



# NABL

## National Accreditation Board for Testing and Calibration Laboratories

(An Autonomous Body under Department of Science & Technology, Govt. of India)

### **CERTIFICATE OF ACCREDITATION**

## **ELECTRONICS REGIONAL TEST LABORATORY (WEST)**

has been assessed and accredited in accordance with the standard

**ISO/IEC 17025:2005**

"General Requirements for the Competence of Testing & Calibration Laboratories"

for its facilities at

Plot No. F7&8, MIDC Area, Andheri (East), Mumbai, Maharashtra

in the discipline of

**ELECTRICAL TESTING**

(To see the scope of accreditation of this laboratory, you may also visit NABL website [www.nabl-india.org](http://www.nabl-india.org))

**Certificate Number** T-1440

**Issue Date** 18/12/2014



**Valid Until** 17/12/2016

This certificate remains valid for the Scope of Accreditation as specified in the annexure subject to continued satisfactory compliance to the above standard & the additional requirements of NABL.

Signed for and on behalf of NABL

N. Venkateswaran  
Program Manager

Anil Relia  
Director

Prof. Ashutosh Sharma  
Chairman



# रा.प्र.प्र.बो.

## राष्ट्रीय परीक्षण और अंशशोधन प्रयोगशाला प्रत्यायन बोर्ड

(विज्ञान एवं प्रौद्योगिकी विभाग, भारत सरकार के अधीन स्वायत्तशासी निकाय)

### प्रत्यायन प्रमाण-पत्र

## इलेक्ट्रॉनिकी क्षेत्रीय परीक्षण प्रयोगशाला (पश्चिम)

का मूल्यांकन और प्रत्यायन निम्न मानक के अनुसार

आई.एस.ओ./आई.ई.सी. 17025:2005

“परीक्षण एवं अंशशोधन प्रयोगशालाओं की सक्षमता की सामान्य अपेक्षाएँ”

## मुम्बई, महाराष्ट्र

में स्थित इसकी सुविधाओं के लिए

## विद्युत परीक्षण

के विषय क्षेत्र में किया गया।

(इस प्रयोगशाला के प्रत्यायन के विषय क्षेत्र की जानकारी एन ए बी एल वेबसाइट [www.nabl-india.org](http://www.nabl-india.org) से भी प्राप्त कर सकते हैं)

प्रमाण-पत्र संख्या प -1440

जारी करने की तिथि 18/12/2014



वैधता की तिथि 17/12/2016

यह प्रमाण-पत्र उपर्युक्त मानक तथा राष्ट्रीय परीक्षण और अंशशोधन प्रयोगशाला प्रत्यायन बोर्ड की अतिरिक्त अपेक्षाओं का निरंतर संतोषप्रद अनुपालन किए जाने पर अनुबंध में निर्दिष्टानुसार प्रत्यायन के क्षेत्र के लिए वैध रहेगा।

रा.प्र.प्र.बो. की ओर से हस्ताक्षरित

एन. वेंकटेश्वर

एन. वेंकटेश्वर  
कार्यक्रम प्रवक्ता

अनिल रेलिया

अनिल रेलिया  
निदेशक

आशुतोष शर्मा

प्रो. आशुतोष शर्मा  
अध्यक्ष



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S.No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
I	<b>MEASURING INSTRUMENTS – ELECTRICAL &amp; ELECTRONICS (STATIC) METERS</b>			
1.	AC Static Watthour Meters Class 1 & 2	Impulse voltage test	IS 13779:1999 (RA 2009) Cl.12.7.6.2	500 V to 6 kV
		Ac voltage Test	IS 13779:1999 (RA 2009) Cl.12.7.6.3	500 V to 5 kV
		Insulation resistance test	IS 13779:1999 (RA 2009) Cl.12.7.6.4	1 MΩ to 2 GΩ
		Limits of Error due to variation of current	IS 13779:1999 (RA 2009) Cl.11.1	10 V to 320 V 1 mA to 100 A 0.25 Lag to 0.8 Lead
		Test of meter constant	IS 13779:1999 (RA 2009) Cl.12.15	1 mA to 100 A
		Test of starting condition	IS 13779:1999 (RA 2009) Cl.12.14	10 V to 320 V
		Test of no-load condition	IS 13779:1999 (RA 2009) Cl.12.13	10 V to 320 V
		Test of ambient temp. Influence	IS 13779:1999 (RA 2009) Cl.12.12	10 °C to 100 °C
		Repeatability of error	IS 13779:1999 (RA 2009) Cl.12.17	10 V to 320 V 1 mA to 100 A 0.25 Lag to 0.8 Lead
		Test of influence Quantities/ Magnetic Influence Tests	IS 13779:1999 (RA 2009) Cl.12.11	0.5 mT to 0.2 T ACDC
		Test of power consumption	IS 13779:1999 (RA 2009) Cl.12.7.1	10 mW to 10 W 10 mVA to 20 VA
		Test of influence of supply voltage	IS 13779:1999 (RA 2009) Cl.12.7.2	10 V to 300 V

*Prachi*

Prachi Kukreti  
Convenor

*N. Venkateswaran*

N. Venkateswaran  
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S.No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
	AC Static Watthour Meters Class 1 & 2	Test of Influence of Short Time Over current	IS 13779:1999 (RA 2009) Cl.12.7.3	5 A to 3000 A
		Test of influence of self-heating	IS 13779:1999 (RA 2009) Cl.12.7.4	10 V to 320 V 1 mA to 100 A
		Test of influence of Heating	IS 13779:1999 (RA 2009) Cl.12.7.5	Upto 100 °C
		Test of immunity to earth fault	IS 13779:1999 (RA 2009) Cl.12.8	10-320 V
		Spring hammer test	IS 13779:1999 (RA 2009) Cl.12.3.3	0.2 Nm to 1.0 Nm
		Test of resistance to heat & fire	IS 13779:1999 (RA 2009) Cl.12.4	960 °C
		General and Constructional requirements	IS 13779:1999 (RA 2009) Cl.6	0.1 mm to 0.4 mm
		Marking of Meters	IS 13779:1999 (RA 2009) Cl.7	Qualitative
2.	Static Meters for Active Energy (Class 1 & 2)	Impulse voltage test	IEC 62052-11 Cl. 7.3.2	500 V to 6 kV
		Ac voltage Test	IEC 62052-11 Cl. 7.3.3	500 V to 5 kV
		Limits of Error due to variation of current	IEC 62053-21 Cl. 8.1	10 V to 320 V 1 mA to 100 A 0.25 Lag to 0.8 Lead
		Test of meter constant	IEC 62053-21 Cl. 8.4	1 mA to 100 A
		Test of starting condition	IEC 62053-21 Cl. 8.3.3	10 V to 320 V

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S.No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
	Static Meters for Active Energy (Class 1 & 2)	Test of no-load condition	IEC 62053-21 Cl. 8.3.32	10 V to 320 V
		Test of influence Quantities/ Magnetic Test	IEC 62053-21 Cl. 8.2	0.5mT to 0.2 T ACDC
		Test of power consumption	IEC 62052-21 Cl. 7.1	10 mW to 10 W 10 mVA to 20 VA
		Test of influence of supply voltage	IEC 62052-11 Cl. 7.1.2	10 V to 300 V
		Test of Influence of Short Time Over current	IEC 62053-21 Cl. 7.2	5 A to 3000 A
		Test of influence of self-heating	IEC 62053-21 Cl. 7.3	10 V to 320 V 1 mA to 100 A
		Test of influence of Heating	IEC 62052-11 Cl. 7.2	Upto 100 °C
		Test of immunity to earth fault	IEC 62052-11 Cl. 7.4	10 V to 320 V
		Spring hammer test	IEC 62052-11 Cl. 5.2.2.1	0.2 Nm to 1.0 Nm
		Test of resistance to heat & fire	IEC 62052-11 Cl. 5.9	960 °C
		General and Constructional requirements	IEC 62052-11 Cl. 5.1	0.1 mm to 0.4 mm
		Marking of Meters	IEC 62052-11 Cl. 5.12	Qualitative Test

  
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S.No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
3.	AC Static Watthour Meters Class 1 & 2	Impulse voltage test	CBIP 304:2008	
		Ac voltage Test	CBIP 304:2008 Cl. 5.4.6.2	500 V to 6 kV
		Insulation resistance test	CBIP 304:2008 Cl. 5.4.6.3	500 V to 5 kV
		Limits of Error due to variation of current	CBIP 304:2008 Cl. 5.4.6.4	1 MΩ to 2 GΩ
		Test of meter constant	CBIP 304:2008 Cl. 5.6.8	10 V to 320 V
		Test of starting condition	CBIP 304:2008 Cl. 5.6.6	1 mA to 100 A 0.25 Lag to 0.8 Lead
		Test of no-load condition	CBIP 304:2008 Cl. 5.6.5	1 mA to 100 A
		Repeatability of error	CBIP 304:2008 Cl. 5.6.4	10 V to 320 V
		Test of ambient temp. Influence	CBIP 304:2008 Cl. 5.6.9	10 V to 320 V
		Test of influence Quantities/ Magnetic Influence Tests	CBIP 304:2008 Cl. 5.6.3	10 °C to 100 °C
			CBIP 304:2008 Cl. 5.6.2	10 V to 320 V 1 mA to 100 A 0.5 mT to 0.27 T AC/DC
		Test of power consumption	CBIP 304:2008 Cl. 5.4.1	10 mW to 10 W 10 mVA to 20VA
		Test of influence of supply voltage	CBIP 304:2008 Cl. 5.4.2	Upto 300 V
		Test of Influence of Short Time Over current	CBIP 304:2008 Cl. 5.4.3	5 A to 300 A 50 A to 3000 A
		Test of influence of self-heating	CBIP 304:2008 Cl. 5.4.4	10 V to 320 V 1 mA to 100 A

  
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S.No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
	AC Static Watthour Meters Class 1 & 2	Test of influence of Heating	CBIP 304:2008 Cl. 5.4.5	Upto 100 °C
		Abnormal Voltage Condition	CBIP 304:2008 Cl. 4.4.7	Upto 260 V Upto 100 A
		Spring hammer test	CBIP 304:2008 Cl. 5.2.1	0.2 Nm to 1.0 Nm
		Test of resistance to heat & fire	CBIP 304:2008 Cl. 5.2.4	960 °C
		General and Constructional requirements	CBIP 304:2008 Cl. 4.2	0.1 mm to 0.4 mm
	Marking of Meters	CBIP 304:2008 Cl. 4.2.2.11	Qualitative Test	
4.	AC Direct Connected Static Prepayment Meters for Active Energy (Class 1 and 2)	Impulse voltage test	IS 15884:2010 Cl. 5.4.6.2	500 mV to 6 kV
		Ac voltage Test	IS 15884:2010 Cl. 5.4.6.3	500 V to 5 kV
		Insulation resistance test	IS 15884:2010 Cl. 5.4.6.4	1 MΩ to 2 GΩ
		Limits of Error due to variation of current	IS 15884:2010 Cl. 4.6.1	10 V to 320 V 1 mA to 100 A 0.25 Lag to 0.8 Lead
		Test of meter constant	IS 15884:2010 Cl. 5.6.5	1 mA to 100 A
		Test of starting condition	IS 15884:2010 Cl. 5.6.4	10 V to 320 V
		Test of no-load condition	IS 15884:2010 Cl. 5.6.3	10 V to 320 V
		Repeatability of error	IS 15884:2010 Cl. 5.6.7	10 V to 320 V 1 mA to 100 A 0.25 Lag to 0.8 Lead
		Test of influence Quantities/ Magnetic Influence Tests	IS 15884:2010 Cl. 4.6.2	0.5 mT to 0.2 T ACDC

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S.No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
	<b>AC Direct Connected Static Prepayment Meters for Active Energy (Class 1 and 2)</b>	Test of power consumption	IS 15884:2010 Cl. 5.4.1	10 mW to 10 W
				10 mVA to 20VA
		Test of influence of supply voltage	IS 15884:2010 Cl. 4.4.2 IS 15884:2010 Cl. 5.4.2	10 V to 320 V
		Test of Influence of Short Time Over current	IS 15884:2010 Cl. 5.4.3	5 A to 3000 A
		Test of influence of self-heating	IS 15884:2010 Cl. 5.4.4	10 V to 320 V 1 mA to 100 A
		Test of influence of Heating	IS 15884:2010 Cl. 5.4.5	Upto 100 °C
		Spring hammer test	IS 15884:2010 Cl. 5.2.1	0.2 Nm to 1.0 Nm
		Test of resistance to heat & fire	IS 15884:2010 Cl. 5.2.4	960 °C
5.	<b>AC Static Transformer Operated Watthour and VAR hour Meters Class 0.2S, 0.5S and 1.0 S</b>		IS 14697:1999 (RA 2004) edition 1.3 Cl.	
		Impulse voltage test	IS 14697:1999 (RA 2004) edition 1.3 Cl.12.7.6.2	500 V to 6 kV
		Ac voltage Test	IS 14697:1999 (RA 2004) edition 1.3 Cl.12.7.6.3	500 V to 5 kV
		Insulation resistance test	IS 14697:1999 (RA 2004) edition 1.3 Cl.12.7.6.4	1 MΩ to 2 GΩ
		Limits of Error due to variation of current	IS 14697:1999 (RA 2004) edition 1.3 Cl.11.1	10 V to 320 V 1 mA to 100 A 0.25 Lag to 0.8 Lead

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S.No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
	AC Static Transformer Operated Watthour and VAR hour Meters Class 0.2S, 0.5S and 1.0 S	Test of meter constant	IS 14697:1999 (RA 2004) edition 1.3 Cl.12.14	1 mA to 100 A
		Test of starting condition	IS 14697:1999 (RA 2004) edition 1.3 Cl.12.13	10 V to 320 V
		Test of no-load condition	IS 14697:1999 (RA 2004) edition 1.3 Cl.12.12	10 V to 320 V
		Test of ambient temp. Influence	IS 14697:1999 (RA 2004) edition 1.3 Cl.12.11	10 °C to 100 °C
		Repeatability of error	IS 14697:1999 (RA 2004) edition 1.3 Cl.12.16	10 V to 320 V 1 mA to 100 A 0.25 Lag to 0.8 Lead
		Test of influence Quantities/ Magnetic Influence Tests	IS 14697:1999 (RA 2004) edition 1.3 Cl.12.10	0.5 mT to 0.2 T ACDC
		Test of power consumption	IS 14697:1999 (RA 2004) edition 1.3 Cl.12.7.1	10 mW to 10 W 10 mVA to 20 VA
		Test of influence of supply voltage	IS 14697:1999 (RA 2004) edition 1.3 Cl.12.7.2	10 V to 320 V
		Test of Influence of Short Time Over current	IS 14697:1999 (RA 2004) edition 1.3 Cl.12.7.3	5 A to 3000 A
		Test of influence of self-heating	IS 14697:1999 (RA 2004) edition 1.3 Cl.12.7.4	10 V to 320 V 1 mA to 100 A
		Test of influence of Heating	IS 14697:1999 (RA 2004) edition 1.3 Cl.12.7.5	Upto 100 °C

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S.No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
	AC Static Transformer Operated Watthour and VAR hour Meters Class 0.2S, 0.5S and 1.0 S	Test of immunity to earth fault	IS 14697:1999 (RA 2004) edition 1.3 Cl.12.17	10 V to 320 V
		Spring hammer test	IS 14697:1999 (RA 2004) edition 1.3 Cl.12.3.3	0.2 Nm to 1.0 Nm
		Test of resistance to heat & fire	IS 14697:1999 (RA 2004) edition 1.3 Cl.12.4	960 °C
		General and Constructional requirements	IS 14697:1999 (RA 2004) edition 1.3 Cl.6	0.1 mm to 0.4 mm
		Marking of Meters	IS 14697:1999 (RA 2004) edition 1.3 Cl.7	Qualitative Test
6.	Static Meters for Active Energy (Class 0.2S and 0.5 S)		IEC 62053-22:2003 And IEC 62052-11:2003	
		Impulse voltage test	IEC 62052-11 Cl. 7.3.2	500 V to 6 kV
		Ac voltage Test	IEC 62052-11 Cl. 7.3.3	500 V- to kV
		Limits of Error due to variation of current	IEC 62053-22 Cl. 8.1	10-320 V/ 1 mA-100 A 0.25 Lag to 0.8 Lead
		Test of meter constant	IEC 62053-22 Cl. 8.4	1 Ma to 100 A
		Test of starting condition	IEC 62053-22 CL. 8.3.3	10 V to 320 V
		Test of no-load condition	IEC 62053-22 Cl. 8.3.32	10 V to 320 V
		Test of influence Quantities/ Magnetic Test	IEC 62053-22 Cl. 8.2	0.5 mT to 0.2 T ACDC

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	AC Static Transformer Operated Watthour and VAR hour Meters Class 0.2S, 0.5S and 1.0 S	Test of power consumption	IEC 62052-22 Cl. 7.1	10 mW to 10 W 10 mVA to 20 VA
		Test of influence of supply voltage	IEC 62052-11 Cl. 7.1.2	10 V to 320 V
		Test of Influence of Short Time Over current	IEC 62053-22 Cl. 7.2	5 V to 3000 V
		Test of influence of self-heating	IEC 62053-22 Cl. 7.3	10 V to 320 V 1 mA to 100 A
		Test of influence of Heating	IEC 62052-11 Cl. 7.2	Upto 100 °C
		Test of immunity to earth fault	IEC 62052-11 Cl. 7.4	10 V to 320 V
		Spring hammer test	IEC 62052-11 Cl. 5.2.2.1	0.2 Nm to 1.0 Nm
		Test of resistance to heat & fire	IEC 62052-11 Cl. 5.9	960 °C
		General and Constructional requirements	IEC 62052-11 Cl. 5.1	0.1 mm to 0.4 mm
		Marking of Meters	IEC 62052-11 Cl. 5.12	Qualitative Test
II.	<b>WIRING ACCESSORIES</b>			
1.	Electronic Fan regulator	Complete Type testing facility main listed below	IS 11037:1984	
		Temperature Rise test	IS 11037:1984 Cl. 9.3.1	1 °C to 50 °C
		Leakage Current	IS 11037:1984 Cl. 9.3.2	10 µA to 200 mA
		High voltage test	IS 11037:1984 Cl. 9.3.3	1500 VAC (nominal)
		Insulation resistance	IS 11037:1984 Cl. 9.3.4	1 MΩ to 1 TΩ

  
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	<b>Electronic Fan regulator</b>	Earthing Connection	IS 11037:1984 Cl. 9.3.5	At 25 AAC. 30 mV to 30 VAC
		Protection against Electric Shock	IS 11037:1984 Cl. 9.3.6	0.1 V to 240VAC 100 µA to 200mA
		Voltage Drop	IS 11037:1984 Cl. 6.7	0.1 V to 240 VAC
		Performance	IS 11037:1984 Cl. 7	Qualitative test 1 rpm to 5000 rpm
		Mechanical Strength	IS 11037:1984 Cl. 9.3.8	0.2 j to 1 j
		Creepage distance & clearance	IS 11037:1984 Cl. 9.3.9	0.1 mm to 10 mm
		Mechanical Endurance test	IS 11037:1984 Cl. 9.3.10	Qualitative
<b>III.</b>	<b>POWER STABILIZERS AND UPS- UNINTERRUPTED POWER SYSTEM</b>			
<b>1.</b>	<b>UPS, Inverter</b>		IEC 62040-3:2011 Edition 2.0. Cl.	
	Efficiency measurement of UPS & Inverter		IEC 62040-3:2011 Edition 2.0. Cl. 6.4.1.6	100 VA to 10 kVA 5 % to 99 %
	Dynamic performance (Transient response)		IEC 62040-3:2011 Edition 2.0. Cl. 6.4.2.11.1 IEC 62040-3:2011 Edition 2.0. Cl. 6.4.2.11.2	2 % to 100 %
	Overload protection		IEC 62040-3:2011 Edition 2.0. Cl. 6.4.2.8	100 % to 150 % of rated load.
	Line Regulation		IEC 62040-3:2011 Edition 2.0. Cl. 6.4.1.1	0.5 % to 10 %

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<b>Laboratory</b>	<b>Electronics Regional Test Laboratory (West), Plot No. F 7&amp; 8, MIDC Area, Andheri (East), Mumbai, Maharashtra</b>		
<b>Accreditation Standard</b>	<b>ISO/IEC 17025: 2005</b>		
<b>Discipline</b>	<b>Electrical Testing</b>	<b>Issue Date</b>	<b>18.12.2014</b>
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S.No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
	UPS, Inverter	Load Regulation	IEC 62040-3:2011 Edition 2.0. Cl. 6.4.2.1 to Cl. 6.4.2.4	0.5 % to 10 %
2.	Photovoltaic system power conditioners	Efficiency	IEC 61683:1999 Edition 1.	40 % to 99 %
<b>IV. MEASURING INSTRUMENTS –ELECTRICAL &amp; ELECTRONICS INSTRUMENTS &amp; TRANSDUCERS</b>				
1.	Direct acting indicating analogue electrical measuring instruments. -Ammeter -Voltmeter	High voltage test	IS 1248 (Part 1, Part 2 & Part 9): 2003 IS 1248 (Part 1, Part 2 & Part 9): 2003 Cl. 7.1 (Part 1) IEC 60051 (Part 1, Part 2 & Part 9)	500 V to 5 kV
		Intrinsic error	IS 1248 (Part 1, Part 2 & Part 9): 2003 Cl. 2 (part 9) IEC 60051 (Part 1, Part 2 & Part 9)	50 mV to 1000V DC 50 mV to 750 VAC 1mA to 20 A DC 10 mA to 20 A AC
		Variation due to influence quantities	IS 1248 (Part 1, Part 2 & Part 9): 2003 Cl. 5.2 (Part 1) IEC 60051 (Part 1, Part 2 & Part 9)	50 mV to 1000V DC 50 mV to 750 VAC 1mA to 20 A DC 10 mA to 20 A AC
		Overshoot	IS 1248 (Part 1, Part 2 & Part 9): 2003 Cl. 7.2.1 IEC 60051 (Part 1, Part 2 & Part 9)	50 mV to 1000 V AC/DC
		Response time	IS 1248 (Part 1, Part 2 & Part 9): 2003 Cl. 7.2.2 IEC 60051 (Part 1, Part 2 & Part 9)	2 s to 10 s

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S.No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
	<b>Direct acting indicating analogue electrical measuring instruments.</b> -Ammeter -Voltmeter	Short term Overload	IS 1248 (Part 1, Part 2 & Part 9): 2003 Cl. 7.4.2 IEC 60051 (Part 1, Part 2 & Part 9)	100 mV to 2000 V AC/DC
		Continues Overload	IS 1248 (Part 1, Part 2 & Part 9): 2003 Cl. 7.4.1 IEC 60051 (Part 1, Part 2 & Part 9)	50 mV to 1200 V DC 50 mV to 1000 V AC 1 mA to 20 A DC 10 mA to 20 A AC
		Self Heating	IS 1248 (Part 1, Part 2 & Part 9): 2003 Cl. 7.3 IEC 60051 (Part 1, Part 2 & Part 9)	50 mV to 1000 V DC 50 mV to 750 V AC 1mA to 20 A DC 10 mA to 20 A AC
		Deviation from zero	IS 1248 (Part 1, Part 2 & Part 9): 2003 Cl. 7.6 IEC 60051 (Part 1, Part 2 & Part 9)	Upto 1000 V AC/DC Upto 100 A AC/DC
<b>2.</b>	<b>Digital measuring Instruments for measuring and controls</b> -Ammeter -Voltmeter	<b>Intrinsic Error Test</b>	IS 13875(Part 1, Part 2 & Part 3): 1993 Cl. 4.2	50 mV to 1000 V DC 50 mV to 750 V AC 1mA to 20 A DC 10 mA to 20 A AC
		Voltage DC		
		Voltage AC		
		Current DC		
		Current AC		
		<b>Influence Error test</b>	IS 13875(Part 1, Part 2 & Part 3): 1993 Cl. 4.4	50 mV to 1000 V DC 50 mV to 750 V AC 1mA to 20 A DC 10 mA to 20 A AC
	Due to change in ambient temp.			
	Due to RH	IS 13875(Part 1, Part 2 & Part 3): 1993 Cl. 4.5		

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S.No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
	Digital measuring Instruments for measuring and controls -Ammeter -Voltmeter	Due to Position	IS 13875(Part 1, Part 2 & Part 3): 1993 Cl. 4.6	50 mV to 1000 V DC 50 mV to 750 V AC 1mA to 20 A DC 10 mA to 20 A AC
		Due to supply Voltage	IS 13875(Part 1, Part 2 & Part 3): 1993 Cl. 4.8	50 mV to 1000 V DC 50 mV to 750 V AC 1mA to 20 A DC 10 mA to 20 A AC
3.	Electrical Measuring Transducers for converting AC electrical quantities into DC electrical quantities		IEC 60688 Edition 2.2.	
		Intrinsic error and class index	IS 12784 (Part 1): 1989 (RA 2005) Cl. 4	50 mV to 1000 V DC 50 mV to 750 V AC 1mA to 20 A DC 10 mA to 20 A AC 1 W to 10000 W
		Permissible limits of variations	IS 12784 (Part 1): 1989 (RA 2005) Cl. 6.1	50 mV to 1000 V DC 50 mV to 750 V AC 1mA to 20 A DC 10 mA to 20 A AC 1 W to 10000 W
		Response Time	IS 12784 (Part 1): 1989 (RA 2005) Cl. 8.2	100 $\mu$ s to 1 minute
		Permissible Excessive input	IS 12784 (Part 1): 1989 (RA 2005) Cl. 8.3	Upto 1000V Upto 20 A
		Limiting value of output	IS 12784 (Part 1): 1989 (RA 2005) Cl. 8.4	1 mA to 200 mA
		High Voltage	IS 12784 (Part 1): 1989 (RA 2005) Cl. 8.6	500 V to 5 kV

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S.No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
		Insulation Resistance	IS 12784 (Part 1): 1989 (RA 2005) Cl. 8.6	1 MΩ to 2 TΩ
		Impulse Voltage Test	IS 12784 (Part 1): 1989 (RA 2005) Cl. 8.7	1 kV to 6 kV
<b>V.</b>	<b>POWER STABILIZERS AND UPS- Servo Operated AC Voltage Stabilizers</b>			
<b>I.</b>	<b>Servo Motor Operated Automatic Line Voltage Corrector</b>		IS 9815:1994 (RA 2004)	
		Physical examination	IS 9815:1994 (RA 2004) Cl. 6 & Cl. 10	Qualitative
		Insulation resistance	IS 9815:1994 (RA 2004) Cl. 11.4	1 MΩ to 1 TΩ
		High voltage test	IS 9815:1994 (RA 2004) Cl. 11.5	500 V to 5 kV
		Provision of Earthling	IS 9815:1994 (RA 2004) Cl. 7.2	0.1 A to 25 A AC
		Leakage Current	IS 9815:1994 (RA 2004) Cl. 7.3	100 μA to 200 mA
		Output Voltage	IS 9815:1994 (RA 2004) Cl. 11.6	1 V to 300 VAC
		No-load Current	IS 9815:1994 (RA 2004) Cl. 11.7	1 mA to 10 A
		Measurement of no-load losses	IS 9815:1994 (RA 2004) Cl. 11.8	5 % to 99 %
		Load loss test & efficiency	IS 9815:1994 (RA 2004) Cl. 11.9	5 % to 99 %
		Induced voltage	IS 9815:1994 (RA 2004) Cl. 11.10	10 V to 600 V 50 Hz to 1000 Hz
		Test for continuous operation	IS 9815:1994 (RA 2004) Cl. 11.11	160 V to 270 V
		Temperature Rise test	IS 9815:1994 (RA 2004) Cl. 1 1.12	2 °C to 200 °C
		Rate of correction	IS 9815:1994 (RA 2004) Cl. 11.13	100 ms to 10 s
	Lock Rotor test for servo	IS 9815:1994 (RA 2004) Cl. 11.14	1 mA to 10 A 2 °C to 200 °C	

  
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S.No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
VI.	<b>BATTERIES</b>			
1.	Primary & secondary battery Type: R 03, R 6, R 14, R 20	Dimensions	IS 9128: 1999 Cl. No. 5 & 7 IS 6303:2010	1 mm to 100 mm
		Initial life test (capacity test)	IS 9128: 1999 Cl. No. 10.4 IS 6303:2010	Time: 1s to 8 h Voltage: 1mV to 2V
		Delayed life test (6 months)	IS 9128: 1999 Cl. No. 10.5 IS 6303:2010	Time: 1s to 8 h Voltage: 1mV to 2V
		Delayed life test (12months)	IS 9128: 1999 Cl. No. 10.5 IS 6303:2010	Time: 1s to 8 h Voltage: 1mV to 2V
		Delayed life test under dry heat condition	IS 9128:1999 Cl. No. 10.6 IS 6303: 2010	Temperature: (40±2) °C Time: 1s to 8 h Voltage: 1m V to 2 V
		Resistance to leakage of electrolyte	IS 9128:1999 Cl. No. 10.7 IS 6303: 2010	Time: 1s to 8 h Voltage: 1mV to 2V
2.	Primary & secondary battery Type: R 6, R 14, R 20	Dimensions	IS 8144: 2008 Cl. No. 5 & 7 IS 6303: 2010	1mm to 100 mm
		Initial life test (capacity test)	IS 8144:2008 Cl. No. 10.4 IS 6303: 2010	Time: 1s to 8 h Voltage: 1mV to 2V
		Delayed life test (6 months)	IS 8144:2008 /IS6303:2010 Cl. No. 10.5	Time: 1s to 8 h Voltage: 1mV to 2V
		Delayed life test (12months)	IS 8144:2008 /IS6303:2010 Cl. No. 10.5	Time: 1s to 8 h Voltage: 1mV to 2V

  
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S.No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
	Primary & secondary battery Type: R 6, R 14, R 20	Delayed life test under dry heat condition	IS 8144:2008 Cl. No. 10.6 IS 6303: 2010	Temperature: (40±2) °C Time: 1s to 8 h Voltage: 1m V to 2 V
		Resistance to leakage of electrolyte	IS 8144:2008 Cl. No. 10.7 IS 6303: 2010	Time: 1s to 8 h
3.	Stationary Lead acid Battery	Marking	IS 13669 : 1992 (RA 1997) Cl. 11.4 IEC 60896-22 : 2004-02	Qualitative
		Dimensions	IS 13669 : 1992 (RA 1997) Cl. 11.4 IEC 60896-22 : 2004-02	1mm to 300 mm
		Capacity	IS 13669 : 1992 (RA 1997) Cl. 11.5 IEC 60896-22 : 2004-02	Time: 1s to 10 h Voltage: 1 V to 12 V

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