

## **SECTION– III (VOLUME-A)**

### **TECHNICAL SPECIFICATION FOR PORTABLE PRIMARY CURRENT INJECTION TESTING SET AGAINST TN: 2626**

#### **1.0 SCOPE:**

This specification covers the design, engineering, manufacture, assembly stage-testing, inspection and testing before supply of portable primary current injection test set complete with a pair of copper cable and clamps in light weight ventilated enclosure made steel sheet/ Aluminium / Wood or Poly Carbonate with detachable hinged lid suitable for outdoor site use.

#### **2.0 REQUIREMENT:**

The requirement of portable primary current injection test set is **16 sets**.

#### **3.0 STANDARDS APPLICABLE:**

The Instrument shall conform to relevant international industry standards and should be able to carry out the testing as per recommended practices.

#### **4.0 CLIMATIC CONDITIONS:**

The equipment to be supplied under the specification shall be suitable for satisfactory operation under the following tropical humid conditions:

- |     |  |                    |
|-----|--|--------------------|
| 1.  | Max. Temperature of air in shade                                   | : 50 Deg.C.        |
| 2.  | Max. Temperature of air under hot sun                              | : 60 Deg.C.        |
| 3.  | Min. Temperature of air in shade                                   | : (-5) Deg.C.      |
| 4.  | Max. relative humidity.  | : 95%              |
| 5.  | Av. Number of thunder storm days per Annum                         | : 40               |
| 6.  | Av. Number of dust storm days per Annum                            | : 150              |
| 7.  | Av. Number of rainy days per annum                                 | : 120              |
| 8.  | Av. Rain fall  | : 10 cm to 100 cm. |
| 9.  | Number of months during which tropical Monsoon conditions prevail. | :                  |
| 10. | Max. wind pressure   | : 195 Kg./Cm.Sq.   |
| 11. | Altitude above mean sea level (MSL)                                | : 200-1000 meter.  |

The atmosphere is to be considered as laden with industrial smoke / gas and dust in suspension during dry months. Fog, smoke and mild acids are also present. Heavy rainfall and lightning may also be present during the months from June to October.

#### **4.0. TECHNICAL PARAMETERS AND OTHER FEATURES:**

1. Input power – Mains single phase 230 V+/- 10% 50 Hz AC industrial 3 pin power socket with cable 5 mtr. Length provided with MCB protection.
2. Current Output – 0 - 200 Amp.  
0-400 Amp.  
2.0 KVA output
3. Duty hours – 10 minutes continuous / ON & OFF.
4. Application – The instrument should be direct reading type and shall be

capable of following measures.

AC Input Current  
AC Output Current

5. Time interval meter – Digital range 0-999 milli second.
6. Control – One knob control to vary outlet.
7. Display – The display of equipment shall be large LCD display.
8. The instrument shall display the following:-
  - i) Digital primary current resolution – 0.1 LCD display
  - ii) Digital voltage resolution – 0.1 LCD display
  - iii) Digital time interval.
  - iv) Digital secondary current resolution – 0.1 LCD display
9. Accuracy - +/-2% both for current and voltage meter.  
Temperature meter – operating 0-50 Deg.C.

#### 5.0 STANDARD / ASSOCIATED ACCESSORIES:

Leads & clamps – PVC insulated single core flexible copper cable suitable to carry 250 Amps. is to be supplied **in 2 Length of 6 mtr.** each along with copper alloy clamps suitable for **40 mm** opening to connect CT terminals & for the other end, suitable size thimble to connect with the test set. **(approx 40 sq mm)**

#### 6.0 CERTIFICATES:-

The type and model of testing set offered shall be calibrated from laboratories which are traceable to national / international Test House and as per relevant standards. The Bidder must furnish one set of manufacturer calibration & test certificates of the offered model and authorization letter along with bid. These calibration Certificates must not be older than three (3) Years as on the date of opening of bid. Bids without calibration Certificates and test certificates will not be accepted.

#### 7.0 TESTING SAMPLE:

All the bidders shall finish one sample of offered type of equipment one day prior by 05:00 P.M. to the date of opening of technical bid to the Purchaser for checking / testing the suitability in the fields / lab.

**8.0 DELIVERY SCHEDULE:** The delivery of ordered quantity should be completed in 4 months period from the date of receipt of purchase order including commencement period of 30 days.

#### 9.0 ADDITIONAL ORDER

Repeat orders for additional quantities, up to a maximum of 50% of original ordered value, may be placed by the Nigam, on the same rates, terms and conditions given in the contract.

10.0

**The weight of the Primary Injection Set should not be more than 20 kg.**

**GUARANTEED AND OTHER TECHNICAL PARTICULARS OF PORTABLE PRIMARY  
CURRENT INJECTION TESTING SET AGAINST TN-2626.**

<b>S. No.</b>	<b>Particulars</b>	<b>To be furnished by Bidder</b>
1	Maker's name & Address	
	Model	
2	Input Power	
3	Current Output	
4	Duty Hours	
5	Application	
6	Type of Display	
7	Whether equipment is able to display the following	
8	Digital primary current resolution- 0.1 LCD Display	
9	Digital voltage resolution-0.1 LCD Display	
10	Digital time interval meter	
11	Digital Secondary current resolution- 0.1 LCD display	
12	Accuracy	
13	Range of temperature meter	
14	Accessories	
15.	Weight of Unit	

**SECTION– III (VOLUME-B)**  
**TECHNICAL SPECIFICATION FOR PORTABLE SECONDARY CURRENT INJECTION TESTING SET AGAINST TN: 2626**

1. The basic function of the test set is to deliver an accurate level of AC current directly to the trip unit under test and to measure the pickup values & times required for the trip unit to trip. The test set shall also test pick up and time delays of the various protection functions by driving current into the trip unit on the secondary side of the current transformer circuit. The test set shall be with "Phase selector switch" used to select which phase of the trip-unit the test current is driven into. It shall select between phases R, Y and B or Ground Fault (Neutral).

The set should be as compact as possible in construction and dimensions should be such that it is convenient for transportation. It should withstand shock and vibration during transportation by road in jeep and shall have following technical features:-

S.No.	Item of specification	Particulars Required
1	Input	230 V $\pm$ 15% 1 Phase AC 50 Cycle $\pm$ 3%
2	Output	Two independently controlled adjustable outputs shall be available from the test set, one AC current and one AC/DC voltage. The AC/DC voltage 110 Volt with 2 Amp rating. The voltage output should be operated either simultaneously or independently from the current output. Output current Continuously adjustable in the following ranges: 0 to 20 A at 0 to 50 V AC
3	Ammeter	Digital, 0 – 50 Amp
4	Timer	Digital time interval meter having time measurement range 00.00 to 99.99 second with 100 of second resolution and class 1.0 accuracy with output current control switch.
5	Protection	Overload protection should be provided. Output burden of the set should not be less than 1000 VA.
6	Accessories	Flexible Copper test leads of adequate size shall be provided for 40 Amp., 10 minutes rating, 2 Nos of 5 meters length each.
7	Duty Cycle	5 minutes ON followed by 15 minutes OFF. Short time overloads should be possible.

**2. APPLICABLE STANDARDS:**

Unless otherwise modified in this specification, the Secondary Current Injection test sets shall comply with the following Indian Standards (latest version to the extent applicable):-

The test set will, in general, meet the requirements of the BS 4743 (1979), IEC 348 (1978) BS 5458 (1977) and IEC 414 (1973).

Equipments conforming to any other International Standard(s), which ensures equal or better quality than the standard(s) mentioned above will also be acceptable and in such case(s) the copy of Standards (English version) adopted should be provided.

**3. TESTING SAMPLE:**

All the bidders shall finish one sample of offered type of equipment one day prior by 05:00 P.M. to the date of opening of technical bid to the Purchaser for checking / testing the suitability in the fields / lab.

**4. QUANTITY TO BE PURCHASED: – 16 sets.**

**5. DELIVERY SCHEDULE:** The delivery of ordered quantity should be completed in 4 months period from the date of receipt of purchase order including commencement period of 30 days.

**6. ADDITIONAL ORDER:**

Repeat orders for additional quantities, up to a maximum of 50% of original ordered value, may be placed by the Nigam, on the same rates, terms and conditions given in the contract.

**GUARANTEED AND OTHER TECHNICAL PARTICULARS FOR SECONDARY CURRENT INJECTION TESTING SET AGAINST TN-2626.**

<b>S. No.</b>	<b>Particulars</b>	<b>To be furnished by Bidder</b>
1	a. Name & address of manufacturer	
	b. Manufacturer's address of works	
2	Make	
3	Type/Model	
4	Standard to which tester confirms	
	i Accuracy IS/IEC standard	
	ii Safety IS/IEC standard	
5	Display parameters(indicate details)	
6	Input voltage	
7	Output current	
8	Frequency	
9	Timer range, resolution & accuracy	
10	Details of Ammeter Type/accuracy	
11	Memory capacity	
12	Weight of test set	
13	Dimensions of test set	
14	Protection & safety measures provided	
15	Accessories with each test set	
16	Any other information – Duty Cycle	
	<b>Associated Software</b>	
1	Name & version of software	
2	Operating system on which the above software work	
3	System requirement for effective functioning of the S/W	
4	List of main features in the software	
5	Whether detailed literature of the software is enclosed with the offer for purchaser's safety.	