Dear Sirs,

Separate Sealed TWO PART tenders are invited from accredited manufacturers / suppliers / agents for the supply of the following equipments:

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Tender No.</th>
<th>Item Description</th>
<th>Qty/ Nos.</th>
<th>Cost of Tender (Rs.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>2015002775</td>
<td>ANECHOIC CHAMBER</td>
<td>1 No.</td>
<td>500+VAT @5% (525/-)</td>
</tr>
</tbody>
</table>

Specifications:

- Parent building: 9.45 m × 8.0 m × 4.5m-6.0 m (L×W×H, tapered height width wise), the vendor should clearly mention the achievable dimension of the anechoic chamber.

- Frequency of operation: 1 GHz to 18 GHz

- Measurement criterion: Antenna measurement criterion: Indoor far-field anechoic chamber.

- Detailed block diagram (indicating the dimensions) of the chamber with all the components and accessories need to be supplied. The block diagram should clearly tell the location of quiet zone with proper dimension.
• Shielding effectiveness:
  Min. -100 dB at 1 GHz to 18 GHz for plane wave in accordance with international specifications EN 50147-1 or IEEE 299.
  Vendor should achieve and demonstrate the shielding effectiveness for the specified frequency of operation.

• Quietness level in the quiet zone for antenna measurements should be as follows:

<table>
<thead>
<tr>
<th>Frequency (GHz)</th>
<th>Antenna Gain</th>
<th>Specified Quiet Zone performance</th>
<th>Guaranteed Quiet Zone Reflectivity (To be Provided by vendor)</th>
<th>Guaranteed Ripple on Amplitude (To be Provided by vendor)</th>
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<tbody>
<tr>
<td></td>
<td>Transmit Antenna (dB)</td>
<td>Receive Antenna (dB)</td>
<td>Reflectivity TL=4.0m (dB)</td>
<td>Spherical Quiet Zone Diameter (m) (always in far field)</td>
</tr>
<tr>
<td>1</td>
<td>13</td>
<td>13</td>
<td>-40</td>
<td>0.75</td>
</tr>
<tr>
<td>2</td>
<td>15</td>
<td>15</td>
<td>-50</td>
<td>0.55</td>
</tr>
<tr>
<td>10</td>
<td>22</td>
<td>22</td>
<td>&lt;-50</td>
<td>0.25</td>
</tr>
<tr>
<td>18</td>
<td>24</td>
<td>24</td>
<td>&lt;-50</td>
<td>0.20</td>
</tr>
</tbody>
</table>

The vendors are asked to provide: Guaranteed Quiet Zone Reflectivity & Guaranteed Ripple on Amplitude within the quiet Zone as per table no 1 at the time of budgetary quote. The separation of transmitter and receiver antenna has to be provided.

(i) Quiet zone parameter need to be validated according to the table no1 given in specification up to 18 GHz. The vendor should support the quiet zone parameters with proper simulation results. The vendors are asked to submit the simulation results in support of their provided quiet zone parameters with clearly mentioning the simulation set up.

(ii) Reflectivity level measurements within quite zone shall be carried out using their test equipments, standard antennas, test fixtures at 3 measurement distances, 4 frequencies, and 2 polarizations in presence of IIST Person. Proposed frequencies are 1.0 GHz, 4.0 GHz, 11 GHz, 18 GHz.

• Accessories for the shielded structure:
• Metallic shielded swing door of clear size, 1.2 x 2.0m (W x H). Shielding effectiveness as mentioned above should be achieved and demonstrated on the door also. The door should come with proper lever actuation.

• 18 GHz Cut-off waveguide honeycomb air vents for inlet and outlet air conditioned air (330 mm x 330mm mm sized 04 Nos or appropriate). Honey comb air vents shall be equipped with flanges so that they can be easily interfaced to HVAC ducts or fan ventilation.

• Raised floor of height at least 130mm should be provided inside chamber over the shielding panels. All cables must be routed under the raised floor and connection box to be provided at two locations inside chamber.

• Power distribution inside the chamber is done through Power line filter, 02 Nos. 01 Phase, 02 Line, 240 Volt, 32 A, 50Hz. Insertion loss should be 100dB from 150kHz to 18GHz. Should be compliant to MIL-STD-220 and MIL-STD-285. Test report of the filter needs to be supplied for
each filter. Any additional filter for proper operation of positioner system to be supplied by vendor.

- RF suppressed EMI free Halogen/LED lighting fixtures, qty-4 (or as appropriate nos.) shall be provided to ensure atleast 300 lux illumination. “Test in Progress” and “Emergency Exit” Signal lamps for display purpose need to be provided.

- Appropriate sized access panel under raised floor, to be provided having 04 Nos N(F) to N(F) connectors and 04 nos SMA (F) to SMA (F) connectors, D type connectors (02 Nos 50 pin (M), wall mounted). General purpose feed through tube (atleast 100mm diameter) for passing any cable with 18GHz shielded cover lid to be provided.

- RF shielding material for anechoic chamber must be galvanized steel construction using PAN type shielding, bolted structure made out of 2mm thick steel sheet, zinc galvanization on both the side of the sheet.

- Absorber type : RF and magnetic absorbers with fire retardant meeting the specifications as per NRL-USA-8093 STD complying tests 1,2 & 3, DIN 4102 class B2, ISO 11925-2 with zero halogen means be provided and to achieve above quietness levels. Provision of 10 sqm Walk-on absorber. Power handling capability of these absorbers is 1.5 kW/sqm. Average life is 20 years. Test report of absorber performance should be provided. The vendor should clearly mention the dimension of the absorbers which is going to be used to meet the specification of the quiet zone reflectivity. The absorber reflectivity should be as per MIL STD 461E. Absorber reflectivity should be less than -40 dB for 1 – 18 GHz.

- Details of positioner: Automatic antenna positioner.

  Polarization Positioner:

  - Single axis polarization (roll, 0° to 360°)
  - Rotary joint up to 18 GHz
  - Maximum load capacity: 20 Kg
  - Range: 360°
  - Accuracy: ± 0.2 deg Speed: 30 rpm with full load

  Receiving antenna (AUT) Positioner requirement:

  - Azimuth and elevation positioner
  - Motorized polarization positioner (0° to 360°)
  - Rotary joint up to 18 GHz
  - Maximum load capacity: 40 Kg
  - Range for azimuth: 360°
  - Range for elevation: +90° to -90°
  - Accuracy: ± 0.2 deg (Both azimuth and elevation)
  - Speed: 2 rpm with full load
  - Limit switch for the positioner

- Positioner Controller: The positioner controller for the purpose of controlling the positioner inside the chamber has to be provided. Max. Number of control axis is 4. The positioner should come with a motion control software. The vendors asked to provide the details of the motion control software.

- Details of Antenna pattern measurement software need to be provided. The full compatibility
(2D/3D measurement, Gain, 3dB/10 dB beam width, SLL, Beam peak, Null, F/B ratio etc. Volumetric 3D and color map on sphere, real time display, dual polarization measurement with RF switch control, antenna efficiency analysis and CP analysis, Excell/ASCII export) and capability (Agilent 8530, 8720, 8753, PNA and PNA X) of the software need to be clarified. The vendor is asked to clarify how the antenna pattern measurement software is integrated with the positioner controller. The vendor needs to clarify the software in details and it’s technical features about Data acquisition / Data Analysis and Data presentation. Since antenna pattern measurement is a real time measurement, the vendor should clearly mention how they are going to correlate between position control software and pattern measurement software. The vendor should also clearly mention how they are going to generate the 3D pattern of the antenna with proper documentation. PC for software will be supplied by IIST.

- Acceptance Test Procedure:
  - Testing of absorbers: as per IEEE STD 1128 – 1998 upto 18 GHz (Factory test report from 1 – 18 GHz to be supplied)
  - Quietness level per free space VSWR Method (Should be validated by third party)

- Low Loss RF cable: Ultra Low loss RF cable (10 m, 4 Nos.) with insertion loss better than 1 dB/m @18 GHz should be provided.

- Power Amplifier for 1-18 GHz (1-4 GHz, 4-8 GHz, 8-18 GHz) Gain: 37dB, P1dB: 4.5W(min), 5.5W(nom) must be supplied. Maximum output power is 5 W. The vendors are asked to quote this item as optional with separate price listing.

- Transmit and Calibration Antenna: Standard gain horn antennas covering the entire frequency range (1 – 18 GHz) Gain >13.5dB@1 – 1.2GHz & >15dB@1.2 – 18GHz, VSWR<1.5, Linear Polarization, Gain Uncertainty level<±0.5dB@1 - 2.6GHz & <±0.3dB@2.6 - 18GHz. The vendors are asked to provide the interface (mounting flange) compatible with the positioner.

- The installed chamber performance, including shielding and absorber should have a warranty of minimum five years.

- The detailed data sheet and model numbers of each deliverable must be clearly mentioned. If the product is indigenous, the proper installation and performance certificate from earlier installation site/center/agency need to be supplied. Also, the vendor is asked to give a demo showing the product meeting the specification at IIST.

- All the demonstration and validation of the chamber has to be made by third party at free of cost and all the necessary equipments for validation have to be provided by the vendor. The third party evaluation of the chamber needs to be organized by the vendor.

- Vendor has to give compliance to the fact they have to test a standard antenna and measure all its parameters and validate with the available standard results. To show the overall facility performance, vendor shall bring a calibrated reference antenna along with its results and carry out the radiation pattern measurement of Reference Antenna at 1.0 GHz, 10 GHz & 18 GHz at proposed chamber. The reference antenna measured results at IIST will be compared against the reference antenna’s known results. Vendor shall take the corrective actions for observed deviations and residual deviations shall be technically evaluated between IIST and vendor mutually. The vendor needs to clarify the accuracy level in measuring these antenna parameters specifically radiation pattern (Co & Cross), Gain as per table No 2.
Table No: 2  Anechoic Chamber Performance specifications

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Parameters</th>
<th>Specifications</th>
<th>Vendor’s compliance</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Frequency</td>
<td>1.0 to 18.0 GHz</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Quiet Zone Size</td>
<td>Specified in table no 1</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
| 3      | Quiet Zone reflectivity performance | -40 dB or better @ 1.0 GHz  
|        |                                   | -50 dB or better @ 2.0 GHz to 18 GHz             |                     |         |
| 4      | Accuracies                        |                                                     |                     |         |
|        | Peak Gain                         | ≤ ± 0.5 dB                                         |                     |         |
|        | Side – Lobe                       | ≤ ± 1.0 dB @ -30 dB Signal Level                   |                     |         |
|        | Cross Polarization                | ≤ ± 2.0 dB @ -40 dB Signal Level                   |                     |         |
| 6      | Absorber power handling           | 1.5 Kw/m²                                          |                     |         |
| 7      | Absorber’s shelf life             | 20 years                                            |                     |         |

- The vendor should provide validation of the chamber in the fifth year of warranty to demonstrate the proper working of the chamber. This should be quoted as a separate item.
- Vendors should have experience in establishing such a facility in India and abroad. Vendors shall provide evidence and details that demonstrate that they have proven experience in design, manufacturing, installation and testing of the components for this project including absorber, RF shielded enclosure, RF shielded doors, power line filters and waveguide vents.
- It is entirely vendor’s responsibility to arrange any required accessories or instruments or mounting mechanical fixtures or system for the installation or demonstration of the chamber. IIST will not support anything during the installation and validation of the chamber.
- Vendors are asked to quote the price of each deliverables separately.
- Tendering mode should be two part tender mode.
- List of deliverables:
  - Anechoic chamber
  - Absorbers
  - Positioners
  - Positioner Controller
  - Pattern measurement software
  - Pannel
  - Light
  - Low loss cable
  - Power line filter
  - Power Amplifiers
  - Standard gain Amplifiers
## Compliance Sheet for Anechoic Chamber

<table>
<thead>
<tr>
<th>Sr. No</th>
<th>Specification</th>
<th>Compliance</th>
</tr>
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<tbody>
<tr>
<td>1</td>
<td>Parent building: 9.45 m × 8.0 m × 4.5m-6.0 m (L×W×H, tapered height width wise), the vendor should clearly mention the achievable dimension of the anechoic chamber.</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Frequency of operation: 1 GHz to 18 GHz</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Measurement criterion: Antenna measurement criterion: Indoor far-field anechoic chamber</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Detailed block diagram (indicating the dimensions) of the chamber with all the components and accessories need to be supplied. The block diagram should clearly tell the location of quiet zone with proper dimension.</td>
<td></td>
</tr>
</tbody>
</table>
| 5      | Shielding effectiveness:  
  - Min. -100 dB at 1 GHz to 18 GHz for plane wave in accordance with international specifications EN 50147-1 or IEEE 299. Vendor should achieve and demonstrate the shielding effectiveness for the specified frequency of operation. |   |
| 6      | Quietness level in the quiet zone for antenna measurements should be as follows: |   |
|        | **Frequency (GHz)** | **Antenna Gain** | **Specified Quiet Zone performance** |
|        | Transmit Antenna (dB) | Receive Antenna (dB) | Reflectivity TL=4.0m (dB) | Spherical Quiet Zone Diameter (m) (always in far field) | Guaranteed Quiet Zone Reflectivity (To be Provided by vendor) | Guaranteed Ripple on Amplitude (To be Provided by vendor) |
| 1      | 13 | 13 | -40 | 0.75 |   |
| 2      | 15 | 15 | -50 | 0.55 |   |
| 10     | 22 | 22 | <-50 | 0.25 |   |
| 18     | 24 | 24 | <-50 | 0.20 |   |
|         |   |   |   |   |   |
| 7      | Quiet zone parameter need to be validated according to the table no1 given in specification up to 18 GHz. The vendor should support the quiet zone parameters with proper simulation results. The vendors are asked to submit the simulation results in support of their provided quiet zone parameters with clearly mentioning the simulation set up. |   |
| 8      | Reflectivity level measurements within quite zone shall be carried out using their test equipments, standard antennas, test fixtures at 3 measurement distances, 4 frequencies, and 2 polarizations in presence of IIST Person. Proposed frequencies are 1.0 GHz, 4.0 GHz, 11 GHz, 18 GHz. |   |
| 9      | Metallic shielded swing door of clear size, 1.2 x 2.0m (Wx H). Shielding effectiveness as mentioned above should be achieved and demonstrated on the door also. The door should come with proper lever actuation |   |
| 10     | 18 GHz Cut-off waveguide honeycomb air vents for inlet and outlet air conditioned air (330 mm x 330mm mm sized 04 Nos or appropriate.). Honey comb air vents shall be equipped with flanges so that they can be easily interfaced to HVAC ducts or fan ventilation |   |
| 11     | Raised floor of height at least 130mm should be provided inside chamber over the shielding panels. All cables must be routed under the raised floor and connection box to be provided at two locations inside chamber. |   |
| 12     | Power distribution inside the chamber is done through Power line filter, 02 Nos. 01 Phase, 02 Line, 240 Volt, 32 A, 50Hz. Insertion loss should be 100dB from 150kHz to 18GHz. Should be compliant to MIL-STD-220 and MIL-STD-285. Test report of the filter needs to be supplied for each filter. Any additional filter for proper operation of positioner system to be supplied by vendor |   |
RF suppressed EMI free Halogen/LED lighting fixtures, qty-4 (or as appropriate nos.) shall be provided to ensure atleast 300 lux illumination. “Test in Progress” and “Emergency Exit” Signal lamps for display purpose need to be provided

Appropriate sized access panel under raised floor, to be provided having 04 Nos N(F) to N(F) connectors and 04 nos SMA (F) to SMA (F) connectors, D type connectors (02 Nos 50 pin (M), wall mounted). General purpose feed through tube (atleast 100mm diameter) for passing any cable with 18GHz shielded cover lid to be provided

RF shielding material for anechoic chamber must be galvanized steel construction using PAN type shielding, bolted structure made out of 2mm thick steel sheet, zinc galvanization on both the side of the sheet

Absorber type : RF and magnetic absorbers with fire retardant meeting the specifications as per NRL-USA-8093 STD complying tests 1,2 & 3, DIN 4102 class B2, ISO 11925-2 with zero halogen means to be provided and to achieve above quietness levels. Provision of 10 sqm Walk-on absorber. Power handling capability of these absorbers is 1.5 kW/sqm. Average life is 20 years. Test report of absorber performance should be provided. The vendor should clearly mention the dimension of the absorbers which is going to be used to meet the specification of the quiet zone reflectivity. The absorber reflectivity should be as per MIL STD 461E. Absorber reflectivity should be less than -40 dB for 1 – 18 GHz

Details of positioner: Automatic antenna positioner.

**Polarization Positioner:**
- Single axis polarization (roll, 0° to 360°)
- Rotary joint up to 18 GHz
- Maximum load capacity: 20 Kg
- Range: 360°
- Accuracy: ± 0.2 deg
- Speed: 30 rpm with full load

**Receiving antenna (AUT) Positioner requirement:**
- Azimuth and elevation positioner
- Motorized polarization positioner (0° to 360°)
- Rotary joint up to 18 GHz
- Maximum load capacity: 40 Kg
- Range for azimuth: 360°
- Range for elevation: +90° to -90°
- Accuracy: ± 0.2 deg (Both azimuth and elevation)
- Speed: 2 rpm with full load
- Limit switch for the positioner

Positioner Controller: The positioner controller for the purpose of controlling the positioner inside the chamber has to be provided. Max. Number of control axis is 4. The positioner should come with a motion control software. The vendors asked to provide the details of the motion control software

Details of Antenna pattern measurement software need to be provided. The full compatibility (2D/3D measurement, Gain, 3dB/10 dB beam width, SLL, Beam peak, Null, F/B ratio etc, Volumetric 3D and color map on sphere, real time display, dual polarization measurement with RF switch control, antenna efficiency analysis and CP analysis, Excel/ASCII export) and capability (Agilent 8530, 8720, 8753, PNA and PNA X) of the software need to be clarified. The vendor is asked to clarify how the antenna pattern measurement software is integrated with the positioner controller. The vendor needs to clarify the software in details and it’s technical features about Data acquisition / Data Analysis and Data presentation. Since antenna pattern measurement is a real time measurement, the vendor should clearly mention how they are going to correlate between position control software and pattern measurement software. The vendor should also clearly mention how they are going to generate the 3D pattern of the antenna with proper documentation. PC for software will be supplied by IIST.

Acceptance Test Procedure:
- Testing of absorbers: as per IEEE STD 1128 – 1998 upto 18 GHz (Factory test report from 1 - 18 GHz to be supplied)
- Quietness level per free space VSWR Method (Should be validated by third party).

Low Loss RF cable: Ultra low loss RF cable (10 m, 4 Nos.) with insertion loss better than 1 dB/m @18 GHz should be provided

Power Amplifier for 1-18 GHz (1-4 GHz, 4-8 GHz, 8-18 GHz) Gain: 37dB, PldB: 4.5W(min), 5.5W(nom) must be supplied. Maximum output power is 5 W. The vendors are asked to quote this item as optional with separate price listing.

Transmit and Calibration Antenna: Standard gain horn antennas covering the entire frequency range (1 – 18 GHz) Gain >13.5dB@1 - 1.2GHz & >15dB@1.2 – 18GHz, VSWR<1.5, Linear Polarization, Gain Uncertainty level<±0.5dB@1 - 2.6GHz & <±0.3dB@2.6 - 18GHz. The vendors are asked to provide the interface (mounting flange) compatible with the positioned.

The installed chamber performance, including shielding and absorber should have a warranty of minimum five years.

The detailed data sheet and model numbers of each deliverable must be clearly mentioned. If the product is indigenous, the proper installation and performance certificate from earlier installation site/center/agency need to be supplied. Also, the vendor is asked to give a demo showing the product meeting the specification at IIST
All the demonstration and validation of the chamber has to be made by third party at free of cost and all the necessary equipments for validation have to be provided by the vendor. The third party evaluation of the chamber needs to be organized by the vendor vendor has to give compliance to the fact they have to test a standard antenna and measure all its parameters and validate with the available standard results. To show the overall facility performance, vendor shall bring a calibrated reference antenna along with its results and carry out the radiation pattern measurement of Reference Antenna at 1.0 GHz, 10 GHz & 18 GHz at proposed chamber. The reference antenna measured results at IIST will be compared against the reference antenna’s known results. Vendor shall take the corrective actions for observed deviations and residual deviations shall be technically evaluated between IIST and vendor mutually. The vendor needs to clarify the accuracy level in measuring these antenna parameters specifically radiation pattern (Co & Cross), Gain as per table No 2.

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<td></td>
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| 3       | Quiet Zone reflectivity performance | -40 dB or better @ 1.0 GHz  
-50 dB or better @ 2.0 GHz to 18 GHz |                     |         |
| 4       | Accuracies                  |                                             |                     |         |
|         | Peak Gain                   | ≤ ± 0.5 dB                                  |                     |         |
|         | Side – Lobe                 | ≤ ± 1.0 dB @ -30 dB Signal Level            |                     |         |
|         | Cross Polarization          | ≤ ± 2.0 dB @ -40 dB Signal Level            |                     |         |
| 6       | Absorber power handling     | 1.5 Kw/m²                                   |                     |         |
| 7       | Absorber’s shelf life       | 20 years                                    |                     |         |

The vendor should provide validation of the chamber in the fifth year of warranty to demonstrate the proper working of the chamber. This should be quoted as a separate item.

Vendors should have experience in establishing such a facility in India and abroad. Vendors shall provide evidence and details that demonstrate that they have proven experience in design, manufacturing, installation and testing of the components for this project including absorber, RF shielded enclosure, RF shielded doors, power line filters and waveguide vents.

It is entirely vendor’s responsibility to arrange any required accessories or instruments or mounting mechanical fixtures or system for the installation or demonstration of the chamber. IIST will not support anything during the installation and validation of the chamber.

Vendors are asked to quote the price of each deliverables separately

Tendering mode should be two part tender mode

List of deliverables:

- Anechoic chamber
- Absorbers
- Positioners
- Positioner Controller
- Pattern measurement software
- Pannel
- Light
- Low loss cable
- Power line filter
- Power Amplifiers
- Standard gain Amplifiers
Commercial terms and Conditions Tender No. 201500277501 dated 12.10.2015

1. **General Requirements:**

1.1 Detailed Catalogue/ Data Sheet of the quoted item.
1.2 Clientele List
1.3 Performance Letter from the Clients.
1.4 *Detailed Compliance Sheets for Anechoic Chamber are to be attached along with Technical Bids for evaluation. Without detailed Compliance sheet, your offer shall summarily reject.*

2. **SPECIAL INSTRUCTIONS TO TENDERERS**

2.1 The bidder is required to submit quotation for the entire scope in *TWO PART* viz, Technical and commercial bid and price bid separately. The first cover shall contain the technical and commercial details along with the format of price quotation without the price superscribing in the cover “Technical and Commercial-Tender No. 2015002775 Due on 15.12.2015. The second cover shall contain the prices superscribing in the cover price bid- Tender No. 2015002775 Due on 15.12.2015. All the covers will be sealed and insert in another cover superscribing the Tender No. 2015002775 Due on 15.12.2015 and submit immediately but not later than the due date mentioned against each tender. *If the tender is received after the due date and time, the same shall be summarily rejected.*

2.2 The cost of tender stated against each tender shall be submitted *along with Technical & Commercial bid by Demand Draft* drawn in favour of the Accounts Officer, IIST and payable at State Bank of India, Valiamala Trivandrum-695 547. *In case the Demand Draft is not enclosed with the quotation, the bid shall be summarily rejected.*

2.3 **Test certificate:** Wherever required, test certificates should be essential.

2.4 **Payment:** Our normal payment term shall be E-Transfer / within 30 days after supply/installation and acceptance for imports and indigenous respectively.

2.5 The installation and commissioning of equipment will be at our campus, Valiamala, Thiruvananthapuram-695 547. All pre-requisites such as foundation drawing, grouting and any consumables needed for carrying out the installation, if applicable, shall be separately mentioned in the technical bid.

2.6 Delivery terms shall be Ex-works/FOB/FCA for imports and FOR, Valiamala for indigenous equipments.
2.7  For import cargoes, the purchase order shall be drawn directly to the foreign supplier through agents in India. We have our own freight forwarder and customs clearance at Trivandrum shall be done by us.

2.8  All duties and taxes, if applicable shall be quoted separately.

2.10 Accreditation documents such as current income tax/sales tax clearance certificate, clientele list with previous experience in the similar lines of supply must be provided with documentary evidence), Performance Certificate, authorization for import, after sales support in India etc. shall be explained in detail with proof.

2.11 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 design or workmanship, contractor shall remedy 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 what respect the stores or any part thereof are faulty.

2.12 Earnest Money Deposit (EMD):- Interest free EMD to ensure the earnestness of the vendor in the participation of the procurement process to the tune of Rs.6,00,000/- by Demand Draft drawn in favour of the Accounts Officer, IIST, Valiamala, Trivandrum may be enclosed with Technical & Commercial bid sealed cover. The EMD will be refunded to the unsuccessful tenderers within 30 days after placement of Purchase Order.

2.13 Security Deposit:- Interest free Security Deposit @ 10% of the value of Purchase Order shall be payable by successful vendor for satisfactory execution of the Purchase Order.

2.14 Performance Bank Guarantee equivalent to 10% of order value shall be submitted by the Vendor for Warranty obligation.

2.15 Liquidated Damages: The period of completion indicated shall be the essence of the contract. In the event of delayed date of completion, the liquidated damages @ 0.5% per week or part thereof subject to a maximum of 10% of the contract value shall be recovered.

2.16 Force Majeure: During the continuance of the contract, should a part or whole of the items covered by this contract be delayed in delivery due to reasons of force majeure condition which shall include lockouts, strikes, riots, civil commotions, fire, flood, windstorm, explosion, labour disturbance, act of any Govt. or any agency, judicial action, sabotage act of civil disobedience, act of public enemy, technical failure, accidents,
acts of God and war, stoppage of deliveries by Govt. etc, each party undertakes to advise the other as soon as it becomes a way of the circumstance of such force majeure, so that action under the provisions of this contract can be mutually reviewed and agreed upon between contractor and IIST. If the force majeure condition extended over a period of six months, both the parties of the contract shall mutually discussed and arrived at an agreement for the continuation/ termination of the contract forthwith.

2.17 **Arbitration:** Dispute if any shall be settled mutually, failing which, it will be referred to a one-man arbitrator appointed by Director, IIST in accordance with the Arbitration and Conciliation Act, 1996 and any alteration/modifications thereof, whose decision shall be final and binding on both the parties.

2.18 **After Sales Service Support:** The stock availability of spares and consumables for a minimum period of 5 years for up keeping the equipment shall be guaranteed to avoid obsolescence of systems.

2.19 **AMC:** The charges towards Annual Maintenance Contract (Comprehensive/Non- Comprehensive) beyond the normal warranty period may be quoted separately as option.

2.20 IIST reserves the right to either accept/reject any tender/s without assigning any reason/s whatsoever.

2.21 **Separate quotations shall be submitted for each tender along with the tender fee by demand draft.**

3. **Terms & Conditions of Tender Form No. DOS PM:20, Form No. DOS PM:22 & Form No. DOS PM:23 as per attachment.**

(M.B Subash Chandran)
Sr. Purchase & Stores Officer
For and on behalf of Registrar, IIST