The time for and the date of delivery stipulated in the Purchase Order shall be deemed to be the essence of the Contract, Delivery must be completed within the dates specified therein.

8. Inspection and Acceptance test:

- 8.1 The Purchaser’s representatives shall also be entitled at all reasonable times during manufacture to inspect, examine & test on the Contractor’s premises the material & workmanship of all Stores to be supplied under this Contract & if part of the said Stores is being manufactured on other premises, the Contractor shall obtain for the Purchaser’s representative permission to inspect examine & test as if the equipment were being manufactured on the Contractor’s premises. Such Inspection, examination & testing shall not release the contractor from the obligation under this contract.
- 8.2 For tests on the premises of the Contractor or any of his sub contractors, the Contractor shall provide free of cost assistance labour, materials, electricity, fuel and instruments as may be required or as may be reasonably needed by the Purchaser’s representative to carry out the tests efficiently.
- 8.3 When the Stores have passed the specified test, the Purchaser’s representative shall furnish certificate to this effect in Writing to the Contractor. The Contractor shall provide copies of the tests Certificate to the Purchaser as may be required.

9. Mode of dispatch:

Generally, Stores should be dispatched by Indian Flagged Vessel/Air India or through any other Agency nominated by the Purchaser. A copy of the Invoice and packing list should invariably be kept inside each of the package.

10. Port of Entry:

Chennai/ Bangalore

11. Port of Consignee:

Chennai/ Bangalore

12. Ultimate Consignee:

Purchase & Stores Officer (Stores), ISTRAC, Bangalore

13. Shipping Marks:

The marks on the shipping documents such as Invoice, bill of lading and on the packages should be as follows :-

PURCHASE ORDER NO..... Date

GOVERNMENT OF INDIA
 Department of Space
 ISTRAC, BANGALORE, INDIA

Destination..... Port of Entry

14. Insurance of the Stores:

The Purchaser shall be responsible for insuring the Stores wherever considered necessary. The Contractor, shall however be responsible for notifying as per proforma enclosed to the Purchaser or the insurers nominated by the Purchaser. The complete details of the proposed shipments including the value of each shipment and other relevant data, immediately after shipment to enable the Purchaser or the insurers to arrange for the insurance of the insurance policy, if required. The necessity or otherwise of insurance will be as indicated in the Purchase Order.

15. Contractor's default liability:

- 15.1 The purchaser may upon written notice of default to the Contractor terminate the Contract in whole or in part in circumstances detailed hereunder.
- a) If in the judgement of the Purchaser the Contractor fails to made delivery of Stores within the time specified in the Contract Agreement or within the period for which extension has been granted by the Purchaser to the Contractor.
 - b) If in the judgement of the Purchaser the Contractor fails to comply with any of the other provisions of this contract
- 15.2 In the event the Purchaser terminates the contract in whole or in part as provided in Clause 15.1 the purchaser reserves the right to Purchase upon such terms and in such a manner as he may deem appropriate Stores similar to that terminated and the Contractor shall be liable to the Purchaser for any additional cost for such similar stores and/or liquidated damages for delay as defined in Clause 19 until such reasonable times as may be required for the final supply of Stores.
- 15.3 If this contract is terminated as provided in Clause 15.1 the Purchaser in addition to any other rights provided in the Article, may require the Contractor to transfer title & deliver to the Purchaser under any of the following cases in the manner & as directed by the Purchaser.
- a. Any completed Stores
 - b. Such partially completed Stores, drawing, information & Contract rights (hereinafter called manufacturing material) as the Contractor has specifically produced or acquired for the performance of the contract as terminated, The Purchaser shall pay to the Contractor the Contract price for completed Stores delivered to & accepted by the Purchaser & for manufacturing materials delivered and accepted.
- 15.4 In the event the Purchaser does not terminate the Contract as provided in Clause 15.1 the Contractor shall continue the performance of the Contract, in which case he shall be liable to the Purchaser for liquidated damages for delay as set out in Clause 19 until the Stores are accepted.

16. Replacement:

In the Stores or any portion thereof is damaged or lost during transit, the Purchaser shall give notice to the Contractor setting forth particulars of such stores damaged or lost during transit. The replacement of such Stores shall be effected by the Contractor within a reasonable time to avoid unnecessary delay in the intended usage of the Stores. The price of replacement items shall be paid by the Purchaser on the basis of original price quoted in the tender or as reasonably worked out from the tender. The cost of damages will however be claimed by the Purchaser from the insurance company. The import Licence/Customs Clearance Permit for the replacement will be provided by the Purchaser.

17. Rejection:

In the event that any of the Stores supplied by the Contractor is found defective in material or workmanship otherwise not in conformity with the requirements of the Contract specification, the Purchaser shall either reject the Stores or request the Contractor, in writing to rectify the same. The Contractor on receipt of such notification shall either rectify or replace the defective Stores free of cost to the Purchaser. If the Contractor fails to do so, the Purchaser may at his option either :-

- (a) replace or rectify such defective Stores & recover the extra cost so involved from the Contractor or
- (b) terminate the Contract for default as provided under Clause 15 above.
- (c) Acquire the defective Stores at a reduced price considered equitable under the circumstances.

The provision of this article shall not prejudice the Purchaser's rights under Clause 19.

18. Extension of Time:

If the completion of supply of stores is delayed due to reason of Force Majeure such as acts of God, acts or public enemy, acts of Government, fires, floods, epidemics, quarantine, restrictions, strikes and freight embargoes, the Contractor shall give notice within 15 days to the Purchaser in writing of his claim for an extension of time. The Purchaser on receipt of such notice after verification, if necessary may agree to extend the Contract delivery date as may be reasonable but without prejudice to other terms and conditions of the contract.

19. Delay in Completion Liquidated Damages:

If the Contractor fails to deliver the Stores within the time specified the Contract or any extension thereof, of Purchaser shall recover from the Contractor as liquidated damages a sum of one half of one percent (0.5 percent) of the Contract price of the undelivered Stores for each calendar week of delay. The total liquidated damages shall not exceed ten percent (10 percent) of the contract price of the unit or units so delayed. Stores will be deemed to have been delivered only when all its component parts are also delivered if certain components are not delivered in time, the Stores will be considered as delayed until such time as the missing parts are delivered.

20. Guarantee & Replacement:

- (a) The Contractor shall guarantee that the stores supplied shall comply fully with the specifications laid down, for material, workmanship and performance.
- (b) For a period of twenty four months after the acceptance of the stores, If any defects are discovered therein or any defects therein are found to have developed under proper use arising from faulty materials, design or workmanship contractor shall remedy such defects at his own cost provided he is called upon to do so within a period of 24 months from the date of acceptance thereof by the Purchaser who shall state in writing in what respect the stores or any part thereof are faulty.
- (c) If in the opinion of the Purchaser, it becomes necessary to replace or renew any defective stores such replacement or renewal shall be made by the Contractor free of all costs to the Purchaser provided the notice informing the contractor of the defect is given by the purchaser in this regard within the said period of 24 months from the date of acceptance thereof.
- (d) Should the Contractor fail to rectify the defects, the Purchaser shall have the right to reject or repair or replace at the cost of the Contractor the whole or any portion of the defective stores.
- (e) The decision of the Purchaser, notwithstanding any prior approval or acceptance or inspection thereof on behalf of the Purchaser, as to whether or not the Stores supplied by the contractor are defective or any defect have developed within the said period of 24 months or as to whether the nature of the defects requires renewal or replacement shall be final, conclusive and binding on the contractor.
- (f) To fulfill guarantee conditions outlined in clause 20 (a) to (e) above, the contractor shall at the option of the purchaser, furnish a Bank Guarantee (as prescribed by the Purchaser) from a Bank approved by the Purchaser for an amount equivalent to 10% of the value of contract along with first shipment documents. On the performance & completion of the Contract in all respects, the Bank Guarantee will be returned to the Contractor without any interest.
- (g) All the replacement stores shall also be guaranteed for a period of 24 months from the date of arrival of Stores at Purchaser's site.
- (h) Even while the 24 months guarantee applies to all Stores in case where a greater period is called forth by our specifications then such a specification shall apply; in such cases the period of 14 months referred to in Clause 20(b) and (c) shall be the 'asked for' guarantee period plus two months.

21. Requirement of additional numbers of the Stores/Spare parts ordered:

The Contractor shall also undertake the supply of additional number (Nos) of items covered by the Order as considered necessary by the Purchaser at a later date. The actual price to be paid shall be mutually agreed to after negotiations.

22. Packing:

- (a) The Contractor wherever applicable shall pack & crate all Stores for sea/air shipment as applicable in a manner suitable for export to a tropical humid climate in accordance with internationally accepted export practices and in such a manner so as to protect it from damage & deterioration in transit by road, rail or sea for space qualified stores. The contractor shall be held responsible for all damages due to improper packing.
- (b) The Contractor shall ensure that each box/unit of shipment is legible and properly marked for correct identification. The failure to comply with this requirement shall make the contractor liable for additional expenses involved.
- (c) The Contractor shall notify the Purchaser of the date of shipment from the port of embarkation as well as the expected date of arrival of such shipment at the designated port of arrival.
- (d) The Contractor shall give complete shipment information concerning the weight, size, content of each packages etc.
- (e) Trans-shipment of equipment shall not be permitted except with written permission of the Purchaser.
- (f) Apart from the dispatch documents negotiated through Bank, the following documents shall also be airtailed to the Purchaser within 7 days from the date of shipment by sea & within 3 days in case of air consignments.
 - i) Commercial Bill of Lading/Air Way Bill/Post Parcel Receipt (two non-negotiable copies.)
 - ii) Invoice (3 copies)
 - iii) Packing List (3 copies)
 - iv) Test Certificate (3 copies)
 - v) Certificate of Origin.

Contractor shall also ensure that one copy of the packing list is enclosed in each case.

23. Arbitration:

If any time any question, disputes or difference whatsoever shall arise between the Purchaser and the Contractor upon or in connection with this contract, either party may forthwith give to the other notices in writing of the existence of such question, dispute or difference & the same shall be referred to the adjudication of two arbitrators, one to be nominated by Purchaser, other by a Contractor and in the event of any difference of opinion, the arbitrators will refer the matter to the umpire. The arbitration shall be conducted in accordance with the rules & procedure for arbitration of the International Chamber of Commerce at Paris. The expenses of the arbitrators and umpire shall be paid as may be determined by them, However, the venue of such arbitration should be in India.

24. Language and measures:

All documents pertaining to the contract including specifications schedule notices, correspondence, operating & maintenance instructions drawings or any other writings shall be written in English language. The metric system of measurement shall be used exclusively in this contract.

25. Indemnity:

The Contractor shall warrant and be deemed to have warranted that all Stores supplied against this contract are free and clean of Infringement of any Patent copy right or trademark and shall at all times indemnify the Purchaser against all claims which may be made in respect of the Stores for infringement of any right protected by Patent Registration of design or Trade Mark and shall take all risk of accidents or damage which may cause a failure of the supply from whatever cause arising and the entire responsibility for the sufficiency of all the means used by him for the fulfillment of the contract.

26. Counter Terms & Conditions of Suppliers:

Where counter terms and conditions/printed or cyclostyled conditions have been offered by the , the same shall not be deemed to have been accepted by the Purchaser, unless specific written acceptance thereof is obtained.

27. Security interest:

On each item to be delivered under this contract, including an item of work in progress in respect of which payment have been made in accordance with the terms of the contract. Purchaser shall have a security interest in such item which shall be deemed to be released only at the time when the applicable deliverable item is finally accepted and delivered to the Purchaser in accordance with the terms of the contract. Such security interest of the Purchaser shall constitute prior charges as against any other charge of interest created in respect of such items by any other entity.

28. Bank Charges:

While the Purchaser shall bear the bank charges payable to his Bankers, the Contractor shall bear the Bank charges payable to his Bankers including the charges towards advising amendment commissions.

29. Training:

The Contractor shall, if required by the Purchaser, provide facilities for the practical training of Purchaser's engineering or technical personnel from India and for their active association on the manufacturing processes throughout the manufacturing period of the contract/stores number of such personnel to be mutually agreed upon.

30. Applicable Law:

The Contract shall be interpreted, construed and governed by the laws of India.

**GOVERNMENT OF INDIA
DEPARTMENT OF SPACE
ISRO TELEMETRY TRACKING AND COMMAND NETWORK (ISTRAC)
BANGALORE-58
PURCHASE DIVISION**

Telephone : 080-2837 6383 / 2809 4555
Fax : 080-2809 4061
Grams : ISTRAC
E Mail : purchase@istrac.org

Plot No. 12 & 13, 3rd Main, 2nd Phase
Peenya Industrial Area
Bangalore - 560 058 INDIA

Our Ref.: **TRHQ 2011000323-01**
(SINGLE PART)
(To be quoted in all correspondence)

Date: **27/01/2012**

Invitation to Tender

To,

M/s

Dear Sirs,

Please submit your sealed quotation, in the Tender Form enclosed here along with the description catalogues / pamphlets / literature, superscribed with Our Ref.No. and Due date for the supply of the following items as per the terms & conditions mentioned in Annexure (enclosed). Please ensure that your quotation reaches this office not later than **28/02/2012 at 1500 hrs.**

| Sl. No. | Description | Quantity Required |
|---------|---|-------------------|
| 1. | <p>CAMC for Central Airconditioning Systems installed at SCC, Peenya, Bangalore for a period of 1 Year from the date of release of P.O. Scope of Maintenance as per Annexure "A" and Terms & Conditions and list of AC equipments as per Annexure "B" enclosed.</p> <p>NOTE:</p> <ol style="list-style-type: none">1. Tender Notice + Invitation to Tender + Tender Form – 03 Pages2. Detailed Specification Annexure 'A' & 'B' enclosed – 03 Pages3. Important instructions to Tenderers (Indigenous Stores) – 01 Page4. Instructions to Tenderers FORM NO.P003 – 05 Pages5. Tenders shall be opened in the presence of attending Tenderers or their authorized representatives on 29/02/2012 at 10.30 Hrs at ISTRAC, Plot No.12 & 13, 3rd Main, 2nd Phase, Peenya Industrial Area, Bangalore – 560 058.6. The tender fee of Rs.228/- towards Tender Document in the form of DD drawn in favour of Accounts Officer, ISTRAC, Bangalore - 560 058 obtained from Nationalised Bank, payable at Bangalore should be enclosed along with the quotation. Money order, Cash or Cheque will not be accepted. The date of demand draft should not be prior to the date of this advertisement / website intimation. <p>(Total pages: 12)</p> | 01 LOT |

Delivery at **SCC, ISTRAC , BANGALORE**

Delivery Required: Earliest

Yours faithfully,

(C S BASAVANNA)
Sr. Purchase & Stores Officer
For and on behalf of the President of India
(The Purchaser)

TENDER FORM

From:

Tender No. **TRHQ 2011000323-01**

Due on **28/02/2012 upto 3.00 PM**

Purchase & Stores Officer (PURCHASE)

Tenderer 's Ref.:

Dear Sir,

I/We hereby offer to supply the stores detailed below at the price hereunder quoted and agree to hold the offer open till I/We shall be bound to supply the stores hereby offered upon the issue of the Purchase Order/Contract/Agreement communicating the acceptance thereof on or before the expiry of the last mentioned date. You are liberty to accept any one of the items of stores tendered for or any portion of any one or more of the items of such stores. I/We notwithstanding that the offer in this tender has not been accepted in whole shall be bound to supply to you such items and such portions of one or more of the items as may be specified in said Purchase Order communicating the acceptance.

| Sl. No. | Description | Unit | Qty. | Unit Rate | Delivery Date |
|---------|-------------|------|------|-----------|---------------|
|---------|-------------|------|------|-----------|---------------|

(Note: All the rates should be given both in figures and words)

| | | |
|---|---|-----------------------------|
| Place at which delivery is required | } | ISTRAC- Bangalore |
| Delivery Period | | As per invitation to tender |
| Date by which the supplies are required | | |

I/We have understood the terms of the tender annexed to the invitation to tender and have thoroughly examined the specification drawing and or pattern quoted referred to herein and are fully aware of the stores required and my/our offer is to supply to the stores strictly in accordance with the requirements subject to the terms and conditions contained in the Purchase Order /Contract/Agreement communicating the acceptance of this tender either in whole or in part.

Signature of Tenderer

Date

Phone No.

(SEAL)

SCOPE OF MAINTENANCE:-

1. Service shall be inclusive of all service and repair charges including supply of spares for Central A/c plant including A/c plant including compressor, pumps, motors, air handling units, cooling towers, electrical contractors/safety controls and fan motors. Replacement of compressor shall be with manufacturers shall be with manufacturer's rebuilt one. All functional components, mechanical components & electrical components of the system which includes following.
2. Quarterly service shall be checking of total air conditioning system. Cleaning of condensers, chillers cooling coils and cooling towers etc., as per maintenance schedules.
3. Quarterly service and checking of air handling units, Cleaning of cooling coils with chemicals.
4. Repair /overhauling of components of equipment and replacement of worn – out parts as and when found necessary.
5. Supply and charging of refrigerant, oil etc., as and when required.
6. Inspecting the belt tension/adjusting and replacing as and when required.
7. Checking /adjusting settings of control panels operating controls monitoring controls, safety controls, three way mixing valves /actuators etc., and replacement of the same if found necessary.
8. Checking/all electrical controls and components (switches relays and replacement of the same if found necessary.
9. calibrating/replacing of various meters gauges, thermometers provided for monitoring and control.
10. Lubricating of motors pumps and fans bearings etc., as per the maintenance schedule and replacing the same if required.
11. Rewinding of motors, replacement of contactors, fuses switches etc., as and when required.
12. All the equipment's mentioned under description of items above shall be suitably painted periodically every year during January month.
13. Attending to any complaints in the plant as and when called for.
14. The contractor shall maintain, service reports/card in duplicate (One for the contractor and other for ISTRAC as directed by Engineer in Charge and the same shall be signed by our Engineer after completion of each course of maintenance/service.
15. The preventive maintenance shall be carried out normally during working hours only. The contractor have to furnish the manufactures approved format/program of such preventive maintenance schedule. It shall be the responsibility of the contractor to keep the equipment's covered under the service contract in sound working condition during the currency of the contract.
16. All complaints about break-down/emergency in the system are to be attended immediately. The down time should be kept barest minimum and all repairs works should be attended to at our site immediately to the maximum possible.
17. The preventive/breakdown maintenance work is to be attended to by qualified and trained mechanic/engineers only. They should monitor the system performance and necessary corrective measures are to be carried out as and when required to ensure smooth functioning of A/c system during the currency of contract.
18. Contractor shall bring all necessary tools and special equipment's such as welding machine, gas welding, drilling machine etc., as required for maintenance of A/c system.
19. The contract has to make his own arrangements for transport of his personnel and equipment's including unit handed over for servicing and repair at contractors workshop.
20. The contract is liable to be terminated if the work is not carried as per terms and conditions stipulated in the contract.

GENERAL TERMS AND CONDITIONS:

- 1. Documentary evidence for carrying out similar works for a minimum period of three years from any Government Department shall be furnished.**
- 2. Tenderers shall submit a copy of authorization of M/s Dunham Bush Malaysia that they are authorized to take service of Dunham Bush Air conditioning systems. If any tenderer fails to submit the authorization certificate with the offer, their offer will not be considered and is liable for rejection.**
- 3. Service technicians/ engineers of servicing agency should have been trained by Dunham Bush. Documentary evidence for the above shall be furnished with the offer failing which offer will not be considered.**
4. The contractor shall make his own arrangement for safeguarding their men & materials and Department in any way will not be responsible for any loss/damage.
5. In case the contractor fails to carry out the works to the satisfaction of department/ISTRAC Engineers and if there is any disruption in the smooth functioning of the systems and its activities, Department/ISTRAC Engineers reserves the right to make alternate arrangement/ISTARC, Engineers reserves the right to make alternate arrangements for execution of work at the risk and cost of the contractor.
6. The contractor is wholly responsible for any accident and compensation payable to the personnel employed by them and working under their control. They should keep Department fully indemnified against any claim in this regard.
7. Adequate number of service providers both in supervisory and service side should be engaged, with proper materials tools/plants for satisfactory execution of the work.
8. The supply of materials and implements required for the work connected with the execution of the subject contract will be total responsibility of the contractor.
9. The contractor shall duly comply with all the requirements of labour laws, Viz., the Minimum Wages Act, Whenever it is applicable. Contract labour (Regulations and Abolition) Act Workmen's compensation Act, Provident Fund Act and Rules made there under. The contractor shall be responsible for Employees State Insurance Act and other Acts as applicable from time to time for their service providers and shall keep Department fully indemnified and harmless against any legal action or court proceedings law & order situations, costs or claims, loss or any liability arising in the course of execution of the work envisaged under this contract. It is the responsibility of the contractor to take care of provident fund and ESI for all those engaged by him as service providers and the contractor should totally indemnify the Department (ISTRAC) against all such future eventualities.
10. If the contractor fails to perform the contract or fails to carryout the contract to the satisfaction of the Department /ISTRAC Engineers and any time repudiates any of the contractual obligations before the expiry of the contract period, the Department reserves the right to recover from the contractor, damages for the breach of the contract or terminate the contract as a whole or terminate a part of the contract at the risk and cost of the contractor without prior notice and get the balance or contracted work executed through some other agency other agency and hold the contractor liable for all the losses and expenses incurred.
11. The decision of ISTRAC shall be final with regard to satisfactory maintenance of the contract and the same is automatically binding on the contractor.
12. The contractor should engage service providers who have completed 18 years of age only and they shall be physically fit and should not be suffering from any communicable Diseases. Contractor shall be responsible for covering the risk of such service providers and other technical service providers deputed for executing the servicing work at our premises.
13. The Department reserves the right to ask the contractor to dispense with the service of any one of the service providers who is reported to be of doubtful integrity/unwholesome behavior.

14. It shall be the sole responsibility of the contractor to settle disputes if any arising out of the engagement between himself and the service providers engaged by him, and the Department will not in any way responsible in the event the service providers approach the competent authority in ISTRAC under the act of the court. The expenses incurred if any, in this behalf shall be borne by the contractor only.
15. The service providers employed by the contractor in our premises will have to strictly adhere to the discipline of the Department. Wherever necessary the contractor will have to furnish their service providers with necessary safety appliances and ISTRAC will not be responsible for any accidents and injuries caused to contractors service providers during the course of work.
16. The contractor or his representative should be available at the premises to control his service providers and take down instructions from and to carry out the servicing to the entire satisfaction of the Department/ISTRAC/Engineers.
17. The contractor should arrange the work as per the time stipulated, subject to security checks and restrictions of the Department. Contractor's service providers should wear the Identity Badges assigned to them while working for identification.
18. If any of the service providers of the contractor shall break, deface, injure or destroy any part of the building in which they may be working or any building, road, krebs fence, enclosed water pipes, cables, drains electric or telephone posts or wires, trees, grass or grass land or if any damage shall happen to the work while in progress, the contractor shall make good the same at the risk and cost of the contractor.
19. Defective Pressure gauge and Thermometers to be preplaced as and how it is found defective.
20. During every launch day you are requested to depute a senior technician and a electrician up to the end of the launch. The date and time will be intimated in advance.

LIST OF CENTRAL AIR CONDITIONING SYSTEMS & LOCATIONS

| Sl No | Description /Capacity | Unit | Quantity | Location |
|--------------|--|-------------|-----------------|--|
| 1 | 2 X 100 TR water cooled Screw Chiller | Nos | 02 | Central A/c plant |
| 2 | Chilled water pumps | Nos | 03 | Central A/c plant |
| 3 | Condenser water pumps | Nos | 03 | Central A/c plant |
| 4 | FRP Cooling Towers | Nos | 02 | Central A/c plant |
| 5 | Air Handling Units of different capacities | Nos | 11 | Different locations at SCC campus |
| 6 | Fan Coil Units | Nos | 03 | VIP Gallery |
| 7 | Electrical Panels at Central A/c plant and AHU rooms | Nos | Lot | A/c plant Room + AHU Panels at different locations |

Period Of Comprehensive Annual Maintenance Contract:-

Comprehensive Annual Maintenance Contract is for a period of **ONE** year.

* * * * *

GOVERNMENT OF INDIA
DEPARTMENT OF SPACE
ISRO TELEMETRY TRACKING AND COMMAND NETWORK (ISTRAC)
BANGALORE-58
PURCHASE DIVISION

Telephone : 080-2837 6383 / 2809 4555
Fax : 080-2809 4061
Grams : ISTRAC
E Mail : purchase@istrac.org

Plot No. 12 & 13, 3rd Main, 2nd Phase
Peenya Industrial Area
Bangalore - 560 058 INDIA

Our Ref.: **TRHQ 2011000389-01**
(SINGLE PART)
(To be quoted in all correspondence)

Date: **27/01/2012**

Invitation to Tender

To,

M/s

Dear Sirs,

Please submit your sealed quotation, in the Tender Form enclosed here along with the description catalogues / pamphlets / literature, superscribed with Our Ref.No. and Due date for the supply of the following items as per the terms & conditions mentioned in Annexure (enclosed). Please ensure that your quotation reaches this office not later than **28/02/2012 at 1500 hrs.**

| Sl. No. | Description | Quantity Required |
|--|--|-------------------|
| 1. | Comprehensive Annual Maintenance Contract for Central Air Conditioning System installed at MOX-1 and MOX-2 Campus, ISTRAC, Bangalore for a period of 2 years from the date of release of P.O. as per Annexure 'A' & 'B' enclosed. | 01 LOT |
| 2. | CAMC for Central Air Conditioning System installed at IRNSS, IDSN, Byalalu, Bangalore for a period of 2 years from the date of release of P.O. as per Annexure 'A' & 'C' enclosed. | 01 LOT |
| NOTE: | | |
| 1. Tender Notice + Invitation to Tender + Tender Form – 03 Pages | | |
| 2. Detailed Specification Annexure-A, B & C enclosed – 05 Pages | | |
| 3. Important instructions to Tenderers (Indigenous Stores) – 01 Page | | |
| 4. Instructions to Tenderers FORM NO.P003 – 05 Pages | | |
| 5. Tenders shall be opened in the presence of attending Tenderers or their authorized representatives On 29/02/2012 at 10.30 Hrs at ISTRAC, Plot No.12 & 13, 3rd Main, 2nd Phase, Peenya Industrial Area, Bangalore – 560 058. | | |
| 6. The tender fee of Rs.228/- towards Tender Document in the form of DD drawn in favour of Accounts Officer, ISTRAC, Bangalore - 560 058 obtained from Nationalised Bank, payable at Bangalore should be enclosed along with the quotation. Money order, Cash or Cheque will not be accepted. The date of demand draft should not be prior to the date of this advertisement / website intimation. | | |
| (Total pages: 14) | | |

Delivery at **MOX-1 & 2, ISTRAC , BANGALORE and IDSN, Byalalu, BANGALORE.**

Delivery Required: Earliest

Yours faithfully,

(C S BASAVANNA)
Sr. Purchase & Stores Officer
For and on behalf of the President of India
(The Purchaser)

TENDER FORM

From:

Tender No. **TRHQ 2011000389-01**

Due on **28/02/2012 upto 3.00 PM**

Purchase & Stores Officer (PURCHASE)

Tenderer 's Ref.:

Dear Sir,

I/We hereby offer to supply the stores detailed below at the price hereunder quoted and agree to hold the offer open till I/We shall be bound to supply the stores hereby offered upon the issue of the Purchase Order/Contract/Agreement communicating the acceptance thereof on or before the expiry of the last mentioned date. You are liberty to accept any one of the items of stores tendered for or any portion of any one or more of the items of such stores. I/We notwithstanding that the offer in this tender has not been accepted in whole shall be bound to supply to you such items and such portions of one or more of the items as may be specified in said Purchase Order communicating the acceptance.

| Sl. No. | Description | Unit | Qty. | Unit Rate | Delivery Date |
|---------|-------------|------|------|-----------|---------------|
|---------|-------------|------|------|-----------|---------------|

(Note: All the rates should be given both in figures and words)

| | | |
|---|---|-----------------------------|
| Place at which delivery is required | } | ISTRAC- Bangalore |
| Delivery Period | | As per invitation to tender |
| Date by which the supplies are required | | |

I/We have understood the terms of the tender annexed to the invitation to tender and have thoroughly examined the specification drawing and or pattern quoted referred to herein and are fully aware of the stores required and my/our offer is to supply to the stores strictly in accordance with the requirements subject to the terms and conditions contained in the Purchase Order /Contract/Agreement communicating the acceptance of this tender either in whole or in part.

Signature of Tenderer

Date

Phone No.

(SEAL)

SCOPE OF MAINTENANCE FOR MOX & IRNSS A/C PLANT

1. Service shall be inclusive of all service and repair charges including supply of spares for Central A/c plant including A/c plant including compressor, pumps, motors, air handling units, electrical panels/safety controls and fan motors, Plant manager (DDC system). Replacement of compressor shall be with manufacturers shall be with manufacturer's rebuilt one. All functional components, mechanical components & electrical components of the system which includes following.
2. Quarterly service shall be checking of total air conditioning system. Cleaning of Air cooled condensers, chillers cooling coils and etc., as per maintenance schedules.
3. Quarterly service and checking of air handling units, Cleaning of cooling coils with chemicals.
4. Repair /overhauling of components of equipment and replacement of worn – out parts as and when found necessary.
5. Supply and charging of refrigerant, oil etc., as and when required.
6. Inspecting the belt tension/adjusting and replacing as and when required.
7. Checking /adjusting settings of control panels operating controls monitoring controls, safety controls, three way mixing valves /actuators etc., and replacement of the same if found necessary.
8. Checking /all electrical controls and components (switches relays and replacement of the same if found necessary.
9. Calibrating/replacing of various meters gauges, thermometers provided for monitoring and control.
10. Lubricating of motors pumps and fans bearings etc., as per the maintenance schedule and replacing the same if required.
11. Rewinding of motors, replacement of contactors, fuses switches etc., as and when required.
12. Attending to any complaints in the plant as and when called for.
13. The contractor shall maintain, service reports/card in duplicate (One for the contractor and other for ISTRAC as directed by Engineer in Charge and the same shall be signed by our Engineer after completion of each course of maintenance/service.
14. The preventive maintenance shall be carried out normally during working hours only. The contractor have to furnish the manufactures approved format/ program of such preventive maintenance schedule. It shall be the responsibility of the contractor to keep the equipment's covered under the service contract in sound working condition during the currency of the contract.
15. All complaints about break-down/emergency in the system are to be attended immediately. The down time should be kept barest minimum and all repairs works should be attended to at our site immediately to the maximum possible.
16. The preventive /breakdown maintenance work is to be attended to by qualified and trained mechanic / engineers only. They should monitor the system performance and necessary corrective measures are to be carried out as and when required to ensure smooth functioning of A/c system during the currency of contract.
17. Contractor shall bring all necessary tools and special equipment's such as welding machine, gas welding, drilling machine etc., as required for maintenance of A/c system.
18. The contract has to make his own arrangements for transport of his personnel and equipment's including unit handed over for servicing and repair at contractors workshop.
19. The contract is liable to be terminated if the work is not carried as per terms and conditions stipulated in the contract.
20. Microprocessor controller if found defective in all Chillers, Precision, DX AHU for maser room to be replaced.

GENERAL TERMS AND CONDITIONS FOR MOX A/C PLANT

1. **Documentary evidence for carrying out similar works for a minimum period of three years from any Government Department shall be furnished.**
2. **Tenderers shall submit a copy of authorization of M/s Dunham Bush Malaysia that they are authorized to take service of Dunham Bush Air conditioning systems. If any tenderer fails to submit the authorization certificate with the offer, their offer will not be considered and is liable for rejection.**
3. **Service technicians/engineers of servicing agency should have been trained by Dunham Bush. Documentary evidence for the above shall be furnished with the offer failing which offer will not be considered.**
4. The contractor shall make his own arrangement for safeguarding their men & materials and Department in any way will not be responsible for any loss/damage.
5. In case the contractor fails to carry out the works to the satisfaction of department/ISTRAC Engineers and if there is any disruption in the smooth functioning of the systems and its activities, Department/ISTRAC Engineers reserves the right to make alternate arrangement/ISTARC, Engineers reserves the right to make alternate arrangements for execution of work at the risk and cost of the contractor.
6. The contractor is wholly responsible for any accident and compensation payable to the personnel employed by them and working under their control. They should keep Department fully indemnified against any claim in this regard.
7. Adequate number of service providers both in supervisory and service side should be engaged, with proper materials tools/plants for satisfactory execution of the work.
8. The supply of materials and implements required for the work connected with the execution of the subject contract will be total responsibility of the contractor.
9. The contractor shall duly comply with all the requirements of labour laws, Viz., the Minimum Wages Act, Whenever it is applicable. Contract labour (Regulations and Abolition) Act Workmen's compensation Act, Provident Fund Act and Rules made there under. The contractor shall be responsible for Employees State Insurance Act and other Acts as applicable from time to time for their service providers and shall keep Department fully indemnified and harmless against any legal action or court proceedings law & order situations , costs or claims, loss or any liability arising in the course of execution of the work envisaged under this contract. It is the responsibility of the contractor to take care of provident fund and ESI for all those engaged by him as service providers and the contractor should totally indemnify the Department (ISTRAC) against all such future eventualities.
10. If the contractor fails to perform the contract or fails to carryout the contract to the satisfaction of the Department /ISTARC Engineers and any time repudiates any of the contractual obligations before the expiry of the contract period, the Department reserves the right to recover from the contractor, damages for the breach of the contract or terminate the contract as a whole or terminate a part of the contract at the risk and cost of the contractor without prior notice and get the balance or contracted work executed through some other agency other agency and hold the contractor liable for all the losses and expenses incurred.
11. The decision of ISTRAC shall be final with regard to satisfactory maintenance of the contract and the same is automatically binding on the contractor.
12. The contractor should engage service providers who have completed 18 years of age only and they shall be physically fit and should not be suffering from any communicable Diseases. Contractor shall be responsible for covering the risk of such service providers and other technical service providers deputed for executing the servicing work at our premises.
13. The Department reserves the right to ask the contractor to dispense with the service of any one of the service providers who is reported to be of doubtful integrity/unwholesome behavior.
14. It shall be the sole responsibility of the contractor to settle disputes if any arising out of the engagement between himself and the service providers engaged by him, and the Department will not in any way responsible in the event the service providers approach the competent authority in

ISTRAC under the act of the court. The expenses incurred if any, in this behalf shall be borne by the contractor only.

15. The service providers employed by the contractor in our premises will have to strictly adhere to the discipline of the Department. Wherever necessary the contractor will have to furnish their service providers with necessary safety appliances and ISTRAC will not be responsible for any accidents and injuries caused to contractors service providers during the course of work.
16. The contractor or his representative should be available at the premises to control his service providers and take down instructions from and to carry out the servicing to the entire satisfaction of the Department/ISTRAC/Engineers.
17. The contractor should arrange the work as per the time stipulated, subject to security checks and restrictions of the Department. Contractor's service providers should wear the Identity Badges assigned to them while working for identification.
18. If any of the service providers of the contractor shall break, deface, injure or destroy any part of the building in which they may be working or any building, road, Krebs fence, enclosed water pipes, cables, drains electric or telephone posts or wires, trees, grass or grass land or if any damage shall happen to the work while in progress, the contractor shall make good the same at the risk and cost of the contractor.
19. Defective Pressure gauge and Thermometers to be preplaced as and how it is found defective.
20. During every launch day you are requested to depute a senior technician and a electrician up to the end of the launch. The date and time will be intimated in advance.

LIST OF CENTRAL AIR CONDITIONING SYSTEMS IN MOX -1

| SI No | Description /Capacity | Unit | Quantity | Location |
|-------|---|------|----------|---|
| 1 | 80 TR Air cooled Screw Chiller | Nos | 03 | Central A/c plant |
| 2 | Chilled water pumps | Nos | 03 | Central A/c plant |
| 3 | Air Handling Units of different capacities (with a total capacity of 132400 CFM) | Nos | 11 | Different capacities & at different locations in MOX 1 Building |
| 4 | Electrical Panels at Central A.c plant, AHU Rooms | Nos | Lot | A/c plant Room + AHU Panels at different locations of MOX -1 |
| 5 | DDC system | No | LOT | MOX -1 building |
| 6 | 2 X 13 TR Precision Package units (Air -Cooled) | Nos | 02 | MOX -1 Server Room |

LIST OF CENTRAL AIR CONDITIONING SYSTEMS IN MOX -2

| SI No | Description /Capacity | Unit | Quantity | Location |
|-------|--|------|----------|---|
| 1 | 80 TR Air cooled Screw Chiller | Nos | 02 | Central A/c plant |
| 2 | Chilled water pumps | Nos | 02 | Central A/c plant |
| 3 | Air Handling Units of different capacities (with a total capacity of 84000 CFM) | Nos | 08 | Different capacities & at different locations in MOX 2 Building |
| 4 | Electrical Panels at Central A/c plant, AHU Rooms | Nos | Lot | A/c plant Room + AHU Panels at different locations of MOX -2 |
| 5 | Split A/c units of 2 TR, | Nos | 6 | MOX – 2 building |
| 6 | Split A/c units of 1.5 TR, | Nos | 16 | MOX -2 building |
| 7 | DDC system | No | LOT | MOX 2 building |

Period Of Comprehensive Annual Maintenance Contract:-

Comprehensive Annual Maintenance Contract is for a period **Two years**. This CAMC can be extendable further for a period of **One** year at the same price subject to satisfactory certificate service done by your company and if satisfied by Engineer In Charge, CMD.

GENERAL TERMS AND CONDITIONS FOR IRNSS A.C PLANT

- 1. Documentary evidence for carrying out similar works for a minimum period of three years from any Government Department/Private firms shall be furnished.**
2. The contractor shall make his own arrangement for safeguarding their men & materials and Department in any way will not be responsible for any loss/damage.
3. In case the contractor fails to carry out the works to the satisfaction of department/ISTRAC Engineers and if there is any disruption in the smooth functioning of the systems and its activities, Department/ISTRAC Engineers reserves the right to make alternate arrangement/ISTARC, Engineers reserves the right to make alternate arrangements for execution of work at the risk and cost of the contractor.
4. The contractor is wholly responsible for any accident and compensation payable to the personnel employed by them and working under their control. They should keep Department fully indemnified against any claim in this regard.
5. Adequate number of service providers both in supervisory and service side should be engaged, with proper materials tools/plants for satisfactory execution of the work.
6. The supply of materials and implements required for the work connected with the execution of the subject contract will be total responsibility of the contractor.
7. The contractor shall duly comply with all the requirements of labour laws, Viz., the Minimum Wages Act, Whenever it is applicable. Contract labour (Regulations and Abolition) Act Workmen's compensation Act, Provident Fund Act and Rules made there under. The contractor shall be responsible for Employees State Insurance Act and other Acts as applicable from time to time for their service providers and shall keep Department fully indemnified and harmless against any legal action or court proceedings law & order situations , costs or claims, loss or any liability arising in the course of execution of the work envisaged under this contract. It is the responsibility of the contractor to take care of provident fund and ESI for all those engaged by him as service providers and the contractor should totally indemnify the Department (ISTRAC) against all such future eventualities.
8. If the contractor fails to perform the contract or fails to carryout the contract to the satisfaction of the Department /ISTARC Engineers and any time repudiates any of the contractual obligations before the expiry of the contract period, the Department reserves the right to recover from the contractor, damages for the breach of the contract or terminate the contract as a whole or terminate a part of the contract at the risk and cost of the contractor without prior notice and get the balance or contracted work executed through some other agency other agency and hold the contractor liable for all the losses and expenses incurred.
9. The decision of ISTRAC shall be final with regard to satisfactory maintenance of the contract and the same is automatically binding on the contractor.
10. The contractor should engage service providers who have completed 18 years of age only and they shall be physically fit and should not be suffering from any communicable Diseases. Contractor shall be responsible for covering the risk of such service providers and other technical service providers deputed for executing the servicing work at our premises.
11. The Department reserves the right to ask the contractor to dispense with the service of any one of the service providers who is reported to be of doubtful integrity/unwholesome behavior.
12. It shall be the sole responsibility of the contractor to settle disputes if any arising out of the engagement between himself and the service providers engaged by him, and the Department will not in any way responsible in the event the service providers approach the competent authority in ISTRAC under the act of the court. The expenses incurred if any, in this behalf shall be borne by the contractor only.
13. The service providers employed by the contractor in our premises will have to strictly adhere to the discipline of the Department. Wherever necessary the contractor will have to furnish their service providers with necessary safety appliances and ISTRAC will not be responsible for any accidents and injuries caused to contractors service providers during the course of work.

14. The contractor or his representative should be available at the premises to control his service providers and take down instructions from and to carry out the servicing to the entire satisfaction of the Department/ISTRAC/Engineers.
15. The contractor should arrange the work as per the time stipulated, subject to security checks and restrictions of the Department. Contractor's service providers should wear the Identity Badges assigned to them while working for identification.
16. If any of the service providers of the contractor shall break, deface, injure or destroy any part of the building in which they may be working or any building, road, Krebs fence, enclosed water pipes, cables, drains electric or telephone posts or wires, trees, grass or grass land or if any damage shall happen to the work while in progress, the contractor shall make good the same at the risk and cost of the contractor.
17. Defective Pressure gauge and Thermometers to be preplaced as and how it is found defective.
18. During every launch day you are requested to depute a senior technician and a electrician up to the end of the launch. The date and time will be intimated in advance.

LIST OF CENTRAL AIR CONDITIONING SYSTEMS & LOCATIONS

| Sl No | Description /Capacity | Unit | Quantity | Location |
|--------------|---|-------------|-----------------|---|
| 1 | 30 TR Air cooled Scroll Chiller | Nos | 03 | Central A/c plant |
| 2 | Chilled water pumps | Nos | 03 | Central A/c plant |
| 3 | Air Handling Units of 24,000 & 4000 CFM | Nos | 02 | Different locations at IRNSS ,IDSN campus |
| 4 | DX- AHU of 3.5 TR capacity | Nos | 03 | Maser Room |
| 5 | Precision Package units of 5.4 TR | Nos | 03 | Server Room |
| 6 | Cassette model Split A/c units of 2TR, | Nos | 05 | VIP, & Discussion Rooms |
| 7 | Cassette model Split A/c units of 3TR, | Nos | 04 | VCS Room |
| 8 | Plant manager (DDC system) | Lot | 01 | IRNSS building |

Period Of Comprehensive Annual Maintenance Contract:-

Comprehensive Annual Maintenance Contract is for a period **TWO years.**

* * * * *

GOVERNMENT OF INDIA
DEPARTMENT OF SPACE
ISRO TELEMETRY TRACKING AND COMMAND NETWORK (ISTRAC)
BANGALORE-58
PURCHASE DIVISION

Telephone : 080-2837 6383 / 2809 4555
Fax : 080-2809 4061
Grams : ISTRAC
E Mail : purchase@istrac.org

Plot No. 12 & 13, 3rd Main, 2nd Phase
Peenya Industrial Area
Bangalore - 560 058 INDIA

Our Ref.: **TRHQ 2011000441-01**
(SINGLE PART)
(To be quoted in all correspondence)

Date: 27/01/2012

Invitation to Tender

To,

M/s

Dear Sirs,

Please submit your sealed quotation, in the Tender Form enclosed here along with the description catalogues / pamphlets / literature, superscribed with Our Ref.No. and Due date for the supply of the following items as per the terms & conditions mentioned in Annexure (enclosed). Please ensure that your quotation reaches this office not later than **01/03/2012 at 1500 hrs.**

| Sl. No. | Description | Quantity Required |
|---------|--|-------------------|
| 1. | <p>Comprehensive Annual Maintenance Service Contract for 18 Nos. UPS for a period of 3 years from the date of release of P.O. As per Specifications and Terms & Conditions enclosed.</p> <p>NOTE:</p> <p>1. Tender Notice + Invitation to Tender + Tender Form – 03 Pages 2. Detailed Specification enclosed – 03 Pages 3. Important instructions to Tenderers (Indigenous Stores) – 01 Page 4. Instructions to Tenderers FORM NO.P003 – 05 Pages 5. Tenders shall be opened in the presence of attending Tenderers or their authorized representatives on 02/03/2012 at 10.30 Hrs at ISTRAC, Plot No.12 & 13, 3rd Main, 2nd Phase, Peenya Industrial Area, Bangalore – 560 058. 6. The tender fee of Rs.228/- towards Tender Document in the form of DD drawn in favour of Accounts Officer, ISTRAC, Bangalore - 560 058 obtained from Nationalised Bank, payable at Bangalore should be enclosed along with the quotation. Money order, Cash or Cheque will not be accepted. The date of demand draft should not be prior to the date of this advertisement / website intimation.</p> <p>(Total pages: 12)</p> | 01 LOT |

Delivery at **IDSN, Bylalu, BANGALORE**
Delivery Required: Earliest

Yours faithfully,

(C S BASAVANNA)
Sr. Purchase & Stores Officer
For and on behalf of the President of India
(The Purchaser)

TENDER FORM

From:

Tender No. **TRHQ 2011000441-01**

Due on **01/03/2012 upto 3.00 PM**

Purchase & Stores Officer (PURCHASE)

Tenderer 's Ref.:

Dear Sir,

I/We hereby offer to supply the stores detailed below at the price hereunder quoted and agree to hold the offer open till I/We shall be bound to supply the stores hereby offered upon the issue of the Purchase Order/Contract/Agreement communicating the acceptance thereof on or before the expiry of the last mentioned date. You are liberty to accept any one of the items of stores tendered for or any portion of any one or more of the items of such stores. I/We notwithstanding that the offer in this tender has not been accepted in whole shall be bound to supply to you such items and such portions of one or more of the items as may be specified in said Purchase Order communicating the acceptance.

| Sl. No. | Description | Unit | Qty. | Unit Rate | Delivery Date |
|---------|-------------|------|------|-----------|---------------|
|---------|-------------|------|------|-----------|---------------|

(Note: All the rates should be given both in figures and words)

| | | |
|---|---|-----------------------------|
| Place at which delivery is required | } | ISTRAC- Bangalore |
| Delivery Period | | As per invitation to tender |
| Date by which the supplies are required | | |

I/We have understood the terms of the tender annexed to the invitation to tender and have thoroughly examined the specification drawing and or pattern quoted referred to herein and are fully aware of the stores required and my/our offer is to supply to the stores strictly in accordance with the requirements subject to the terms and conditions contained in the Purchase Order /Contract/Agreement communicating the acceptance of this tender either in whole or in part.

Signature of Tenderer

Date

Phone No.

(SEAL)

COMPREHENSIVE ANNUAL MAINTENANCE SERVICE CONTRACT SPECIFICATIONS,

TERMS AND CONDITIONS FOR UPS

The scope of work covered under AMSC has been detailed below. List of UPS indicating make, model no, sl.no, qty. is enclosed herewith. Spares for day to day satisfactory operations, spares required for preventive maintenance and spares required for replacement of defective parts during break down maintenance shall have to be included in the scope of the tenderer.

1. The firm shall submit the service report in a printed form to the Department after obtaining the signature of concerned / authorized Department official for every service carried out.
2. Payment will be made on quarterly basis on submission of service reports duly signed and certified by the authorized department official.
3. Service technicians / engineers deputed for servicing should have been trained by Pillar, Germany and has thorough knowledge. Documentary proof shall be submitted.
4. Site history and customer feedback shall be maintained by the service provider.

TECHNICAL & GENERAL SCOPE OF WORK

- Agency has to carry out health check of all UPS system once in **three months**.
- Preventive maintenance and break down maintenance of UPS shall be carried out as per the instructions for the operation and maintenance of UPS issued by Piller, Germany. Therefore maintenance schedule shall be in line with UPS manufacturer's instruction.
- The UPS service provider shall co-ordinate with the service provider of battery banks of concerned UPS during equalizing charge and boost charge of battery banks.
- Cleaning of UPS shall be done.
- Preparation of maintenance data for future records shall be done.
- Replacement of any defective components or parts shall be done at free of cost.
- **ISTRAC will only spare vacuum cleaner for cleaning purpose.**

PREVENTIVE MAINTENANCE

Periodicity of preventive maintenance: Once in THREE months at a clear interval of 90 ± 10 days between two consecutive preventive maintenance services. Preventive maintenance shall be taken up only on Department working days and in the presence of Department Engineers. Pro-forma for monthly, half yearly and yearly schedule of maintenance involved shall be submitted by the tenderers in techno-commercial bid. The same shall be got approved by ISTRAC before the commencement of the AMC.

Scope of AMC generally shall cover the following.

- a) Examination of connections with a thermo scanner
- b) Examination of basic functions
- c) Examination of power quality and measurement of such parameters
- d) Bypass changeover
- e) Simulation of a mains failure
- f) Readout of system data
- g) Visual inspection of battery
- h) Battery breaker condition

TERMS AND CONDITIONS

1. Type of service: Comprehensive Annual Maintenance Service Contract
2. Location of the service to be rendered: Indian deep space network, ISTRAC, Bylalu village, Near Big banyan tree, Bangalore.
3. Contract period: 3 years from the date of commencement as indicated in the P.O
4. Scope of preventive maintenance:
 - a) Examination of connections with a thermo scanner
 - b) Examination of basic functions
 - c) Examination of power quality and measurement of such parameters
 - d) Bypass changeover
 - e) Simulation of a mains failure
 - f) Readout of system data
 - g) Visual inspection of battery
 - h) Battery breaker condition
5. Scope of Break down maintenance: Unlimited service. The firm shall depute their Service Engineers / Technicians to site as mentioned in sl.no.2 within reasonable time but not beyond 24 hours from the receipt of break down calls from the Department. Emergency calls shall be attended on Department's holidays / out of office hours without any extra charges. Further, **during Satellite launch, support shall be provided by deputing the service engineer without any extra cost.**
6. Down time requirements: The firm shall repair and put UPS into satisfactory operation on the same day of attending as far as possible.
7. Spare parts: All spares required for preventive maintenance and break down maintenance shall be supplied without any extra cost.
8. Tools, tackles and instruments: Tools, tackles and instruments required for preventive maintenance and break down maintenance have to be provided by AMC agency only.
9. Removal of equipment: The firm shall make all efforts to repair UPS as far as possible at the Department's premises. However, in case if any parts of UPS are to be taken out to the firm's premises for repair, the same shall be subject to furnishing of bank guarantee towards the cost of items.
10. Extension of contract: In case preventive maintenance service could not be carried out within the specific block period by the firms for reasons beyond their control, the Department will have option to extend the period of contract proportionately.
11. Addition of new equipments: The Department reserves the right to delete / include any of the systems in the existing contract. However, the rates for inclusion of new systems into the contract shall be on pro-rata basis mutually worked out and agreed upon by both the parties.
12. Failure of contractor: The Department reserves the right to revoke the service contract in part or in full or entrust the contract with any other contractor in case the

contractor fails to comply with contractual obligation during the currency of the contract. The contractor shall be responsible for any loss to the Department as a result of non-compliance of the contractual obligations and breach of trust.

13. Relocation / shifting of equipments: The Department reserves the right to relocate the systems as and when necessary.
14. Termination of contract: It shall be open to Department to terminate this contract at any time during its currency by giving three months' notice to the firm in writing.
15. Fall clause: The Annual Maintenance Service charges quoted by the contractor under the contract shall not in any event exceed the lowest charges for the similar contract entered into by the firm with any other customer during the currency of the said contract. At any time during the said period, the contractor reduces the service charges / or prices of spares to any other persons / organizations / firms at a charge lower than the amount payable by the Department; he shall inform the notification of such reduction to Department. The price / charges payable under the contract shall stand correspondingly reduced from the date of coming into force of such reduction.
16. Damages to Department property / and or injury to contractor's workers: In the event of any damage to the Department's property or personal injury or to contractor personnel due to the negligence of the contractor's employees, the responsibilities shall solely rest upon with the contractor.

Details of UPS are furnished below:

| Sl. No. | Make, Model No., Capacity, sl.no of UPS | No of UPS | Location | Type of connection |
|---------|---|-----------|-------------------------|--|
| 1 | Pillar make, APOSTAR AP Premium 100, 100KVA sl.no: 9503014390, 9503014879, 9503014929, 9503014881 | 04 | DSN32 facility building | Each 2 UPS in power sharing parallel redundant |
| 2 | Pillar make, APOSTAR AP Premium 100, 100KVA sl.no: 9503014460, 9503014932 | 02 | DSN18 facility building | 2 UPS in power sharing parallel redundant |
| 3 | Pillar make, APOSTAR AP Premium 200, 200KVA sl.no: 9503014632, 9503014631 | 02 | DSN18 facility building | 2 UPS in power sharing parallel redundant |
| 4 | Pillar make, APOSTAR AP Premium 300, 300KVA sl.no: 9503014465, 9503014464 | 02 | Technical Complex | Independent connection |
| 5 | Pillar make, APOSTAR AP Premium 120, 120KVA sl.no: 9506005357, 9506005358, 9506005360, 9506005359 | 04 | IRNSS building | Each 2 UPS in power sharing parallel redundant |
| 6 | Pillar make, APOSTAR AP Premium 100, 80KVA sl.no: 9503014880, 9503014931 | 02 | Astrosat building | 2 UPS in power sharing parallel redundant |
| 7 | Pillar make, APOSTAR AP Premium 100, 60KVA sl.no: 9503014882, 9503014461 | 02jk | Astrosat building | 2 UPS in power sharing parallel redundant |
| | Total | 18 Nos | | |

**GOVERNMENT OF INDIA
DEPARTMENT OF SPACE
ISRO TELEMETRY TRACKING AND COMMAND NETWORK (ISTRAC)
BANGALORE-58
PURCHASE DIVISION**

Telephone : 080-2837 6383 / 2809 4555
Fax : 080-2809 4061
Grams : ISTRAC
E Mail : purchase@istrac.org

Plot No. 12 & 13, 3rd Main, 2nd Phase
Peenya Industrial Area
Bangalore - 560 058 INDIA

Our Ref.: **TRIB 2011000282-01**
(DUAL PART)
(To be quoted in all correspondence)

Date: **27/01/2012**

Invitation to Tender

To,

M/s

Dear Sirs,

Please submit your sealed quotation, in the Tender Form enclosed here along with the description catalogues / pamphlets / literature, superscribed with Our Ref.No. and Due date for the supply of the following items as per the terms & conditions mentioned in Annexure (enclosed). Please ensure that your quotation reaches this office not later than **01/03/2012 at 1500 hrs.**

| Sl. No. | Description | Quantity Required |
|---------|---|-------------------|
| 1. | <p>Supply of GEOLUT Processing System as per International COSPAS-SARSAT detailed Specifications enclosed. The System should be Installed and Commissioned at INMCC/ISTRAC, Bangalore as per the Standards of COSPAS-SARSAT.</p> <p>NOTE:</p> <p>1. Tender Notice + Invitation to Tender + Tender Form – 03 Pages</p> <p>2. Detailed Specification, Appendix-A & Technical Compliance Matrix enclosed – 17 Pages</p> <p>3. Important instructions to Tenderers (Annexure 'X' & Indigenous Stores) – 02 Pages</p> <p>4. Instructions to Tenderers FORM NO.P003 – 05 Pages</p> <p>5. Tenders shall be opened in the presence of attending Tenderers or their authorized representatives on 02/03/2012 at 10.30 Hrs at ISTRAC, Plot No.12 & 13, 3rd Main, 2nd Phase, Peenya Industrial Area, Bangalore – 560 058.</p> <p>6. The tender fee of Rs.228/- towards Tender Document in the form of DD drawn in favour of Accounts Officer, ISTRAC, Bangalore - 560 058 obtained from Nationalised Bank, payable at Bangalore should be enclosed along with the quotation. Money order, Cash or Cheque will not be accepted. The date of demand draft should not be prior to the date of this advertisement / website intimation.</p> <p>(Total pages: 27)</p> | 01 LOT |

Delivery at **INMCC/ISTRAC, BANGALORE**

Delivery Required: Earliest

Yours faithfully,

(C S BASAVANNA)
Sr. Purchase & Stores Officer
For and on behalf of the President of India
(The Purchaser)

TENDER FORM

From:

Tender No. **TRIB 2011000282-01**

Due on **01/03/2012 upto 3.00 PM**

Purchase & Stores Officer (PURCHASE)

Tenderer 's Ref.:

Dear Sir,

I/We hereby offer to supply the stores detailed below at the price hereunder quoted and agree to hold the offer open till I/We shall be bound to supply the stores hereby offered upon the issue of the Purchase Order/Contract/Agreement communicating the acceptance thereof on or before the expiry of the last mentioned date. You are liberty to accept any one of the items of stores tendered for or any portion of any one or more of the items of such stores. I/We notwithstanding that the offer in this tender has not been accepted in whole shall be bound to supply to you such items and such portions of one or more of the items as may be specified in said Purchase Order communicating the acceptance.

| Sl. No. | Description | Unit | Qty. | Unit Rate | Delivery Date |
|---------|-------------|------|------|-----------|---------------|
|---------|-------------|------|------|-----------|---------------|

(Note: All the rates should be given both in figures and words)

| | | |
|---|---|-----------------------------|
| Place at which delivery is required | } | ISTRAC- Bangalore |
| Delivery Period | | As per invitation to tender |
| Date by which the supplies are required | | |

I/We have understood the terms of the tender annexed to the invitation to tender and have thoroughly examined the specification drawing and or pattern quoted referred to herein and are fully aware of the stores required and my/our offer is to supply to the stores strictly in accordance with the requirements subject to the terms and conditions contained in the Purchase Order /Contract/Agreement communicating the acceptance of this tender either in whole or in part.

Signature of Tenderer

Date

Phone No.

(SEAL)

SPECIFICATIONS FOR INDIAN GEOLUT SYSTEM

INTRODUCTION

INDIA is a member of the International COSPAS-SARSAT programme for providing distress alert and position information services through LEOSAR (Low Earth Orbit Search And Rescue) and GEOSAR (Geostationary Earth Orbiting Search and Rescue) satellite systems. The system has been operational from 1990, and has been providing operational distress alerting services to Indian user community and 7 neighboring countries.

A GEOSAR Local User Terminal (GEOLUT) is a ground receiving station in the Cospas-Sarsat GEOSAR system that receives the distress signals from 406 MHz radio beacons, decode it and forward the appropriate information to INMCC. More information on Satellite Aided Search and Rescue System (SASAR) is provided in the **Appendix-A**.

1. SYSTEM REQUIREMENTS

Supply of Geolut processing system having Receiver Embedded DSP based system with customization of necessary software and firmware. This involves decoding of beacons conforming to the Cospas-Sarsat coding and burst repetition specifications at 406.050/406.025 MHz (C/S T.001; www.cospas-sarsat.org, for web-link see section 10) with a bandwidth of 80/25 KHz, having minimum C/No of 26 dBHz and in the presence of CW interferences within 5 minutes of beacon activation with the system PDEFM (Probability of Detection of Error Free Messages) of 0.95.

The GEOLUT processing system shall be delivered with all hardware, software and interfaces & peripherals necessary to operate on a 24 hour-a-day / 7 day-a-week basis, with availability better than 99%.

The Indian GEOLUT must meet the functional and performance requirements described in “Cospas-Sarsat GEOLUT Performance Specification and Design Guidelines” (C/S T.009, for web-link see section 10), as briefly summarized below:

General description of the satellite Aided Search and Rescue system is given in **Appendix-A**.

1.1 BEACON PROCESSING REQUIREMENTS

- 1.1.1 Processing system to process 70 MHz IF downlink signal received from the downlink chain as shown in **Fig. 1**. The actual beacon signal to be extracted from demodulated 100 +/- 40 KHz signals.
- 1.1.2 406 MHz beacon Message Recovery from selected Indian Geostationary satellite
- 1.1.3 IF to Baseband Down-conversion
- 1.1.4 FFT with coarse frequency resolution
- 1.1.5 FFT with fine frequency resolution
- 1.1.6 Cross correlation

- 1.1.7 PSK demodulation
- 1.1.8 Bit stream decoding and validation
- 1.1.9 Message bit error correction using BCH decoding
- 1.1.10 Message transfer to PC
- 1.1.11 Receive time from GPS receiver and synchronize the system time.
- 1.1.12 Beacon Message Processing (Confirmed Beacon Messages, Unconfirmed Short messages, Unconfirmed Long Messages)
- 1.1.13 Suppress Redundant Alert data
- 1.1.14 Alert message generation
- 1.1.15 Updated Location data as provided through GPS input every 5 minutes
- 1.1.16 All types of data logging and presentation as per Cospas-Sarsat Geolut Commissioning Standard document (C/S T.010: Cospas-Sarsat GEOLUT Commissioning Standard, for web-link see section 10)
- 1.1.17 Computing platform of standard brand like HP, Dell with 2 HDDs of 100 GB and 2 GB RAM (minimum) shall be used.

1.2 PERFORMANCE REQUIREMENTS

- 1.2.1 **Processing performance:** The GEOLUT shall be able to receive, detect, recover and provide to the associated MCC, valid messages within 5 minutes of beacon activation with a probability of 0.95.
- 1.2.2 **System Beacon Capacity:** GEOLUT shall be capable of processing at least 30 active 406 MHz beacons simultaneously within the GEOSAR satellite's field of view.
- 1.2.3 **Suppress false Alerts Caused by Processing Anomalies:** The GEOLUT shall not release false alerts **generated** from processing anomalies into the Cospas-Sarsat data distribution network.
- 1.2.4 **To process the signal and recover the beacon messages with minimum C/No of 26 dB-Hz, in presence of CW interference.**

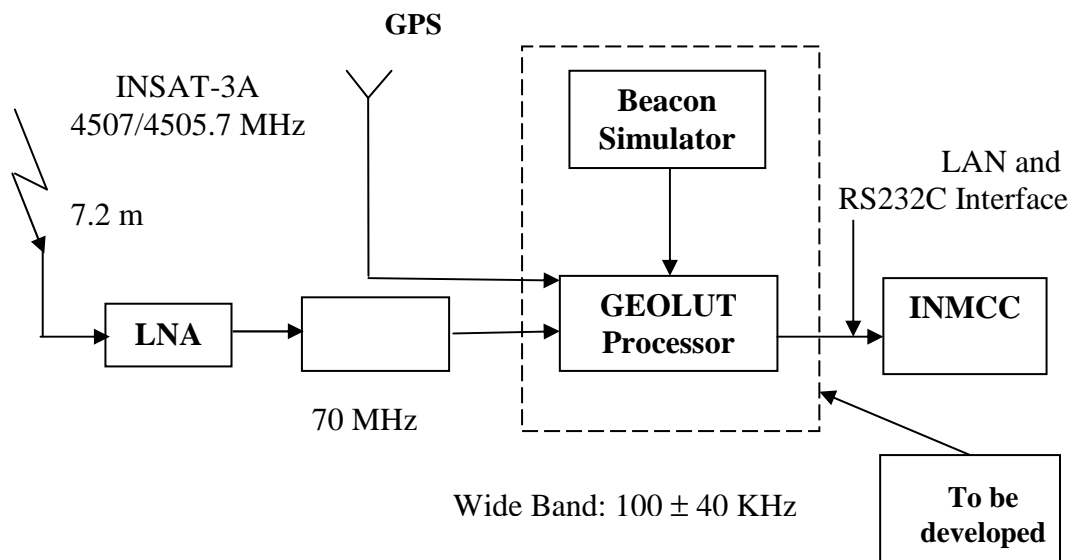


FIGURE-1: PROPOSED GEOLUT PROCESSING SYTEM BLOCK DIAGRAM

1.3 OPERATIONAL REQUIREMENTS

The system to meet all the operational and test requirements such as configuration settings, alarm reporting, communication interface with INMCC, interference processing and reporting, graphics display analysis, signal to noise ratio, data/message logging and archival/retrieval etc. as built in the existing system, and additionally meets all expected test/simulation requirements for Geolut Commissioning as per Cospas-Sarsat Specifications (see Cospas-Sarsat documents C/S T.009 and C/S T.010, for web-link see section 10). For day-to-day operations, following requirements should be met:

- 1.3.1 Create Log/history file at GEOLUT containing details like Beacon Identification (both 15 and 30 Hexadecimal code), computed frequency of beacon signal, no. of beacon bursts detected, no. of signal burst used for producing valid beacon id, Signal strength (S/No C/No), number of BCH errors detected and corrected in BCH-1 and BCH2, first burst detection time, valid beacon confirmation time, Beacon stop time & duration of activation, and beacon decode details. The log file should also contain history of all operations carried out manually or automatically and details of various alarms raised by the system for post facto analysis. Also log the variation in computed frequency for the same beacon, and archive the data daily once at 00:00 Hrs (GMT). The disk capacity (storage capacity) should support archival for six months.
- 1.3.2 Record the raw data for each beacon and append the data with further detection details till the end of beacon detection.
- 1.3.3 Continuous wave (CW) signals monitoring, logging and display of signal spectrum
- 1.3.4 Display of Received and processed signal spectrum for operator viewing
- 1.3.5 A provision to record IF data (input to DSP card) and digital data on PC Hard disk, and provision for reprocessing.
- 1.3.6 Raise alarms for any kind of failures such as absence of input signal for configured period, Failure of Communication link between GEOLUT PC and INMCC PC, Failure of DSP Card or any other hardware
- 1.3.7 Provision to suppress all the alarms at a time or individually
- 1.3.8 In cases of critical failures, audio alarm may be raised for operator attention to take immediate corrective action such as computer hang-up (most common) through watchdog timers
- 1.3.9 Exclusion of specific Bandwidth of frequencies (prone to interference) for processing, so as to reduce unnecessary load on the processor, for processing interference signals.
- 1.3.10 To provide appropriate Graphical User Interface (GUI)
- 1.3.11 Various variables to be provided as operator configurable (Sat id, processing threshold, time between 2 consecutive bursts to be used valid signal bursts, beacon suppress criteria, beacon stop time, maximum number of bursts to be used for considering a valid detection, max. wait time for 2nd confirmation, periodicity with which INMCC to be notified for continuity of beacon detection, criteria for classification of same beacon, BW selection for processing, message validation criteria, disk storage capacity warning etc.)
- 1.3.12 Support Cospas-Sarsat Quality Management System (QMS) requirements by detecting & transmitting a French Test beacon with a regular interval to INMCC

1.4 GENERAL REQUIREMENTS

- 1.4.1 The GEOLUT system required should have latest hardware with state-of-the-art Digital Receiver technology. This hardware consists of the DSP/FPGA processing board interfaced to a host PC.

- 1.4.2 The input Specifications of the system are as follows.
- i) Input frequency : 70 ± 0.1 MHz
 - ii) Dynamic range : -40 dBm to -100 dBm
 - iii) Input Interface connector : BNC Female, 50 Ω
 - iv) Input VSWR : 1.25 : 1
 - v) Modulation scheme : PCM/PM
 - vi) PCM data : 144 Bits @ 400 ± 2 BPS data rate.
- 1.4.3 The GEOLUT system required should implement the necessary additional DSP / FPGA firmware for beacon processing as per the COSPAS-SARSAT GEOLUT standards.
- 1.4.4 The external user interfaces for the GEOLUT system (GUI implemented on the host PC) should meet the COSPAS-SARSAT GEOLUT standards.
- 1.4.5 GEOLUT system should have independent GPS receiver on PC and time stamping to be provided with an accuracy of milliseconds
- 1.4.6 The GEOLUT system should consist of a beacon signal simulator which can generate programmable beacon signals with programmable messages on 70 MHz IF. This is essential to check the proper behavior of the GEOLUT system.
- 1.4.7 For output data (alert messages to INMCC), Ethernet interface also to be provided in addition to the serial USB interface.

2. BEACON SIMULATOR

The beacon simulator shall be provided with necessary software and hardware to generate simulated beacon signal with programmable parameters as Frequency, Amplitude, Noise level, Message type (long / short), Message bits, Repetition period, Bit rate and meet the following requirements:

- 2.1 Ability to programme up to 30 beacons sharing a given frequency band and the time epoch,
- 2.2 There should be a provision for self-testing of the software including self-test with the software simulated data. The test setup should be able to simulate following minimum test conditions through software; apart from the other performance and operational test requirements:
- 2.2.1 Bit rate variation of the beacon
 - 2.2.2 Frequency drift within the burst
 - 2.2.3 Phase modulation index variation
 - 2.2.4 C/No variation from 20 db-Hz to 45 db-Hz AWGN
(AWGN : Additive White Gaussian Noise).
 - 2.2.5 Multi-beacon generation with programmable frequency and time setting.
 - 2.2.6 Generation of orbitography beacons, test beacons and beacons with inverted frame sync.
 - 2.2.7 Introduction of 2 or 3 bit errors in the Beacon code
 - 2.2.8 Generating Beacon signal for given frequency, signal strength with CW interference in the specified band.
- 2.3 Each beacon's characteristics shall be individually programmable from GUI (centre frequency, start time, repetition period, C/N ratio, missing burst(s) in a sequence, message type, message bits sequence)
- 2.4 The simulator will be a stand-alone unit to be connected to a host PC for its operation. The simulator will accept 230 VAC, 50 Hz as its power source.

3. STATEMENT OF WORK

3.1 MAIN TASKS

The developer/vendor to carry out following tasks:

- 3.1.1 Processing hardware systems to process demodulated 100 +/- 40 KHz signal received at GEOLUT receiving chain at 70 MHz as shown in figure-1. This will include processing computer, processing software and associated hardware including DSP and communication cards. The antenna system and down converter will provide GEOLUT RF signal at 70 MHz are provided by ISTRAC.
- 3.1.2 The GEOLUT must meet the functional, processing, performance and operational requirements as per Cospas-Sarsat specifications(ref doc C/S T.009, and C/S T.010, for web-link see section 10)
- 3.1.3 The GEOLUT processing system shall be delivered with all hardware, software, peripherals, and documents necessary to operate on a 24 hour-a-day/7 day-a-week basis, with availability better than 99%.
- 3.1.4 Beacon Simulator System as described in section 2, which will be used for Geolut system testing and trouble-shooting/diagnosis.

3.2 SCOPE OF ACTIVITIES

The purpose of this document is to identify the functional, processing, performance, operational, communication, test and acceptance requirements for development of Indian GEOLUT processing system. This involves following activities:

- 3.2.1 Study of the requirements and creation of a top level design approach;
- 3.2.2 Study the Cospas-Sarsat reference documents and prepare an operational, performance and test requirements, and implement in the design;
- 3.2.3 Detailed design of the GEOLUT system in consultation with ISTRAC team and creation of the Design and ATP documents;
- 3.2.4 Development of the DSP / FPGA firmware and application software should maintain compatibility with the COSPAS-SARSAT beacon processing standards.
- 3.2.5 Development of a comprehensive beacon simulator firmware and software;
- 3.2.6 Procurement, testing and acceptance of material and standard bought out subsystems;
- 3.2.7 Manufacturing of GEOLUT DRSP (Digital Receive System Processing) hardware;
- 3.2.8 Integration of the DRSP and testing with the beacon simulator;
- 3.2.9 Delivery of all deliverables concerning GEOLUT;
- 3.2.10 Integrated testing of the GEOLUT at ISTRAC and system handover;
- 3.2.11 Support during warranty period;

4. SYSTEM TESTING AND ACCEPTANCE

The vendor shall generate acceptance testing documentation that links requirements, test specifications, test conditions, pass/fail criteria, test procedures and results in a way to allow the requirements to be traceable to its test.

There should be a method of self-testing of the software including self-test with the software simulated data. The test setup should be able to simulate minimum test conditions through software; apart from the other performance and operational test requirements.

4.1 COSPAS-SARSAT COMMISSIONING TEST

The Vendor shall support Cospas-Sarsat commissioning tests on GEOLUT system after successful completion of the final acceptance tests. Results of the individual commissioning tests will have to be documented in Cospas-Sarsat Commissioning Report format generated as per Cospas-Sarsat document “Cospas-Sarsat GEOLUT Commissioning Standard” (C/S T.010, for web-link see section 10). The GEOLUT shall be accepted after successful completion of the final acceptance tests and Cospas-Sarsat commissioning test, and submission of the reports to the committee. The vendor should fix bugs/anomalies observed during testing and should correct.

5. DOCUMENTATION

The vendor shall provide the reports and documents listed below. All reports and documents should also be made available in electronic format apart from two paper copies of all the reports and documents.

5.1 SOFTWARE QUALITY ASSURANCE RELATED DOCUMENTS

5.1.1 Software Requirements Specification (SRS) Document: to be generated by the developer in order to ascertain that the developer has understood the system specification and requirements and against which the system has to be verified during acceptance.

5.1.2 Functional Design and Mathematical Formulation Document: This will contain all the mathematical design as well as Data Dictionary for all the Sub-programs and modules.

5.1.3 Acceptance Test Document: This will include all the tests that are to be conducted before the system is accepted.

5.1.4 Interface Control Document (ICD): This will provide various system interfaces, protocols and formats within and outside Geolut system.

The vendor is required to give detailed procedure followed with regard to the Software Quality Assurance. The CMM levels or ISO certification, if any, should be clearly stated in the proposal.

5.2 SOFTWARE DEVELOPMENT, MAINTENANCE AND USER MANUAL

The vendor shall provide a software development, maintenance and user manual to the committee after the installation of the GEOLUT. The software development, maintenance and user manual shall include as a minimum:

- a) overall and detailed flow charts;
- b) program listings;
- c) subroutine call-up hierarchy;
- d) engineering equations;
- e) input/output data formats; and
- f) description of the data structures.

The committee shall review the document and provide comments to the vendor. The vendor shall incorporate the comments and provide a final version to the committee.

5.3 OPERATIONS AND MAINTENANCE MANUAL

The vendor shall provide an operations and maintenance manual for the standard GEOLUT. The operations and maintenance manual shall be provided to the committee after the installation of the GEOLUT. The operations and maintenance manual shall include procedures for self-test of the LUTs and all alarms or warnings generated by the LUTs and provide the information necessary to test, operate, repair and calibrate the GEOLUT. The committee shall review the document and provide comments to the vendor. The vendor shall incorporate the comments and provide a final version to the committee.

5.4 COMMERCIAL MANUALS

The vendor shall provide commercially available COTS manuals for each unique item of COTS hardware and software used in the GEOLUT, including but not limited to, computer hardware, software, interfaces, peripherals, workstation and user manuals. The commercial manuals shall be provided after the completion of the installation of GEOLUT.

5.5 USER MANUAL

The vendor shall provide a user manual to the committee after the installation of the GEOLUT. The user manual shall describe all user interfaces to the GEOLUT and analysis tools. The user manual shall be written so that a knowledgeable computer user can perform changes or reconfigure the system without having to resort to external assistance.

6. WARRANTY / POST WARRANTY PRODUCT SUPPORT

The vendor shall provide three-year warranty for the hardware and the software. The vendor shall also provide software support for fine-tuning the system performance, rectification of software anomalies/bugs and to meet any other operational requirements during the warranty period.

The vendor shall meet the maintenance requirements under a firm fixed-price. Corrective and preventive maintenance shall be provided on a firm fixed-price basis. The optional maintenance required to ensure compliance with international Cospas-Sarsat specifications shall be provided on a firm fixed price basis.

7. GENERAL GUIDELINES

- 7.1 The GEOLUT shall be designed such that it has a minimum useful life of 7-10 years. The GEOLUT shall be designed to operate without any manual intervention other than repair or maintenance with system availability at 99% over a year.
- 7.2 As and when required during development, vendor to support reviews conducted at ISTRAC, and factory inspection at vendor's site.

- 7.3 Vendor to submit necessary reports/documentation required for review for acceptance by ISTRAC engineers.
- 7.4 The system should meet Cospas-Sarsat beacon processing requirements as described above.
- 7.5 The Geolut system should have hardware as per latest technology.
- 7.6 It should be possible to implement the necessary additional firmware as required for implanting improved hardware and detection algorithm in the Geolut system.
- 7.7 The system should consist of a beacon signal simulator, which can generate regular beacon signals with programmable messages. This is required to check the proper behavior of the Geolut system at ISTRAC for routine system testing. The beacon simulator should also support Geolut commissioning exercise.
- 7.8 The development, testing and delivery of the system should be completed within the given delivery period.
- 7.9 The system design should be qualified using some software tools.
- 7.10 Necessary changes relating to design and operational features that are suggested during test phase to be incorporated.
- 7.11 Support and carryout installation, Testing, Acceptance and Commissioning of the system at ISTRAC
- 7.12 Three year warranty for the hardware and the software, and commitment for system maintenance support after expiry of the warranty for about 5 years.
- 7.13 The hardware used should qualify quality standards and host processing systems should be state of the art from a reputed brand.
- 7.14 The GEOLUT shall be accepted after successful completion of the final acceptance tests and Cospas-Sarsat commissioning test, and submission of the reports to the committee.

8. DELIVERY PERIOD

Once the proposal from the vendor is finalized and final purchase order is placed for the development of GEOLUT processing system, the commissioning of the system shall be completed within **6 months** (maximum) or earlier, including acceptance testing.

9. DELIVERABLES

- 9.1 Geolut Processing System along with associated hardware and software with standard computing platform like HP, Dell
- 9.2 Processing software
- 9.3 Beacon simulator
- 9.4 3 years warranty support
- 9.5 System documents (Requirement Specifications, System Design, Acceptance Test Plan, Acceptance Test Report, and Operations & Maintenance Manual)
- 9.6 Support for system commissioning as per Cospas-Sarsat requirements
- 9.7 Optional: Extended Warranty for another 3 years, yearly basis.
- 9.8 Any other system required may be quoted.

10. REFERENCE DOCUMENTS

National and international documents contain additional information on Cospas-Sarsat radio beacon, space, and ground segments. The most current issue and revision of the following documents are applicable to this procurement:

10.1 C/S T.001, Specification for Cospas-Sarsat 406 MHz Distress Beacons;

Link: http://www.cospas-sarsat.org/images/stories/SystemDocs/Current/T1_27OCT_2011_completedocument.pdf

10.2 C/S T.009, Cospas-Sarsat GEOLUT Performance Specification and Design Guidelines;

Link: http://www.cospas-sarsat.org/images/stories/SystemDocs/Current/T9OCT29.09_CompleteDocument.pdf

10.3 C/S T.010, Cospas-Sarsat GEOLUT Commissioning Standard;

Link: http://www.cospas-sarsat.org/images/stories/SystemDocs/Current/T10OCT09.09_CompleteDocument.pdf C/S T.011, Description of the 406 MHz Payloads Used in the Cospas-Sarsat GEOSAR System;

10.4 C/S A.002, Cospas-Sarsat Mission Control Centres Standard Interface Description

Link: http://www.cospas-sarsat.org/images/stories/SystemDocs/Current/a2.oct27.2011_complete%20document.pdf

Cospas-Sarsat documents are available on the World Wide Web at www.cospas-sarsat.org.

Notes:

1. Offer shall be submitted as per the technical and commercial format given without which the offers are liable to be rejected.
2. It may be noted that this tender is issued on two part basis. Technical and commercial offers shall be submitted separately in separate sealed covers. Along with Technical offer, Commercial bid shall be submitted with price masked with relevant deliverables.
3. It may kindly be noted that specifications in brief are given here, however for detailed system specification, reference document may be referred.
4. All the prospective vendors who did development and execution of similar projects in the past may be requested to provide their references of their projects.

* * * * *

GENERAL DESCRIPTION OF

SATELLITE AIDED SEARCH AND RESCUE SYSTEM

(Note: For information purpose only)

1.0 INTRODUCTION

ISTRAC operates and maintains ground stations (known as Local User Terminals – LUTs) to receive distress signals from the Cospas-Sarsat satellites and an Mission Control Centre (MCC) to distribute the alerts to national and international Search and Rescue (SAR) agencies, as a part of ISRO's Satellite Aided Search and Rescue (SASR) Programme. ISRO also provides SAR payload on INSAT series of satellites for detection of distress signals from radio beacons operating on 406 MHz distress frequency. The ground and space systems are part of the international Cospas-Sarsat System.

The purpose of the Cospas-Sarsat System is to provide distress alert and location data for search and rescue (SAR), using spacecraft and ground facilities to detect and locate the signals of Cospas-Sarsat distress radio beacons operating on 406 MHz. An earth receiving station that tracks Low Earth Orbiting (LEO) satellites in the Cospas-Sarsat System (the Cospas-Sarsat LEOSAR system, operational since 1982) is called a LEOSAR Local User Terminal (LEOLUT). The System was complemented in 1998 with geostationary satellites (GEOSAR). An earth receiving station in the Cospas-Sarsat System, which receives, and processes 406 MHz signals relayed by a geostationary satellite is called a GEOSAR Local User Terminal (GEOLUT). Both the LEOLUT and GEOLUT transmit alert and location data to the associated Cospas-Sarsat Mission Control Center (MCC) for subsequent distribution to SAR authorities. To the end of 1999, Cospas-Sarsat had assisted in the rescue of over 11,220 persons in distress in over 3,360 SAR events.

1.1 LEOLUT

A LEOLUT is a ground receiving station in the Cospas-Sarsat LEOSAR system that detects, characterizes, and locates emergency beacons, and forwards the appropriate information to an MCC. It may process one or more channels that are modulated upon the 1544.5 MHz LEOSAR downlink carrier. Additionally, it may use information provided by the 406 MHz GEOSAR systems in the processing of distress alerts.

The SAR instruments on Cospas-Sarsat satellites receive up-link signals from 406 MHz distress beacons, test beacons, and system beacons such as orbitography beacons. These up-link signals along with unwanted interfering signals are modulated upon the Cospas-Sarsat 1544.5 MHz downlink carrier for reception by a LEOLUT. The Search and Rescue Processor (SARP) instrument receives signals from Cospas-Sarsat 406 MHz beacons, measures the time of reception and frequency of the signal, and transmits this information along with beacon message data on the Processed Data Stream (PDS) channel of the 1544.5 MHz downlink. The SARP can store and rebroadcast distress beacon information thereby providing global as well as local-mode coverage. The SARP instrument is available on Cospas and Sarsat satellites. 406 MHz beacon signals received via the Search and Rescue Repeater (SARR) instrument on Sarsat satellites do not contain embedded time and frequency information. Therefore, the LEOLUT has to determine these parameters for the 406 MHz SARR channel. The LEOLUT equipment that processes beacon data from the 406 MHz SARR channel is referred to as a Ground-Search and Rescue Processor (G-SARP). A LEOLUT may use information provided by the 406 MHz Geostationary Search and Rescue (GEOSAR) system for combined LEO/GEO processing.

1.2 GEOLUT

A GEOLUT is a ground receiving station in the Cospas-Sarsat System that detects, processes, and recovers the coded transmissions of 406 MHz emergency beacons, and relays the appropriate information to an MCC. The entire uplink received spectrum is used to modulate a single downlink carrier by a Geostationary Search and Rescue (GEOSAR) satellite. The technical parameters of the various GEOSAR satellites are described in detail in document C/S T.011, Description of the 406 MHz Payloads Used in the Cospas-Sarsat GEOSAR System. The GEOLUT must meet the data availability requirements specified in document C/S T.009. The SAR instruments on Cospas-Sarsat GEOSAR satellites receive uplink signals from 406 MHz distress beacons, test beacons, and system beacons such as orbitography beacons. These uplink signals, along with unwanted interfering signals, are modulated upon the GEOSAR satellite downlink carrier for reception by a GEOLUT. A Cospas-Sarsat GEOLUT shall process the GEOSAR downlink signal to produce 406 MHz GEOSAR alerts, including the associated location data when available in the beacon message, and forward this information to the associated MCC for further action. The operational, functional, and performance specifications must be met to ensure that:

1. The GEOLUT is available and capable to receive and process beacons signals in the GEOSAR downlink signal; and
2. The GEOLUT provides reliable alerts and accurate position data by:
 - Detecting valid 406 MHz beacon messages and processing them in accordance with document C/S T.009;
 - Verifying whenever possible that data formats are correct and encoded data is valid, including the beacon identification and encoded position information; and
 - Providing updated position information to the MCC, as appropriate.

A GEOLUT may be used to supply data from a geostationary satellite to improve the quality of the solution data for 406 MHz beacons, which are detected and located by a LEOLUT.

A GEOLUT consists of at least the following basic components and interfaces:

- i) An antenna and radio frequency subsystem;
- ii) A computer processor;
- iii) A time and/or frequency reference subsystem; and
- iv) An MCC interface.

For acceptance as part of the Cospas-Sarsat System, a GEOLUT shall be commissioned as defined in the document C/S T.010, Cospas-Sarsat GEOLUT Commissioning Standard, to verify compliance of its performance with this specification. A typical Cospas-Sarsat GEOLUT functional block diagram is shown in **figure 1**.

1.3 INDIAN MISSION CONTROL CENTRE (INMCC)

MCCs have been set up in most countries operating at least one LUT. Their main functions are to collect, store and sort the data from LUTs and other MCCs, provide data exchange within the Cospas-Sarsat System and, distribute alert and location data to associated RCCs and Search and Rescue Points of Contact (SPOCs). To ensure data distribution reliability and integrity, Cospas-Sarsat has developed MCC performance specifications and MCC commissioning procedures.

Each MCC distributes alert data according to the Cospas-Sarsat Data Distribution Plan (DDP) and according to its own unique requirements and procedures, to any country within its service area, which has agreed to accept such services. Alert data is provided to SPOCs, RCCs or other recognized national points of contact that will use the data to enable fast and effective rescue of persons in distress. Any MCC receiving alert data relating to a distress beacon located outside its

service area relays the information to another MCC in accordance with the principles listed and the agreed procedures detailed in this DDP.

A MCC's service area is that part of the world within which a Cospas-Sarsat alerts data distribution service is provided by that MCC. A data distribution region (DDR) comprises two or more MCC service areas. Cospas-Sarsat alert data and system information are exchanged between DDRs through a single MCC, which acts as the point of contact for that DDR. This MCC is identified as the nodal MCC of the DDR.

Alert messages are exchanged between MCCs using standard formats, which permit automatic processing and retransmission of all data. These message formats are referenced in the Cospas-Sarsat Mission Control Centres Standard Interface Description (C/S A.002) document.

1.3.1 MCC COMMUNICATIONS

1.3.1.1 INMCC to RCCs / SPOCs/ Foreign MCCs

INMCC uses the AFTN (Aeronautical Fixed telecommunication Network) communication system for the transmission and reception of all Cospas-Sarsat alert messages. The AFTN is provided by Airports Authority of India. INMCC is connected to this network via Bangalore Airport through a leased line. The alerts falling within INMCC service area are transmitted to 4 Indian RCCs (Chennai, Mumbai, Delhi and Calcutta) and 9 SPOC countries (Nepal Bhutan, Bangladesh, Sri Lanka, Maldives, Seychelles, Kenya, Tanzania, and Somalia). The alerts falling outside INMCC service area are transmitted to CMC (Russian MCC). However, INMCC has made direct arrangements with Australian MCC for exchange of distress alerts of mutual interest on bilateral agreement.

General policy is that all AFTN alert messages are transmitted with "SS" priority. However, note that following a formal request from Russian MCC (CMC), AFTN alert traffic to national and international SAR agencies was downgraded to "DD" priority. It was found by CMC that messages transmitted with "SS" priority are more prone to transmission errors; hence "SS" was changed to "DD".

INMCC has also implemented FTP communication for transmission of alert messages. This is presently operated in test mode.

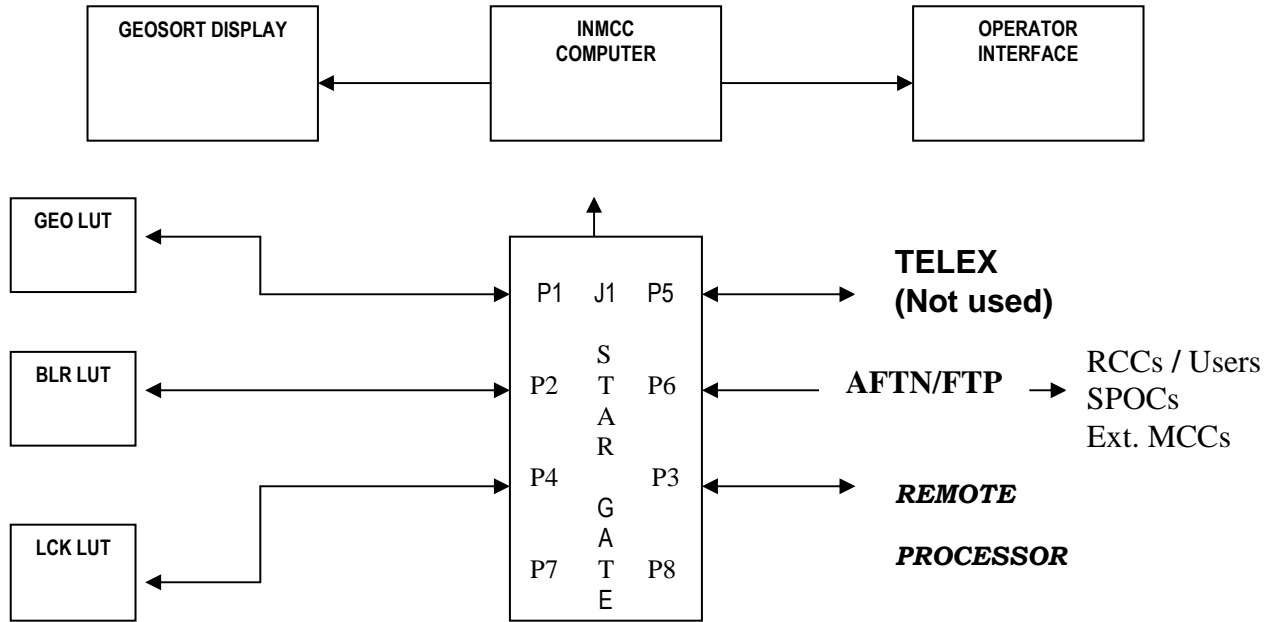
1.3.1.2 INMCC to LUTs

Bangalore LUT is about 300 meters away from INMCC and is connected with highly reliable dedicated landline for data communication using modems at both the ends. The operations at LUT are fully automatic.

Lucknow LUT is situated in northern part of India (about 2500 km from Bangalore) and is connected by highly reliable dedicated satellite link. The operations at Lucknow LUT are fully automatic.

Indian Geolut system is co-located with INMCC and connected to INMCC with serial communication port (RS-232) for alert data transmission. Block diagram of INMCC with associated LUTs/RCCs/SPOCs is given in **figure-2**.

**FIG-2: INMCC COMMUNICATION INTERFACE
(Serial Communication)**



Technical Compliance – Matrix

| S.No. | ISTRAC SPECIFICATIONS | VENDOR SPECIFICATION | COMPLAIANCE (YES/NO) | Explanation for Compliance |
|--------|--|----------------------|----------------------|----------------------------|
| 1 | SYSTEM REQUIREMENTS Develop the Geolut system..... | | | |
| 1.1 | BEACON PROCESSING REQUIREMENTS | | | |
| 1.1.1 | Processing system to process 70 MHz.... | | | |
| 1.1.2 | 406 MHz beacon Message Recovery..... | | | |
| 1.1.3 | IF to base-band down conversion | | | |
| 1.1.4 | FFT with coarse frequency resolution..... | | | |
| 1.1.5 | FFT with fine frequency resolution.. | | | |
| 1.1.6 | Cross correlation | | | |
| 1.1.7 | PSK demodulation | | | |
| 1.1.8 | Bit stream decoding and validation | | | |
| 1.1.9 | Message bit error correction using BCH decoding | | | |
| 1.1.10 | Message transfer to PC... | | | |
| 1.1.11 | Receive GPS... | | | |
| 1.1.12 | Beacon Message Processing.. | | | |
| 1.1.13 | Suppress Redundant Alert data... | | | |
| 1.1.14 | Alert message generation.... | | | |
| 1.1.15 | Updated Location data as provided through.... | | | |
| 1.1.16 | All types of data logging and presentation... | | | |
| 1.1.17 | Computing platform of standard brand like HP, Dell.... | | | |
| | | | | |
| 1.2 | Performance Requirements | | | |
| 1.2.1 | Processing performance | | | |
| 1.2.2 | System Beacon Capacity 30 beacons.. | | | |
| 1.2.3 | Suppress false Alerts Caused by Processing Anomalies | | | |
| 1.2.4 | To process the signal and recover the beacon messages with minimum C/No of 26 dB-Hz | | | |
| | | | | |
| 1.3 | Operational Requirements | | | |
| 1.3.1 | Create Log/history file... | | | |
| 1.3.2 | Record the raw... | | | |
| 1.3.3 | Continuous wave.... | | | |
| 1.3.4 | Display of received.... | | | |
| 1.3.5 | Provision to record..... | | | |
| 1.3.6 | Raise alarms... | | | |
| 1.3.7 | Provision to suppress.... | | | |
| 1.3.8 | In case of critical Failure... | | | |
| 1.3.9 | Exclusion of specific... | | | |
| 1.3.10 | To provide... | | | |
| 1.3.11 | Various variables... | | | |
| 1.3.12 | Support Cospas-Sarsat QMS | | | |
| | | | | |
| 1.4 | General Requirements | | | |

| | | | | |
|--------|------------------------------------|--|--|--|
| 1.4.1 | The Geolut... | | | |
| 1.4.2 | Input specifications... | | | |
| 1.4.3 | The Geolut system... | | | |
| 1.4.4 | The external user | | | |
| 1.4.5 | Geolut system... | | | |
| 1.4.6 | The Geolut system... | | | |
| 1.4.7 | For output... | | | |
| | | | | |
| 2. | Beacon Simulator | | | |
| 2.1 | Ability to program... | | | |
| 2.2 | There should be... | | | |
| 2.2.1 | Bit rate... | | | |
| 2.2.2 | Frequency drift.. | | | |
| 2.2.3 | Phase modulation... | | | |
| 2.2.4 | C/No variation... | | | |
| 2.2.5 | Multi-beacon generation.... | | | |
| 2.2.6 | Generation of orbitography... | | | |
| 2.2.7 | Introduction of 2 or 3... | | | |
| 2.2.8 | Generating beacon.... | | | |
| 2.3 | Each beacon... | | | |
| 2.4 | Simulator.... | | | |
| | | | | |
| 3. | Statement of work... | | | |
| 3.1 | Main task | | | |
| 3.1.1 | Processing hardware.... | | | |
| 3.1.2 | The Geolut must... | | | |
| 3.1.3 | The Geolut processing... | | | |
| 3.1.4 | Beacon simulator.... | | | |
| 3.2 | Scope of activity | | | |
| 3.2.1 | Study of the requirements... | | | |
| 3.2.2 | Study the Cospas-Sarsat.... | | | |
| 3.2.3 | Detailed design.... | | | |
| 3.2.4 | Development of the DSP.... | | | |
| 3.2.5 | Development of a comprehensive.... | | | |
| 3.2.6 | Procurements.... | | | |
| 3.2.7 | Manufacturing... | | | |
| 3.2.8 | Integration.... | | | |
| 3.2.9 | Delivery.... | | | |
| 3.2.10 | Integrated testing.... | | | |
| 3.2.11 | Support... | | | |
| | | | | |
| 4. | System testing and acceptance | | | |
| 4.1 | Cospas-Sarsat Commissioning Test | | | |
| | | | | |
| 5. | Documentation | | | |
| 5.1 | Software quality... | | | |
| 5.1.1 | Software requirements.... | | | |
| 5.1.2 | Functional design... | | | |
| 5.1.3 | Acceptance test... | | | |
| 5.1.4 | Interface control.... | | | |
| 5.2 | Software development.... | | | |
| 5.3 | Operations and | | | |
| 5.4 | Commercial manuals... | | | |
| 5.5 | User manual... | | | |
| | | | | |
| 6. | Warranty/Post warranty | | | |

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|-------|---------------------------------|--|--|--|
| | | | | |
| 7. | General guidelines... | | | |
| 7.1 | The geolut... | | | |
| 7.2 | As and when required... | | | |
| 7.3 | Vendor to submit... | | | |
| 7.4 | The system should meet... | | | |
| 7.5 | The geolut.. | | | |
| 7.6 | It should be possible... | | | |
| 7.7 | The system should consist... | | | |
| 7.8 | The development, testing... | | | |
| 7.9 | The system design... | | | |
| 7.10 | Necessary changes ... | | | |
| 7.11 | Support and carryout... | | | |
| 7.12 | Three year warranty... | | | |
| 7.13 | The hardware used... | | | |
| 7.14 | The geolut should be accepted.. | | | |
| | | | | |
| 8. | Delivery period... | | | |
| | | | | |
| 10. | Reference document | | | |
| 10.1 | C/S T.001... | | | |
| 10.2 | C/S T.009... | | | |
| 10.3 | C/S T.010... | | | |
| 10.4 | C/S A.002... | | | |
| | | | | |
| Note1 | Offer Shall be..... | | | |
| Note2 | It may be noted..... | | | |
| Note3 | It may kindly be noted... | | | |
| Note4 | All the perspective vendors.... | | | |

Commercial - Matrix

| S/no. | Item Description | Quantity | Cost | Explanation for compliance |
|-------|------------------------------------|----------|------|----------------------------|
| 9. | Deliverables... | | | |
| 9.1 | Geolut processing... | | | |
| 9.2 | Processing software.... | | | |
| 9.3 | Beacon simulator.... | | | |
| 9.4 | 3 years warranty... | | | |
| 9.5 | System documents | | | |
| 9.6 | Support for system commissioning.. | | | |
| 9.7 | Optional: Extended warranty... | | | |
| 9.8 | Any other system | | | |
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IMPORTANT INSTRUCTIONS TO TENDERERS (TWO PART TENDER)

1. IT IS PROPOSED TO HAVE A TWO COVER SYSTEM FOR THIS TENDER:
TECHNICAL AND COMMERCIAL PART IN ONE COVER
PRICE PART IN ONE COVER

2. **TECHNICAL AND COMMERCIAL PART**

TECHNICAL AND COMMERCIAL PART SHOULD CLEARLY INDICATE IN ADDITION TO THE TECHNICAL DETAILS, PLACE OF DELIVERY i.e, **ISTRAC's SITE, BANGALORE**, SUPPORT OF SYSTEMS DURING WARRANTY AND POST WARRANTY PERIOD PAYMENT TERMS, VALIDITY, WARRANTY/GUARANTEE, DELIVERY PERIOD, DELIVERY SCHEDULE, LIST OF SIMILAR INSTALLATION, CATALOGUE ETC.,

COMPLETE TECHNICAL LITERATURE/LEAFLET RELEVANT TO THE OFFER ARE TO BE ENCLOSED TO THE TECHNICAL AND COMMERCIAL PART OF THE TENDER

PLEASE ENCLOSE A COMPLIANCE STATEMENT FOR ALL THE SPECIFICATION, TERMS/CONDITIONS (POINT BY POINT) COVERED IN THE ENCLOSED TECHNICAL COMPLIANCE REPORT. ALSO, ENCLOSE A COPY OF THE DETAILS INDICATED IN PRICE QUOTATION (WITHOUT PRICES OR BY MASKING THE PRICES) MAINLY TO KNOW THE ITEMS/SPECIFICATIONS FOR WHICH YOU HAVE INDICATED PRICES IN PRICE BID. THIS PART SHOULD NOT CONTAIN PRICES.

IF THE TECHNICAL OFFER CONTAINS ANY PRICE INFORMATION THE OFFER IS LIABLE TO BE REJECTED.

3. **PRICE PART**

- a. PRICE PART WITH DETAILED BREAK-UP SHOULD ONLY INDICATE PRICES WITH TAXES IF ANY APPLICABLE SEPARATELY. PLEASE NOTE THAT PRICES SHOULD NOT BE INDICATED IN TECHNICAL AND COMMERCIAL PART.
- b. PRICES ARE TO BE SEPARATELY GIVEN FOR THE RECOMMENDED SPARES IF APPLICABLE.
- c. THE COVERS i.e., 'TECHNICAL & COMMERCIAL PART' COVER AND "PRICE BID" COVER SHOULD BE SEALED AND SUPERSCRIBED WITH TENDER NUMBER, DUE DATE, ADDRESS, NATURE OF BID ETC.,
- d. IMPORTANT: THE WORDING "TECHNICAL AND COMMERCIAL OFFER" SHOULD BE MENTIONED ON THE TOP OF THE ENVELOPE VERY CLEARLY SIMILARLY THE COVER CONTAINING THE PRICE BID SHOULD BEAR THE WORDINGS "PRICE BID".
- e. BOTH, TECHNICAL AND COMMERCIAL BID COVER AND PRICE BID COVER ARE TO BE SEALED IN SEPARATE COVERS AND THEY ARE TO BE KEPT IN A SINGLE COVER SUPERSCRIBED WITH TENDER NUMBER DUE DATE AND TIME. THE OUTER COVER THUS PREPARED SHOULD BE SENT TO THE FOLLOWING ADDRESS TO REACH US ON OR BEFORE THE DUE DATE SPECIFIED IN THE TENDER FORM (ENCLOSED).

SENIOR PURCHASE & STORES OFFICER (PURCHASE)
ISRO TELEMETRY TRACKING AND COMMAND NETWORK (ISTRAC / ISRO)
PLOT NO.12 & 13, 3RD MAIN, 2ND PHASE
PEENYA INDUSTRIAL AREA,
BANGALORE-560 058 (KARNATAKA)
INDIA
- f. THE OFFERS SHOULD BE VALID FOR A MINIMUM PERIOD OF 120 DAYS FROM THE DUE DATE.
- g. OFFERS DULY AUTHENTICATED UNDER THE HAND AND SEAL OF THE COMPANY'S AUTHORISED PERSONNEL BE SENT AND NO FAX/TLX/CABLE/E-MAIL OFFERS WILL BE ACCEPTED.
- h. THE "TECHNICAL AND COMMERCIAL" PART WILL BE OPENED AT THE FIRST INSTANCE AND INCASE OF ANY CLARIFICATIONS/NEGOTIATIONS FOUND NECESSARY, THE SAME WILL BE SOUGHT FROM THE BIDDERS WITHOUT OPENING THE PRICE BID AND THEREAFTER THE PRICE BID WILL BE OPENED.
- i. IF PRICE CHANGE IS ENVISAGED DUE TO TECHNICAL CLARIFICATIONS/NEGOTIATIONS, YOU MAY BE GIVEN AN OPPORTUNITY (BEFORE OPENING THE PRICE BID AND WITHOUT REVEALING THE PRICES) EITHER TO CONFIRM OR TO SUBMIT THE REVISED OR SUPPLEMENTARY PRICE BID IN A SEALED ENVELOPE.
- j. LATE AND DELAYED TENDERS WILL NOT BE ACCEPTED.

**IMPORTANT INSTRUCTIONS - TO TENDERERS
(INDIGENOUS STORES)**

**PLEASE COMPLY THIS (WITHOUT FAIL) FOR SPEEDY CONSIDERATION / DECISION OF
YOUR OFFER**

1. PLEASE QUOTE ACCORDING TO THE UNITS INDICATED IN THE 'INVITATION TO TENDER', ONLY FOR SPEEDY EVALUATION.
2. PLEASE QUOTE FIRM PRICE FOR DELIVERY AT OUR SITE/F.O.R DESTINATION BASIS (INCLUDING PACKING AND FORWARDING) I.E., PURCHASE & STORES OFFICER (STORES), ISTRAC, PLOT NO. 12 & 13, 3RD MAIN, 2ND PHASE, PEENYA INDUSTRIAL AREA, BANGALORE - 560 058.
3. OUR BEING GOVERNMENT OF INDIA ORGANISATION, OUR PAYMENT TERMS ARE ONLY 'FULL PAYMENT WITHIN 30 DAYS' AFTER ACCEPTANCE AT OUR SITE. PLEASE QUOTE ACCORDINGLY. OTHER TERMS AND PAYMENT MAY BE CONSIDERED ONLY IF SUITABLE CASH DISCOUNTS FOR "AGAINST DELIVERY BY ISTRAC STORES" (NOT THROUGH BANK) ARE OFFERED.
4. VALIDITY OF YOUR OFFER SHOULD BE ATLEAST 120 DAYS FROM THE DATE OF OPENING.
5. PERCENTAGE OF SALES TAX AND EXCISE DUTY (FOR GENERAL ITEMS) IF ANY, SHOULD BE SHOWN SEPARATELY AND CLEARLY IN YOUR QUOTATION. PLEASE AVOID THE TERM, 'TAX/EXCISE DUTY AS APPLICABLE'. ALSO WHEREVER E.D. EXEMPTIONS BASED ON CERTIFICATES (FOR OUR R&D USE) ARE PROVIDED BY ISTRAC (IF AND WHEN AN ORDER IS FINALISED) IN TERMS OF EXCISE NOTIFICATION NO. 10/97 DATED 1.3.1997, YOU SHALL NOT CHARGE SUCH E.D. AND SUPPLY (WHEN ORDERED) HAS TO BE AFFECTED AS PER ORDERED PRICE ONLY.
6. PLEASE SPECIFY THE 'MAKE' OR 'BRAND NAME' OF THE ITEM OFFERED WHILE QUOTING.
7. PLEASE REFER ENCLOSED TENDER TERMS / INSTRUCTIONS TO TENDERERS AND TERMS AND CONDITIONS FOR FURTHER DETAILS.
8. PLEASE INDICATE YOUR VAT – TIN NUMBER IN YOUR QUOTATION.

INSTRUCTIONS TO TENDERERS

1. Tenders should be sent in sealed envelopes superscribing the relevant Tender No. and the due date of opening. Only one tender should be sent in each envelope.
2. Late / delayed tender will not be considered.
3. Sales Tax and / or other duties / levies where legally leviable and intended to be claimed should be distinctly shown separately in the tender.
4. As a Government of India Department, this office is exempted from the payment of octroi and similar local levies, Tenderers shall ensure that necessary exemption certificates are obtained by them from the Purchase & Stores Officer (Purchase) concerned to avoid any payment of such levies.
5. (a) Your quotation should be valid for 120 days from the date of opening of the tender.
(b) Prices are required to be quoted according to the units indicated in the annexed tender form. When quotations are given in terms of units other than those specified in the tender form relationship between the two sets of units must be furnished.
6. Preference will be given to those tenders offering supplies from ready stocks and on the basis of FOR destination/delivery at site.
7. (a) All available technical literature, catalogues and other data in support of the specifications and details of the items should be furnished along with the offer.
(b) Samples, if called for, should be submitted free of all charges by the tenderer and Purchaser shall not be responsible for any loss or damage thereof due to any reason whatsoever. In the event of non-acceptance of tender, the tenderer will have to remove the samples at his own expenses.
(c) Approximate net and gross weight of the items offered shall be indicated in your offer, if dimensional details are available, the same should also be indicated in your offer.
(d) Specifications: Stores offered should strictly conform to our specifications. Deviation, if any, should be clearly indicated by the tenderer in their quotation. The tenderer should also indicate the Make/Type number of the stores offered and provide catalogues, technical literature and sample, whatever necessary along with the quotation. Test certificates wherever necessary should be forwarded along with supplies. Whenever options are called for in your specification, the tenderer, should address all such options, wherever specifically mentioned by us. The tenderer could suggest changes to specifications with appropriate justification in response for the same.
8. The Purchaser shall be under no obligation to accept the lowest or any tender and reserves the right to acceptance of the whole or part of the tender or portion of the quantity offered and tenderer shall supply the same at the rates quoted.
9. Corrections, if any, must be attested. All amounts shall be indicated both in words as well as in figures. Where there is difference between amount quoted in words and figures, amount quoted in words shall prevail.
10. The tenderer should supply along with his tender the name of his bankers as well as the latest Income Tax clearance certificate duly countersigned by the Income Tax Officer of the Circle concerned under the seal of his office, if required by the Purchaser.
11. The Purchaser reserves the right to place order on the successful tenderers for additional quantity upto 25% of the quantity offered by them at the rates quoted.
12. The authority of the person signing the tender, if called for, should be produced.
13. The purchaser reserves the options to give price preference to the offers from the public sector units etc. over those from other firms, in accordance with the policies of the Govt. from time to time.
14. For outstation supplies, the consignments shall be despatched by the Supplier through the reliable & reputed transporters who are recognised by Bankers Association, on Door Delivery basis.

TERMS AND CONDITIONS OF THE CONTRACT

1. **Definitions:**

- a) The term 'Purchaser' shall mean the President of India or his successors or assigns.
- b) The terms 'Contractor' shall mean the person, firm or company with whom or with which the order for the supply of stores is placed and shall be deemed to include the Contractor's Successors, representatives, heirs, executors and administrators unless excluded by the Contract.
- c) The 'Stores' shall mean, what Contractor agrees to supply under the contract as specified in the Purchase Order including erection of plants and machinery and subsequent testing, should such a condition be included in the Purchase Order.
- d) The term 'Purchase Order' shall mean, the communication signed on behalf of the Purchaser by an Officer duly authorised intimating the acceptance on behalf of the Purchaser on the terms and conditions mentioned or referred to in the said communication accepting the tender or offer of the Contractor for supply of stores or plant, machinery or equipment or part thereof.

2. **Prices:**

Tenders offering firm prices will be preferred. Where a price variation clause is insisted upon by a tenderer, quotation with a reasonable ceiling should be submitted. Such offers should invariably be supported by the base price taken into account at the time of tendering and also the formula for any such variations.

3. **Security Deposit:**

On acceptance of tender, the contractor shall, at the option of the Purchaser and within the period specified by him deposit with him, in case or in any other form as the purchaser may determine, Security deposit not exceeding ten percent of the value of the contract as the purchaser shall specify. If the contractor is called upon by the purchaser to deposit 'Security' and the Contractor fails to provide the security within the period specified, such failure shall constitute a breach of the contract and the purchaser shall be entitled to make other arrangements for the re-purchase of the stores contracted for at the risk of the contractor in terms of Sub-Clause (II) and (III) of clause 10 (b) here-of and or to recover from the contractor damages arising from such cancellation.

4. **Guarantee & Replacement:**

- a) The contractor shall guarantee that the stores supplied shall comply fully with the specifications laid down, for material, workmanship and performance.
- b) For a period of twelve months after the acceptance of the stores, if any defects are discovered therein or any defects therein found to have developed under proper use arising from faulty stores, designs or workmanship, contractor shall rectify such defects at his own cost provided he is called upon to do so within a period of 14 months from the date of acceptance thereof by the Purchaser who shall state in writing in that respect the stores or any part thereof are faulty.
- c) If in the opinion of the Purchaser, it becomes necessary to replace or renew any defective stores such replacement or renewal shall be made by the Contractor free of all costs to the Purchaser provided the notice informing the contractor of such defect is given by the purchaser in this regard within the said period of 14 months from the date of acceptance thereof.
- d) Should be the contractor fail to rectify the defects the Purchaser shall have the right to reject or replace at the cost of the Contractor the whole or any portion of the defective stores.
- e) The decision of the purchaser, notwithstanding any prior approval or acceptance or inspection thereof on behalf of the purchaser, as to whether or not the stores supplied by the contractor are defective or any defects have developed within the said period of 12 months or as to whether the nature of the defects requires renewal or replacement shall be final, exclusive, and binding on the contractor.
- f) To fulfill guarantee conditions outlines in Clause 4 (a) to (e) above, the contractor shall at the option of the purchaser, furnish a Bank Guarantee (as prescribed by the Purchaser) from a Bank approved by the purchaser for an amount equivalent to 10% of value of the Contract along with first shipment documents. On the performance and completion of the Contract in all respects, the Bank Guarantee will be returned to the Contractor without any interest.

5. Packing forwarding & Insurance:

The Contractor will be held responsible for the stores being sufficiently and properly packed for transport by rail, road, sea or air to withstand transit hazards and ensure safe arrival at the destination. The packing and marking of package shall be done by and at the expense of the Contractor. The Purchaser will not pay for (will not pay separately for transit insurance) all risks in transit being exclusively of the Contractor and the Purchaser shall pay only for such stores as are actually received in good condition, in accordance with contract.

6. Despatches:

The Contractor is responsible for obtaining a clear receipt from the transport authorities specifying the goods despatched. The Consignment should be despatched with clear Railway Receipt / Lorry Receipt. If sent in any other mode it is at the risk of the Contractor, Purchaser will take no responsibility for short deliveries or wrong supply of goods when the same are booked on 'said to contain' basis. Purchaser pay for only such stores as are actually received by them in accordance with the contract.

7. Test Certificate:

Wherever required, test certificate should be sent alongwith the despatch documents.

8. Acceptance of Stores:

- a) The stores shall be offered by the contractor for inspection at such places as may be specified by the Purchaser at the Contractor's own risk, expense and cost.
- b) It is expressly agreed that the acceptance of the Stores are further subjected to final approval by the Purchaser, whose decision shall be final.
- c) If in the opinion of the Purchase that all or any of the stores do not meet the performance or quality requirements specified in the Purchase Order, they may be either rejected or accepted at a price to be fixed by the Purchaser and his decision as to rejection and the prices to be fixed shall be final and binding on the Contractor.
- d) If the whole or any part of the stores supplied are rejected in accordance with Clause No. 8 (c) above, the Purchaser shall be at liberty, with or without notice to the contractor to Purchase in the open market at the expense of the Contractor, stores meeting the necessary performance and quality contracted for in place of those rejected, provided that either the Purchaser, or the agreement to purchase, from the another supplier is made within six months from the date of rejection of the stores as aforesaid.

9. Rejected Stores:

Rejected Stores will remain at destination at the contractor's risk and responsibility. If instructions for their disposal are not received from the Contractor within a period of 14 days from the date of receipt of the advice of rejection, the purchaser or his representative has at his discretion the right to scrap or sell or consign the rejected stores to Contractor's address at the Contractor's entire risk and expense freight being payable by the Contractor at actuals.

10. Delivery:

- a) The time for and the date of delivery of the stores stipulated in the Purchase Order shall be deemed to be the essence of the contract, and delivery must be completed on or before the specified dates.
- b) Should the Contractor fails to deliver the stores of any consignment thereof within the period prescribed of such delivery, the purchaser shall be entitled at his own option either.
 - i) To recover from the Contractor as agreed liquidated damages and not by way of penalty a sum of 2% of the price of any stores which the Contractor has failed to deliver as aforesaid, for each month or part of a month, during which the delivery of such stores may be in arrears, or;
 - ii) To purchase elsewhere, without notice to the contractor on the account and at the risk of the contractor the stores not delivered or others of similar description (where others exactly complying with particulars are not, in the opinion of the purchaser readily procurable such opinion being final) without cancelling the contract in respect of the consignment (s) not yet due for delivery, or

iii) To cancel the contract or portion thereof, and if so desired to purchase or authorise of stores not so delivered or others of similar description (where others exactly complying with the particulars are not, in the opinion of the readily procurable; such opinion final) at the risk and cost of Contractor. In the event of action being taken under sub-clause (ii) & (iii) of clause 10 above the Contractor shall be liable for any loss which the purchaser may sustain on that account, provided that the repurchase, or if there is an agreement to repurchase then such agreement is made within six months from the date of such failure. But the contractor shall not be entitled to any gain on such repurchase made against default. The manner and method of such repurchase shall be at the discretion of the Purchaser, whose decision shall be final. It shall not be necessary for the Purchaser to serve a notice of such repurchase on the defaulting Contractor. This right shall be without prejudice to the right of the Purchaser to recover damages for breach of contract by the Contractor.

11. Extension of time:

As soon as it is apparent that contract dates cannot be adhered to, an application shall be sent by the Contractor to the Purchaser. If failure on the part of the Contractor to deliver the stores in proper times shall have arisen from any cause which the Purchaser may admit as responsible ground for an extension of the time (and his decision shall be final) he may allow such additional time as he considered it to be justified by circumstances of the case without prejudice to the Purchaser's rights to recover liquidated damages under clause 10 here of.

12. Erection of Plant & Machinery:

Wherever erection of a Plant or Machinery is the responsibility of the Contractor as per the terms of the Contract and in case the Contractor fails to carry out the erection as and when called upon to do so within the period specified by the Purchaser, the Purchaser shall have the right to get the erection done through any source of his choice. In such an event, the contractor shall be liable to bear any additional expenditure that the Purchaser is liable to incur towards erection. The contractor shall however, not be entitled to any gain due to such an action by the Purchaser.

13. Payment:

Contractor's bill will be passed for payment only after the stores have been received, inspected and accepted by the Purchaser.

14. Mode of Payment:

Normally payment will be made for the accepted stores within 30 days from the date of receipt of the materials.

15. Recovery of sums due:

Whenever any claim for the payment of whether liquidated or not, moneys arises out of or under his contract against the Contractor, the Purchaser shall be entitled to recover such sum by appropriating in part or whole, the security deposited by the Contractor, if a security is taken against the Contract.

In the event of the security being insufficient or if no security has been taken from the contractor, then the balance or the total sum recoverable, as the case may be shall be deducted from any such then due or which at any time thereafter may become due to the Contractor under this or any other contract with the Purchaser. Should this sum be not sufficient to cover the full amount recoverable, the contractor shall pay to the Purchaser on demand the remaining balance due. Similarly if the Purchaser has or makes any claims, whether liquidated or not, against the contractor under any other contract with the Purchaser, the payment of all moneys payable under the contract to the contractor including the security deposit shall be with-held till such claims of the Purchaser are finally adjudicated upon and paid by the Contractor.

16. Indemnity:

The Contractor shall warrant and be deemed to have warranted that all stores supplied against this contract are free and clean of infringement of any Patent, copyright or trade mark, and shall at all times indemnify the Purchaser against all claims which may be made in respect of the stores or infringement of any right protected by patent, Registration or design or Trade Mark and shall take all risk of accidents of damage which may cause a failure of the supply from whatever cause arising and entire responsibility for sufficiency of all the means used by him for the fulfillment of the Contract.

17. Arbitration:

In the event of any question, dispute or difference arising under these conditions contained in the Purchase Order in connection with this contract, (except as to any matters the decision of which is specially provided for by these conditions) the same shall be referred to the sole arbitration of the Head of Office or of some other person appointed by him. It will be no objection that the arbitrator is a Government servant, that he had to deal with matter to which the contract relates or that in the course of his duties as a Government servant he has expressed views on all or any or any of the matters in dispute or difference. The award of the arbitrator shall be final and binding on the parties of this contract.

- a) If the arbitrator be the Head of Office (i) in the event of his being transferred or vacating his office by resignation or otherwise, it shall be lawful for his successor - in office either to proceed with the reference himself, or to appoint another person as arbitrator, or (ii) in the event of his being unwilling or unable to act for any reason, it shall be lawful for the Head of Office to appoint another person as arbitrator, or,
- b) If the arbitrator be a person appointed by the Head of Office:
In the event of his dying, neglecting or refusing to act, or resigning or being unable to act, for any reason, it shall be lawful for the Head of Office either to proceed with the reference himself or to appoint another person as arbitrator in place of the outgoing arbitrator.

Subject as aforesaid, "The Arbitration and Conciliation Act 1996 and the rules thereunder and any statutory modifications thereof or the time being in force shall be deemed to apply the arbitration proceedings under this clause. The Arbitrator shall have the power to extend with the consent of the Purchaser and the Contractor the time for making and publishing the award. The venue of arbitration shall be the place as purchaser in his absolute discretion may determine. Work under the Contract shall, if reasonably possible continue during Arbitration Proceedings.

18. Counter Terms and Conditions of Supplies:

Where counter terms and conditions/printed cyclostyled conditions have been offered by the supplier, the same shall not be deemed to have been accepted by the Purchaser, unless specific written acceptance thereof is obtained.

19. Security for Purchaser's Materials:

Successful tenderer will have to furnish in the form of a bank guarantee or in and other form as called for by the purchaser towards adequate security for the materials/property provided by the purchaser for the due execution of the contract.

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