



**GLOBAL TENDER**

**PART II**

Tender Notice No. : 09/06-07  
Case No. LASTEC/FE610-102/06-07

To

The President of India  
Through Director  
Laser Science & Technology Centre  
Metcalfe House, Delhi – 110054 (India)

Dear Sir,

I/We agree to furnish required supplies/services as detailed in the Techno-Commercial Bid (Part IV) or such portions thereof as you may specify in the Acceptance of Tender/Supply Order at the prices given in the Price Bid (Part V) in accordance with the General Terms and Conditions (Part III) governing the contract/supply order enclosed hereto duly accepted on receipt of order for the same.

I/We agree to hold this offer open until \_\_\_\_\_ and shall be bound to supply/commission/erect the equipment and dispatch the same within the specified period.

I/We agree to supply and commission/erect the equipment and complete the whole of the work and hand over to the purchaser within the period of \_\_\_\_\_ weeks, from the date of receipt of an intimation from you regarding acceptance of this tender/receipt of supply order.

**The Parts II, III, IV and V of Tender Form are returned herewith duly completed.**

Station : ( )  
Date : Signature of Tenderer  
with Office Stamp  
Name & Address

Station: ( )  
Date : Signature of witness  
Name & Address

**(To be completed and returned. Sign each page and put seal)**

**GENERAL TERMS AND CONDITIONS FOR GLOBAL TENDER**

**PART III**

**1. Preparation of Tender:**

- i) **The complete tender form (pages 2 - 11) should be returned intact whether you are quoting for any item or not.** Pages should not be detached but when items are not being tendered for, the corresponding space should be defaced by mentioning 'not quoting'.
- ii) In the event of space on the tender form being insufficient for the required purpose, additional pages may be added; pages must be numbered consecutively, should bear the tender reference number and be fully signed by you (the supplier).

**2. Signing of Tender:**

- a) The tender is liable to be ignored if complete information is not given therein regarding the particulars, data, specifications asked for in the Techno-Commercial offer (Part IV) at Schedule of Requirements. Specific attention must be paid to the delivery dates, technical specification, and also the general conditions of contract at Part III and other conditions mentioned at Part IV and Part V.
- b) Individual signing the tender or other documents connected with a contract must specify whether he signs as:
  - i) A 'sole proprietor' of the firm or constituted attorney of such sole proprietor.
  - ii) A partner of the firm if it be a partnership, in which case he must have authority to refer to arbitration disputes concerning the business of the partnership either by virtue of the partnership agreement or a power of attorney.
  - iii) Constituted attorney of the firm if it is a Company.

**NB:**

- a) In case of (ii) above a copy of the partnership agreement or a general power of attorney and in either case attested by a Notary Public, should be furnished to this office, or an affidavit on stamped paper of all the partners admitting execution of the partnership agreement or the general power of attorney, should be furnished.
- b) In case of partnership firms, where no authority to refer disputes concerning the business of the partnership has been conferred on any partner, every partner of the firm must sign the tender and all other related documents.
- c) A person signing the tender form or any documents forming part of the contract on behalf of another shall be deemed to warranty that he has authority to bind such other and if, on inquiry, it appears that the persons so signing had no authority to do so, the purchaser may, without prejudice to other civil and criminal remedies cancel the contract and hold the signatory liable for all costs and damages.

**3. Delivery of Tender:** The original copy of the tender form (pages 2 - 11) is to be enclosed in two separate envelopes, first envelope containing Part II, III, and IV and marked as "**Techno-Commercial bid**" and another envelope containing only Part V marked as "**Price bid**". The two envelopes should be sealed and should bear address of this office, tender notice no, due date and time. The two envelopes should be put in third envelope and addressed to **the Director, LASTECH, Metcalfe House, Delhi-110054 (INDIA)** marked with our tender notice no., Case No. and due date. **Right is reserved to ignore any tender which fails to comply with the above instructions.**

**4. You may give any of your commercial term, if required in your techno-commercial offer only, and price quotation should contain only price.**

**(To be completed and returned. Sign each page and put seal)**

5. Validity of Bid: **120 days from the date of Tender Opening.**
6. The Director, LASTEC is not responsible for non-receipt of tender document / offer due to postal delay / loss in transit.
7. **Latest Hour for Receipt of Tender:** Unless otherwise specified in the Invitation to tender (Part I), your tender must reach this office not later than 1400 hours on the date of opening of the tender. Tenders sent by hand should be put in the Tender Box at this office not later than 1400 hours on the due date.
8. **Period for which the offer will remain open:**
  - i) Firms tendering should note the period for which it is desired that their offers should remain open for acceptance. **If the day up to which the offer is to remain open being declared closed holiday for Govt. offices, the offer shall remain open for acceptance till the next working day.**
  - ii) Quotations qualified by such vague and indefinite expressions such as 'Subject to immediate acceptance'; 'Subject to prior sale' will not be considered.
9. Unsolicited quotations/quotations received late or improperly sealed or with incomplete marking or with unattested overwriting/corrections in the quotation documents are liable to be rejected. **Fax quotation is likely to be rejected.**
10. **Opening of Tenders:** The firm shall be at liberty to be present or authorise a representative to be present at the opening of the tender at the time and date as specified in the schedule. The name and address of the representative who would be attending the opening of the tender on behalf of the firm should be indicated in the tender. Please also state the name and address of permanent representative, if any. **For two bid system only Techno-Commercial offer will be opened on the day specified for opening.**
11. No correspondence/discussions/visits whatsoever will be entertained on the subject unless specifically called by this office after opening the tenders for technical discussions/ price negotiations. Any violation of this will render the quotations invalid and the firm is liable to be blacklisted.
12. **Right of Acceptance:** This office does not pledge itself and reserves to itself the right of accepting the whole or any part of the tender or portion of the quantity offered and the firm shall supply the same at the rate quoted. Director reserves the rights to place order for full quantity or part thereof as considered necessary. The firm shall be at liberty to tender for the whole or any portion or to state in the tender that the rate quoted shall apply only if the entire quantity is taken from the firm.
13. Director reserves the right to call for techno-commercial/price negotiations. The company should depute competent representative for such discussion/negotiations whenever called for and he shall be competent to take on the spot decisions. **For two bid cases, only techno-commercial bid will be opened on the date and time of opening.**
14. **Payment terms: Will be finalised at the time of TPC for which you will be requested to attend.**
15. **Transit Insurance: Yes, where required.**
16. **Communication of Acceptance:** Acceptance of tender by the purchaser will be communicated by express letter of acceptance/telex or a formal letter of 'Acceptance of Tender'. In cases where acceptance is communicated by telegram or cases where acceptance is communicated by telegram or Express letter, the formal Acceptance of Tender will be forwarded to the firm as soon as possible but the instructions contained in the telegram /telex/FAX or Express letter should be acted upon immediately.

**(To be completed and returned. Sign each page and put seal)**

17. **SECURITY:** Any information/material/document supplied in connection with this enquiry/likely order is classified. You are required not to disclose/copy to jeopardise security. Drawings/specifications sent along with this letter should be returned along with your quotation or regret letter.
18. **Registration: Registration is mandatory for Indian suppliers. If the tendering firm is not registered with this Lab/Estt. or any other DRDO Lab/Estt, they are required to seek registration. For details please write to Director LASTEC. Vendors in their own interest must complete registration formalities to become eligible for placing supply orders and future enquiries.** Registration number allotted by this laboratory or any other DRDO Lab/Estt or proof of registration with another Govt. Deptt., if any to be mentioned on the quotation.

**Unregistered Indian Vendors** must submit EMD in the form of demand draft in a separate sealed cover alongwith price-bid.

19. Items supplied are subject to inspection and acceptance and the supplier should collect rejected items at his cost.
20. **AGENTS / AGENCY COMMISSION**

The seller confirms and declares to the Buyer that the Seller is the original manufacturer of the stores referred to in this contract and **has not engaged any individual or firm, whether Indian or foreign whatsoever, to intercede, facilitate or in any way to recommend to the Government of India or any of its functionaries, whether officially or unofficially, to the award of the contract to the Seller;** nor has any amount been paid, promised or intended to be paid to any such individual or firm in respect of any such intercession, facilitation or recommendation. The Seller agrees that if it is any way incorrect or if at a later stage **it is discovered by the Buyer that the Seller has engaged any such individual / firm, and paid or intended** to pay any amount, gift, reward, fees, commission or consideration to such person, party, firm or institution, whether before or after the signing of this contract, the Seller will be liable to refund that amount to the Buyer. The Seller will also be debarred from entering into any Supply Contract with the Government of India for a minimum period of five years. **The Buyer will also have a right to consider cancellation of the contract either wholly or in part, without any entitlement or compensation to the Seller who shall in such event be liable to refund all payments made by the Buyer in terms of the contract along with interest at the rate of 2% per annum above the LIBOR rate.** The Buyer will also have the right to recover any such amount from any contracts concluded earlier with the Govt. of India.

21. **PENALTY FOR USE OF UNDUE INFLUENCE**

The Seller undertakes that he has not given, offered or promised to give, directly or indirectly any gift, consideration, reward, commission, fees, brokerage or inducement to any person in service of the Buyer or otherwise in procuring the Contract or forbearing to do or for having done or forborne to do any act in relation to the obtaining or execution of the Contract or any other Contract with the Government for showing or forbearing to show favour or disfavour to any person in relation to the contract or any other Contract with the Government. Any breach of the aforesaid undertaking by the Seller or any one employed by him or acting on his behalf (whether with or without the knowledge of the Seller) or the commission of any offence by the Seller or anyone employed by him or acting on his behalf, as defined in Chapter IX of the Indian Penal Code, 1860 or the Prevention of Corruption Act, 1947 or any other Act enacted for the prevention of corruption shall entitle the Buyer to cancel the Contract and all or any other contracts with Seller and recover from the Seller the amount of any loss arising from such cancellation. A decision of the Buyer or his nominee to the effect that a breach of the undertaking has been committed shall be final and binding on the Seller.

Giving or offering any gift, bribe or inducement or any attempt to any such act on behalf of the Seller towards any officer/employee of the Buyer or to any other person in a position to influence the decision of the Buyer, directly or indirectly or any attempt to influence any officer/employee of the Buyer for showing any favour in relation to this or any other contract, shall render the Seller to such liability / penalty as the Buyer may deem proper, including but not limited to termination of the contract, imposition of penal damages, forfeiture of the Bank Guarantee and refund of the amounts paid by the Buyer.

**(To be completed and returned. Sign each page and put seal)**

**22. ACCESS TO THE BOOKS OF ACCOUNTS**

In case it is found to the satisfaction of the Buyer that the Seller has engaged an Agent or paid commission or influenced any person to obtain the contract as described in clauses relating to Agents/Agency commission and penalty for use of undue influence, the Seller, on a specific request of the Buyer shall provide necessary information/inspection of the relevant financial document/information.

23. Please inform the Director in writing whether the owner of the firm or any of their partners / employees has close relations working with any DRDO Lab / Estt. This is for record only.

(Signature of Tender issuing authority)

For Director  
For & on behalf of the President of India

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Tender Notice No.	:	09/06-07	Case No.	LASTEC/FE610-102/06-07
Full Address	:			
Fax No.	:			
Tele No.	:			
Signature of Tenderer	:			
Name in Block Letters	:			
Office Stamp	:			
Station	:			
Date	:			

**(To be completed and returned. Sign each page and put seal)**

**GLOBAL TENDER  
SCHEDULE OF REQUIREMENTS**

**TECHNO-COMMERCIAL BID  
PART IV**

1. Tender Notice No.: 09/06-07 Case No. LASTEC/FE610-102/06-07.
2. Name of tenderer :
3. Due date & due time : \_\_\_\_\_ 4. Opening date & time: \_\_\_\_\_
5. The tender shall remain valid for acceptance for 120 days, from the date of tender opening.
6. EMD : EMD **Enclosed\* / Not Enclosed.** (Strike out whichever not applicable).  
(\*Applicable to Unregistered Vendors. **Please refer Para 18 in Part III**)
7. Schedule of Requirements:

S. No.	Description & nature Supplies / Services	Qty required	Place & delivery dates	Specifications (Attach additional sheets, drawings etc, if necessary)
	<u>Equipment :</u>  <u>Accessories :</u> 1. 2. 3. 4. 5.  <u>Optional :</u>  <u>Spares :</u>			
Taxes , Duties , Additional Charges, etc.**		* Please indicate applicability/Acceptability ( 4 )		
* ST/CST		Applicable ( )	Not Applicable ( )	
* Central Excise Duty (CED)		Applicable ( )	Not Applicable ( )	
* CED Exemption Certificate		Applicable ( )	Not Applicable ( )	
* Packing and forwarding		Applicable ( )	Not Applicable ( )	
* Custom D Exemption		Applicable ( )	Not Applicable ( )	
* CD Exemption Certificate		Applicable ( )	Not Applicable ( )	
* Installation / Commissioning cost if any		Applicable ( )	Not Applicable ( )	
* Any other charges		Applicable ( )	Not Applicable ( )	
* End use Certificate		Applicable ( )	Not Applicable ( )	
* Installation Requirement if any		Applicable ( )	Not Applicable ( )	

Enclose additional sheets if needed.

\* Please enclose brochures of products.

\*\* Terms applicable to Indian / Foreign Vendors, as applicable, may be specified.

**(To be completed and returned. Sign each page and put seal)**

**CONDITIONS FOR TECHNO-COMMERCIAL BIDS****TECHNICAL**

1. Give brief description of item/equipment/material with accessories. Items offered should conform to BIS (ISI) specifications or as explicitly stated. **In case specifications offered are different, separate comparative technical specifications sheet shall be attached with details such as S. No., specifications offered, deviations if any,** and remarks. Any product brief, test certificates available may be enclosed. Samples may be enclosed or dispatched.
2. **List of spares, if applicable should be attached.**
3. **Any optional, if offered, be provided with their full technical details including their use and advantage.**

**COMMERCIAL**

1. **The normal payment terms are 100 % through Letter of Credit/Sight Draft with 10% Bank guarantee for the warranty period. The LCs covering 100 % net FOB (gateway airport) value of supply order will be opened or as decided in the TPC Meeting.**
2. **100% payment against 10% Bank Guarantee for the warranty period through DCDA (R&D) or as decided in the TPC Meeting.**
3. **All the banking charges in India will be borne by LASTEC and outside India will be borne by the beneficiary.**
4. This Organisation is exempted from payment of customs duty under notification No. 39/96 & 10/97.excise duty under notification No. However, prices should be quoted clearly indicating Customs / Excise duties. If agreed, the necessary exemption certificate may be provided. This exemption is for the final product only (**applicable to Indian Bidders**).
5. **Give details of installation and commissioning except price which will be only in price bid (if applicable).**
6. Warranty/guarantee required is for **minimum one year**. Indicate warranty/guarantee duration offered
7. Delivery desired is within 12 weeks from placing of supply order or of the LC opening. Specify your delivery period.
8. In case of delayed supplies, liquidated damages at the rate of **0.5 percent** per week subject to a maximum of **5 percent** will be levied.
9. In case equipment offered requires maintenance after the expiry of the warranty, please indicate approximate cost of maintenance and also availability of local support or otherwise.
10. Mode of Dispatch : Rail / Road/ Sea / Air. Please specify.

(Signature of Tender issuing authority)

For Director  
For & on behalf of the President of India

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Tender Notice No.	: 09/06-07.	Case No.	LASTEC/FE610-102/06-07
Full Address	:		
Fax No.	:		
Tele No.	:		
Signature of Tenderer	:		
Name in Block Letters	:		
Office Stamp	:		
Station	:		
Date	:		

**(To be completed and returned. Sign each page and put seal)**

**GLOBAL TENDER  
PRICE BID  
PART V**

**(This page is to be filled by Indian Bidders Only- Quote in Indian Rupees)**

1. Tender Notice No.: 09/06-07 Case No. LASTEC/FE610-102/06-07.
2. Name of tenderer :
3. Due date & due time : \_\_\_\_\_ 4. Opening date & time: \_\_\_\_\_
5. The tender shall remain valid for acceptance for 120 days, from the date of tender opening.
6. \*Tender cost Rs. \_\_\_\_\_, DD No. \_\_\_\_\_ dt. \_\_\_\_\_
7. Amount of EMD Rs. \_\_\_\_\_, DD No. \_\_\_\_\_ dt \_\_\_\_\_
8. Rates for items given in Techno-commercial offer at Schedule of Requirements are as follows. Adhering to the Format given below is a Pre-requisite for considering our quotations:

S No.	Brief description of complete equipment / item / material with all accessories.**	A/U	Qty Offered	Unit Price (INR)	Total Cost (INR)
i)	<u>Equipment :</u>  <u>Accessories :</u> 1. 2. 3. 4.  <u>Spares Needed :</u>  <u>Optional :</u>				
ii)	Customs duty, if any				
iii)	Excise duty, if any				
iv)	Sale tax				
v)	Installation and commissioning cost, if any				
vi)	Training cost, if any				
vii)	<b>Total cost (in figures &amp; words)</b>				
viii)	Octroi, if applicable, necessary certificate will be issued.				
ix)	Any other				
x)	<b>Delivery Period (120 days required) Pl. Specify.</b>				
Xi)	Validation of quotation (min. 120 days from the date of opening of tenders)				
xii)	<b>Terms of payment : Pl. Specify (100% through DCDA against 10% Bank Guarantee as applicable or decided during TPC Meeting)</b>				

\* Applicable for Tender forms downloaded from DRDO Web Site.  
EMD demand draft in a separate sealed cover alongwith price-bid.

**(To be completed and returned. Sign each page and put seal)**

**GLOBAL TENDER  
PRICE BID  
PART V**

**(This page is to be filled by Foreign Bidders Only –Preferably in their own currency)**

1. Tender Notice No : 09/06-07                      Case No.    LASTEC/FE610-102/06-07.
2. Name of tenderer :
3. Due date & due time : \_\_\_\_\_ 4. Opening date & time: \_\_\_\_\_
5. The tender shall remain valid for acceptance for 120 days, from the date of tender opening.
6. \*Tender cost Rs. \_\_\_\_\_, DD No. \_\_\_\_\_ dt. \_\_\_\_\_
7. Amount of EMD Rs. \_\_\_\_\_, DD No. \_\_\_\_\_ dt \_\_\_\_\_
8. Rates for items given in Techno-commercial offer at Schedule of Requirements are as follows. Adhering to the Format given below is a Pre-requisite for considering our quotations:

S No.	Brief description of complete equipment / item / material with all accessories.	A/U	Qty Offered	Unit Price	Total Cost
i)	<u>Equipment :</u>  <u>Accessories :</u> 1. 2. 3. 4.  <u>Spares Needed :</u>  <u>Optional :</u>				
ii)	Packing and forwarding to nearest Air / Sea Port				
	<b>Total FOB Value</b>				
iii)	Installation / Commissioning Charges, if any				
iv)	Freight Charges, (as applicable)				
v)	Any other				
vi)	<b>Total CIF Value (in figure and words)**</b>				
vii)	<b>Delivery Period (120 days required) Pl. Specify.</b>				
viii)	Validation of quotation (min. 120 days from the date of opening of tenders)				
ix)	Bankers full address				
x)	Terms of payment : Through L/C or Sight Draft <b>Against 10% Bank Guarantee as applicable or decided during TPC Meeting)</b> Please Specify				
Xi)	<b>Any exemption certificate or other certificate needed (pl. specify)</b>				

\* Applicable for Tender forms downloaded from DRDO Web Site.

\*\*CIF cost may also be indicated besides FOB value. However Order is likely to be placed on FOB basis.

**(To be completed and returned. Sign each page and put seal)**

**DRDO MM 12**  
**OTHER CONDITIONS FOR PRICE BIDS\***

1. No unilateral revision in price will be admissible.
2. Rates should only be quoted in the accounting units (A/U) mentioned in this enquiry. Rates must be quoted clearly on free delivery basis at **LASTEC** and total value is also indicated in words.
3. Price must be quoted in Indian Rupees only on FOR LASTEC basis with customs duty / excise duty excluded as necessary exemption certificate will be issued as indicated. Taxes and other levies excluded price to be quoted and percentage of the same to be indicated separately.
4. In case any of the subheads are included in the total cost, the same should be specified. Any exemption of duties/taxes required should be indicated.
5. All Banking charges inside India will be borne by Lastec and outside India will be borne by the beneficiary.
6. Separate list should be attached where required in the same format giving details of each item and cost. However, total cost mentioned at S. No. 7(vii) above.
7. Any optional indicated in techno-commercial bids must be priced separately.
8. In case spares/accessories are applicable, their list and price should be clearly indicated separately.
9. Price:
  - i) The prices quoted must be net per unit shown in the schedule and must include all packing and delivery charges. Refunds on account of returnable packages (if any) are to be separately specified. Prices and refunds must be clearly shown in figures and words in Indian currency.
  - ii) The price must be stated for each item separately. The percentage of reduction, in the total price for the entire demand should also be quoted; should an order to that extent be placed with you.
  - iii) If excise duty or any other extra charges are applicable, the same must be specifically stated. In the absence of any such stipulation, it will be presumed that the prices include all such charges and no claim for the same will be entertained.
  - iv) The price quoted in the tenders should be exclusive of sales tax (and should be clearly stated to be so) which will be paid by the purchaser, if legally leviable at the rate ruling on the date of supply as specified in the Acceptance of Tender.
10. **Packing:** Unless a method of packing is indicated in the specification or in the Schedule of packing which the contractor proposed to employ must be described in the Schedule of Tender form. Contractors are at liberty to quote for additional alternative sizes and description of packs and these must be described in the Schedule to Tender.
11. Any other

\* Conditions applicable to Indian and Foreign Vendors as the case may be.

(Signature of Tender issuing authority)

For Director  
For & on behalf of the President of India

Tender Notice No.	: 09/06-07.	Case No.	LASTEC/FE610-102/06-07
Full Address	:		
Fax No.	:		
Tele No.	:		
Signature of Tenderer	:		
Name in Block Letters	:		
Office Stamp	:		
Station	:		
Date	:		

**(To be completed and returned. Sign each page and put seal)**

**APPENDIX – A**  
**Case No. LASTEC/FE610-102/06-07**  
**(SCHEDULE OF REQUIREMENTS)**

**Technical specifications of Laser Target Designator**

**QUANTITY : 1 No.**

THE FOLLOWING ARE THE ESSENTIAL & NECESSARY SPECIFICATIONS OF LASER TARGET DESIGNATOR

**1. Laser Trans-Receiver Unit:**

- |     |                            |   |  |
|-----|----------------------------|---|--|
| 1.  | Type of Laser              | : | Nd:YAG, typical energy 60 mJ   |
| 2.  | Peak Power                 | : | $\geq 5$ MW  |
| 3.  | Pulse Width                | : | 20 nsec nominal  |
| 4.  | Divergence                 | : | $\leq 0.3$ mrad (80%)  |
| 5.  | Type of Target             | : | 10% reflectivity at 1064 nm  |
| 6.  | Designation range          | : | 5 Km (For visibility of 23.5 Km)                                       |
| 7.  | Range                      | : | Maximum : 10 Km (For visibility of 23.5 Km)<br>Minimum : 200 m         |
| 8.  | Ranging accuracy           | : | $\pm 5$ m  |
| 9.  | PRF                        | : | 20 pps   |
| 10. | Coding frequency           | : | 6 Codes near 20 Hz   |
| 11. | Duty cycle                 | : | 12 sec. ON /15 sec. OFF for 6 cycles followed by rest period of 5 min. |
| 12. | Shot counter               | : | To count no. of cycles fired from laser.                               |
| 13. | Interface                  | : | RS 422 Serial  |
| 14. | Dimensions (Transreceiver) | : | $\approx 350 \times 300 \times 180$ (in mm) Maximum                    |
| 15. | Weight                     |   |  |
|     | a. Transreceiver Unit      | : | 8 Kg. (Maximum)  |
|     | b. Power Supply            | : | 5 Kg. (Maximum)  |
| 16. | Input                      | : | 22- 32 Volts DC  |

**2. Day sight:**

- Magnification :  $7 \times \pm 5\%$
- Sight FOV :  $7^\circ \pm 5\%$
- Bore-sighting accuracy : 0.2 mrad  
(Laser/Sight)

**3. Digital Goniometer along with Tripod to carry the LTD payload:**

- |            |   |  |
|------------|---|--|
| Elevation  | : | 400 mils from Horizontal               |
| Azimuth    | : | $360^\circ$ (restricted due to cables) |
| Resolution | : | 1 mil                                  |

**4. Environmental Specifications:**

**1. Low Temperature**

- |                         |   |   |
|-------------------------|---|---|
| Storage Temperature     | : | $-30^\circ\text{C}$ , duration 4 hrs after stabilization of temp. |
| Operational Temperature | : | $-20^\circ\text{C}$ , duration 4 hrs after stabilization of temp. |

**2. High Temperature**

- |                   |   |   |
|-------------------|---|---|
| Storage Temp.     | : | $+70^\circ\text{C}$ , duration 4 hrs after stabilization of temp. |
| Operational Temp. | : | $+55^\circ\text{C}$ , duration 4 hrs after stabilization of temp. |

**3. Thermal Shock**

- |   |   |                          |
|---|---|--------------------------|
| : | : | 5 cycle of thermal shock |
|---|---|--------------------------|

Each cycle is comprising of the following

- i) Stabilize the chamber at  $-20^{\circ}\text{C}$
- ii) Hold for 3 hrs.
- iii) Transfer to chamber stabilized at  $55^{\circ}\text{C}$  within 5 minutes
- iv) Hold for 3 hrs
- v) Transfer to (i) within 5 minutes. This makes one cycle.

#### 4.Damp Heat test

: At  $40^{\circ}\text{C}$  and  $95\% \text{ RH} \pm 5\%$

- i) The temp and relative humidity of the chamber shall than be raised from lab temp to  $40^{\circ}\text{C} \pm 2^{\circ}\text{C}$  & not less than  $95\% \text{ RH}$  respectively over a period of not less than one hour.
- ii) The equipment shall be conditioned under these conditions for a period of 16 hrs.
- iii) During last 30 minutes of a period the equipment shall be switched ON and a performance check shall be carried out.
- iv) The temperature of chamber shall than be restored to a lab temp in not less than one hour. The equipment shall than be exposed to those conditions for a period of not less than 3 hrs. This procedure from (i) to (iv) completes one cycle.  
Total cycle = 3

#### 5.Bump Test

: 1000 bumps in carrying case of 40 g, 6 ms @ 2 to 4 bumps/sec.

#### 6.Sinusoidal Vibration

: Frequency : 5 Hz to 150 Hz

Disp :  $\pm 6$  mm peak acceleration: 2 g constant after  
Crossing frequency

Sweep rate : 1 octave/min.

No. of cycles: 5 cycles on each axis.

#### 7. Sealing

: Pressure of 0.17 Kg/Sq.cm. No leakage shall be observed during first 5 minutes.

#### **8.EMI/EMC Testing : As per MIL STD 461 C Clause CE03, CS06, RE02 and RS03.**

\*\*Note: Technical bids not accompanied by appropriate literatures/ Brochures of the product in support of the claimed specifications will be rejected

- Test report of environmental /EMI/EMC specifications to be enclosed.
- Warranty Required: Minimum of 1 Year
- Operating manuals/service & maintenance manuals to be provided.
- Post warranty support in terms of spares/ service of the equipment : minimum of 5 years required