

Ref: CL/PP/BID-22(06-07)

Date: 14-03-2007

Subject: SUPPLY OF INDUCED FAILURE TEST SET UP FOR GLS LAMPS FOR CL.

Dear Sirs,

Technical & Commercial Bids are invited for the supply of **INDUCED FAILURE TEST SET UP FOR GLS LAMPS**, in **separate SEALED** covers, which should reach the undersigned latest by 1700 h, on **04 April 2007**, at the following address.

Director & Head (Planning & Purchase)
BUREAU OF INDIAN STANDARDS
Central Laboratory
Plot No.20/9, Site-IV,
Sahibabad Industrial Area, Sahibabad,
Distt. Ghaziabad-201010 (U.P.)

- 2.The detailed specification of the above mentioned equipment(s)/item(s) are given in **Annex- I**
3. Terms and conditions of supply are given in **Annex-II**
4. The technical Bids shall be opened in the **Conference Hall**, of the Central Lab, at the address mentioned above at **1500 h on 05 April 2007** and in the presence of such tenderers or their duly authorized representatives, who may like to attend.
5. Please note that the envelopes containing Technical & Commercial Bids are sealed properly i.e. either wax sealed or with adhesive cello tape on both ends. **Unsigned Bids, Unsealed /stapled envelopes** and bids **without EMD** shall be summarily rejected. **No exemption** whatsoever for payment of EMD shall be accorded.
6. The specification and terms & conditions can also be downloaded from BIS Website – www.bis.org.in

Thanking you,

Encls.: **as above**

Yours faithfully,

Director & Head (Planning & Purchase)

**BUREAU OF INDIAN STANDARDS
CENTRAL LABRATORY
EQUIPMENT SPECIFICATION**

EQUIPMENT /SPECIFICATION CODE : ACE 07

NAME OF THE EQUIPMENT: APPARATUS FOR INDUCED FAILURE TEST

PROPOSED FOR BIS LABS : CL ELECTRICAL

TOTAL QUANTITY REQUIRED : One

Purpose : To carry out Induced Failure Test on GLS Lamps

Reference : Annex D of IS 15518 (Part 1) : 2004

Features :

1. The test arrangement for induced failure test shall be as per Annex D of IS 15518 (Part 1) : 2004.
2. It shall have a pulse generator capable of generating a pulse up to 5 KV and other features including safety cover which meet the requirements of Annex D of IS 15518 (Part 1):2004(Copy enclosed for reference) lamps having rated voltage from 200 to 250 volts.
3. It shall have a 2 channel Digital Storage Oscilloscope having minimum bandwidth of 100 MHz for calibration of the pulse and a compatible 1000X High Voltage Probe for measuring pulses up to 10 KV minimum. The oscilloscope shall have facility for external trigger input and connectivity to computer through suitable ports and software.
4. All parts of the system shall be compatible to each other to give the desired test parameters.
5. All the measuring equipments shall be calibrated from an NABL/ International approved laboratory traceable to National / International Standards.

Encls.: Annex D of IS 15518 (Part 1) : 2004

ANNEX D

(Clause 4.9)

INDUCED-FAILURE TEST

D-1 TEST CIRCUIT AND EQUIPMENT

D-1.1 The test circuit shown in Fig. D-1 shall consist of the following:

- A 50 Hz mains supply line whose voltage shall be the rated voltage of the lamps, within a -2 percent tolerance. The test voltage of a lamp with a voltage range marking shall be that voltage which is halfway between the range limits;
- Switch S ;
- Inductance L to bring the total inductance to the value specified in **D-2** *D-1.3 Annex 1*;
- Resistor R to bring the total resistance to the values specified in **D-2** *D-1.3 Annex 1*;
- Lampholder H which for B15 and B22 capped lamps shall have an earthed shell; and
- Fuse F with a rating not less than 25 A, for 220 V - 250 V lamps. For 100 V - 150 V lamps, 15 A (under consideration).

D-1.2 A safety cover shall be provided to cover the lamp in the test position.

D-1.3 The pulse generator shall be capable of giving a pulse, which meets the following characteristics, as measured across the test lamp (see Fig. D.2 and D-3):

- | | |
|---|--|
| — peak value (kV): | 2.9 to 3.1 for lamps with a rated wattage up to and including 100 W;
2.4 to 3.1 for lamps with a rated wattage higher than 100 W; |
| — width t_w (at 40 percent of peak value) (μ s): | 8 to 20 for lamps with a rated wattage up to and including 100 W;
10 maximum for lamps with a rated wattage higher than 100 W; |
| — rise time t_r (μ s): | 1 maximum; |
| — timing | $\phi = 70^\circ \pm 10^\circ$ |
| | (electrical degrees) |

NOTE — The peak value is measured from the zero voltage level (see Fig. D-3).

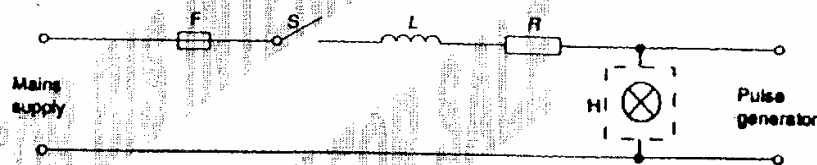


Fig. D-1

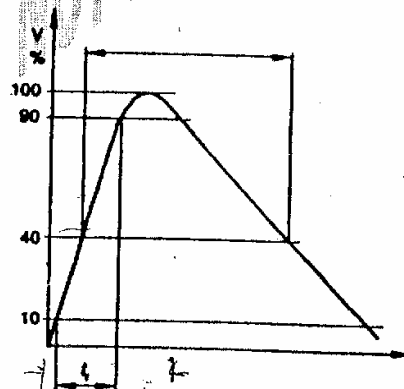


Fig. D-2

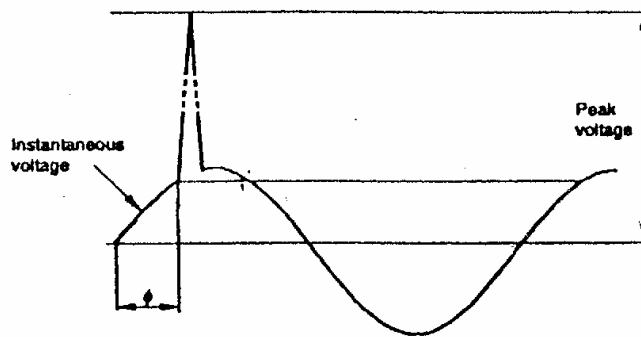


FIG. D-3

D-1.4 The inductance and resistance of the whole circuit, including the items of the various components in D-1.1 and including any fuse and all wiring, shall meet the following requirements:

- a) for lamp voltage ratings between 200 V and 250 V
 - resistance (Ω): 0.4 to 0.45
 - inductance (mH): 0.6 to 0.65
- b) for lamp voltage ratings between 100 V and 150 V
 - resistance (Ω): 0.3 to 0.35
 - inductance (mH): 0.6 to 0.65

D-2 TEST PROCEDURES

D-2.1 The lamp to be tested shall be inserted in the lampholder and the safety cover put in place.

D-2.2 The lamp shall be switched on applying line voltage only. At least 5 s later, a single high-voltage pulse is applied. If the lamp remains lit, the application of the pulse shall be repeated five times.

D-2.3 If the lamp still remains lit, it may be conditioned by being operated at an over-voltage for a period of calculated time equivalent to 60 percent of rated life (see H-2.3). It shall then be re-subjected to the high-voltage pulse set out in D-2.2.

The equivalent life shall be calculated in accordance with the following equation:

$$L_o = L \left(\frac{U}{U_o} \right)^n$$

where

L_o = life at rated voltage,

L = life at test voltage,

U_o = rated voltage,

U = test voltage, and

n = 13 for vacuum lamps and 14 for gas filled lamps.

D-3 CONDITIONING PROCEDURE

D-3.1 Conditioning by a Test House

Test houses are permitted to condition up to 10 percent over voltage. Any burnouts occurring during this conditioning shall be counted in the final assessment, provided the impedance limits are met.

D-3.2 Conditioning by the Manufacturer

Conditioning is permitted up to 30 percent over voltage. If the over voltage is greater than 10 percent or the test racks do not comply with the requirements, then burnouts occurring during the conditioning shall not be counted in the final assessment.

NOTE — The conditioning requirements for a test house are different from those of a manufacturer in order to ensure that a test house does not inadvertently put unrealistic stresses on the lamps during conditioning. On the other hand, they give the manufacturer the possibility of saving testing time and costs by using his detailed knowledge of the stresses his lamps can resist.

D-4 INSPECTION AND ASSESSMENT

After the test, each test lamp is examined. If either,

- a) the bulb is no longer intact, or
- b) the bulb is detached from the cap, or
- c) for bayonet caps only there is a short-circuit between either one of the contacts and the shell,

then the lamp is deemed to have failed the test and is counted as a non-conformity.

If the lamp remains lit after the test procedure specified in D-2.3, it is deemed to have passed.

ANNEX-II

TERMS & CONDITIONS

1. The BUREAU gives FIRST PREFERENCE in its purchase to goods bearing ISI CERTIFICATION MARK and second preference to those which conform to the relevant Indian Standard Specifications.
2. The delivery of the stores is required to be made within 30 days of receipt of order. If, it is not possible for you to effect delivery within the period, you are required to specify the date by which you can guarantee delivery of the stores.
3. The **Technical & Commercial Bids should be sealed and sent separately in sealed envelopes**. Such Bids shall remain valid for a period of **90 days** from the date of opening.
4. Quotations/Bids, qualified by indefinite expressions as “Subject to immediate acceptance, Subject to prior sale” etc. and incomplete quotations are liable to be summarily rejected.
5. The Bids should clearly give break-up of cost of each equipment. The rates quoted should separately indicate Basic Cost, Excise Duty, Sales Tax, P&F charges, Freight, Insurance, VAT etc. Rates quoted should specifically state Sales Tax, Excise Duty or any other taxes/charges. In absence of any such stipulation, it will be presumed that the prices include all such charges and no claim for the same shall be entertained. **Form C/D shall not be provided by BIS.**
6. Each tender document shall be accompanied with **EMD of 3% of cost of the equipment**. The demand draft for the EMD amount shall be drawn in favour of BUREAU OF INDIAN STANDARDS payable at Sahibabad/Ghaziabad. The sealed envelope containing EMD should be super scribed “**EMD**” and **stapled separately with the envelope containing the commercial Bids. No disclosure of EMD in Tech. Bid.**
7. BIS shall pay **90%** of the cost after satisfactory installation & commissioning and the Balance of **10% as contract performance security** would be paid after expiry of warranty period. However other terms of payment for contract performance security can also be considered, if so stated clearly.
8. The **warranty period** of the equipments **may be stated clearly** in the Technical Bids. In case the **same is not found stated**, it will be presumed that **warranty period as mentioned in their respective specifications of the tender document (if specified), is applicable**
9. Please mention clearly in the Technical Bids regarding address of **arrangements for service/repair** of the equipments are available. Suppliers having such arrangements near Delhi/Ghaziabad would be preferred.
10. All goods received would be subjected to inspection, by BIS before or after receipt or commissioning (as applicable) and the decision of BIS shall be binding. Rejected items/goods/stores shall be removed by the supplier at his own cost and risk, within 30 days of receipt of notice for the removal of such goods, and no liability, whatsoever, on the Bureau shall be attached for the rejected/disapproved goods/items/stores.
11. The Bureau reserves the right to accept or reject summarily and or all tenders in whole or part without assigning any reason whatsoever.
12. The Bureau takes no responsibility for delay, loss or non-receipt of tenders after dispatch.
13. **In case of non compliance with the Terms & Conditions of the contract, the Bureau reserves its right to:**
 - a) Cancel/rescind/revoke the order if supply is not made in time and is not conforming to the required specification.
 - b) Impose Penalty up to 1% of the total value of the order for a delay of every seven days after the schedule date subject to the ceiling of a maximum of 10% of the total value of the order.
14. All questions, disputes or difference arriving under, out of or in connection with this tender enquiry shall be subject to the exclusive jurisdiction of Delhi/ Ghaziabad Courts.