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Department of Science & Technology, India

SCOPE OF ACCREDITATION

Laboratory **Electronics Regional Test Laboratory (North), Okhla Industrial Area, S- Block, Phase- II, New Delhi**

Accreditation Standard **ISO/IEC 17025: 2005**

Discipline **Electrical Testing** **Issue Date** **18.03.2013**

Certificate Number **T-1572** **Valid Until** **17.03.2015**

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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
9.	Static Energy Meters for Reactive Energy ¹	Functional Test Impulse voltage test AC Voltage Test Insulation Test Test on Limit of error and interpretation of test results Test of meter Constant Test of Starting Condition Test of no load condition Test of Ambient Temperature influence Test of Repeatability of Error	IS 14697:1999 Reaffirmed 2004 & IS 15707:2006 Classes 0.2S,0.5S&1.0S, CBIP88& 304:2008 Classes 0.2,0.5&1.0, IEC/AS 62052-11:2003/ 62052-11:2005, 62053-23: 2003/ 62053-23: 2005, Classes 0.2S&0.5S, & NMI-M6 SECOND EDITION THIRD REVISION 2011 Classes 0.2,0.5,1 &1.5	30-300 V & 1mA- 120A Upto 12 kV, Source Impedance: 50& 500Ω & Up to 6 kV Source Impedance: 2 & 12 Ω 50V- 5 kV 0- 250/1000 MΩ 30-300 V & 1mA- 120A 30-300 V & 1mA- 120A 30-300 V & 1mA- 120A 30-300 V & 1mA- 120A 30-300 V & 1mA- 120A

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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 Energy Meters for Reactive Energy¹	Tests of Influence Quantities	IS 14697:1999 Reaffirmed 2004 & IS 15707:2006 Classes 0.2S,0.5S&1.0S, CBIP88& 304:2008 Classes 0.2,0.5&1.0,	30-300 V & 1mA- 120A 45-65 Hz, Harmonics up to 21 st (Amplitude 40% max.)
		Test of Power Consumption test	IEC/AS	25 mW – 200 kW _{PK}
		Test of influence of supply voltage	62052-11:2003/ 62052-11:2005, 62053-23: 2003/ 62053-23: 2005,	30-300 V
		Test of influence of short time over currents	& NMI-M6 SECOND EDITION THIRD REVISION 2011	Upto 4000 A
		Test of Influence of self heating	Classes 0.2S&0.5S,	30-300 V
		Test of Influence of heating	Classes 0.2,0.5,1 &1.5	0- 200° C
		Test of Test of Influence of immunity to earth fault		30-300 V & 1mA- 120A
		Radio Interference measurement		
		a) Conducted emission		a) Current limitation of 10 A for 1 phase 32 A for 3 phase
		b) Radiated Power		b) Cable diameter:1 cm
	Radio interference suppression			
	a) Conducted emission		a)Current limitation of 10 A for 1 phase 32 A for 3 phase	
	b) Radiated emission		b) 3m distances 30 MHz – 6 GHz	

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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 Energy Meters for Reactive Energy	Fast transient burst test	IS 14697:1999 Reaffirmed 2004 & IS 15707:2006 Classes 0.2S,0.5S&1.0S, CBIP88& 304:2008 Classes 0.2,0.5&1.0, IEC/AS 62052-11:2003/ 62052-11:2005,62053-23: 2003/ 62053-23: 2005, Classes 0.2S&0.5S, & NMI-M6 Second Edition Third Revision 2011 Classes 0.2,0.5,1 &1.5	Current limitation of 16 A for 1 phase 32 A for 3 phase
		Damped oscillatory waves immunity test		For Damped oscillation 16 A per phase
		Immunity to electromagnetic RF fields		Frequency range 80- 1000 MHz, Field :10 V/m
		Immunity to conducted disturbances induced by radio-frequency fields		32 Amp , 1 Phase 32Amp ,3 Phase Freq Range : 150KHz to 80 MHz LEVEL 1, 3V,10V CDN Method Only
		Immunity to electrostatic discharge		Upto 15 kV Air, 8 kV Contact
		Surge immunity test		Current limitation of 16A for 1phase 32 A for 3 phase Max amplitude : 4 kV
		Dry Heat Test		40° C to 200° C
		Cold Test		-70°C to+10°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
	Static Energy Meters for Reactive Energy	Damp Heat Test (Cycle)	IS 14697:1999 Reaffirmed 2004 & IS 15707:2006 Classes 0.2S,0.5S&1.0S, CBIP88& 304:2008 Classes 0.2,0.5&1.0, IEC/AS 62052-11:2003/ 62052-11:2005, 62053-23: 2003/ 62053-23: 2005, Classes 0.2S&0.5S, & NMI-M6 Second Edition Third Revision 2011 Classes 0.2,0.5,1 &1.5	40°C, 55°C, 65°C R.H.: Ambient to 95%
		Vibration Test		Max. Force: 5000 Kgf (Peak Sine) Freq: 5 Hz-2 kHz Displacement: 50.0 mm (P-P)
		Shock Test		Acc: 150m/s ² to 15000 m/s ² Duration of Pulse: 0.5m Sec to 18m Sec Pulse shape : Half sine, Saw Tooth, Triangular, & Trapezoidal
		Spring hammer test		0.22Nm, 0.5Nm
		Protection against penetration of dust and water		Upto IP 56 500x300x300mm
		Resistance to heat & fire		0-960°
		General and constructional requirements		0.02-200mm
		Marking of meters		Qualitative test
		Climatic conditions		40° C to 200° C -70°C to +10°C 40°C, 55°C, 65°C R.H.: Ambient to 95%
		Electrical requirements		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
10.	Electromechanical Energy Meters For Active Energy¹	Functional Test Impulse voltage test AC Voltage Test Insulation Test Test on Limit of error and interpretation of test results Test of meter Constant Test of Starting Condition Test of no load condition Test of Ambient Temperature influence Tests of Influence Quantities Test of Power Consumption test Test of influence of supply voltage	IEC/AS 62052-11:2003/ 62052-11:2005, 62053-11:2003* Classes 0.5, 1.0 & 2.0	30-300 V & 1mA-120A Upto 12 kV, Source Impedance: 50 & 500 Ω & Upto 6 kV Source Impedance: 2 Ω & 12 Ω 50V- 5 kV 0- 250/1000 M Ω 30-300 V & 1mA- 120A 30-300 V & 1mA-120A 30-300 V & 1mA- 120A 30-300 V & 1mA- 120A 30-300 V & 1mA- 120A 30-300 V & 1mA- 120A 45-65 Hz, Harmonics up to 21 st (Amplitude 40% max.) 25 mW – 200 kW _{PK} 30-300 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
	Electromechanical Energy Meters For Active Energy¹	Test of influence of short time over currents	IEC/AS 62052-11:2003/ 62052-11:2005, 62053-11:2003* Classes 0.5, 1.0 & 2.0	Upto 4000A
		Test of Influence of self heating		30-300 V
		Test of Influence of heating		0- 200° C
		Test of Test of Influence of immunity to earth fault		30-300 V & 1mA- 120A
		Adjustment		30-300 V & 1mA- 120A
		Dry Heat Test		40° C to 200° C
		Cold Test		-70°C to+10°C
		Damp Heat Test (Cycle)		40°C, 55°C, 65°C R.H. : Ambient to 95%
		Vibration Test		Max. Force: 5000 kgf (Peak Sine) 5000 kgf (RMS Random) Freq: 5 Hz-2 kHz Displacement: 50.0 mm (P-P)


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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
	Electromechanical Energy Meters For Active Energy¹	Shock Test	IEC/AS 62052-11:2003/ 62052-11:2005, 62053-11:2003* Classes 0.5, 1.0 & 2.0	Acc: 150m/s ² to 15000 m/s ² Duration of Pulse: 0.5m Sec to 18m Sec Pulse shape : Half sine, Saw Tooth, Triangular, & Trapezoidal
		Spring hammer test		0.22Nm, 0.5Nm
		Protection against penetration of dust and water		Upto IP 56 500x300x300mm
		Resistance to heat & fire		0-960°
		General and constructional requirements		0.02-200mm
11.	Electro-Mechanical Energy Meter for Active Energy¹	Functional Test	IS13010-2002	30-300 V & 1mA-120A
		Insulation Resistance		0- 250/1000 MΩ
		Running with no load		30-300 V & 1mA-120A
		Starting Limit of error & interpretation of test results		30-300 V & 1mA-120A
		Test of meter constant		30-300 V & 1mA- 120A
		Power loss		25 mW – 200 kW _{PK}
		Heating		30-300 V & 1mA-120A
		Heating		30-300 V & 1mA-120A

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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
	Electro-Mechanical Energy Meter For Active Energy¹	Impulse Voltage AC voltage test Effect of Influence quantities Effect of Short Time over currents Effect of Self Heating AC voltage test Effect of Influence quantities Effect of Short Time over currents Effect of Self Heating Range of Adjustment Independence of adjustment at low load Sustained accuracy test Running at low load Repeatability Error Shock Test	IS13010-2002	Up to 12 kV, Source Impedance : 500 Ω & Upto 6 kV Source Impedance: 2Ω & 12Ω 50V- 5 kV 30-300 V & 1mA- 120A Upto 3000A 200mV - 1000 V 50V- 5 kV 30-300 V & 1mA- 120A Up to 3000A 200mV - 1000 V 200mV - 1000 V 30-300 V & 1mA- 120A 30-300 V & 1mA- 120A 30-300 V & 1mA-120A 30-300 V & 1mA-120A Acc: 150m/s² to 15000 m/s² Duration of Pulse: 0.5m Sec to 18m Sec Pulse shape : Half sine, Saw Tooth, Triangular, & Trapezoidal


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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
	Electro-Mechanical Energy Meter For Active Energy¹	Vibration Test Test of material used in dial Protection against penetration of dust and water Mechanical test of meter case Driving torque measurement General and constructional requirements Speed of rotation Marking of meters	IS13010-2002	Max. Force: 5000 kgf (Peak Sine) 5000 kgf (RMS Random) Freq: 5 Hz-2 kHz Displacement: 50.0 mm (P-P) Qualitative test Upto IP 56 500x300x300 mm 0.22 Nm, 0.5 Nm 2 gm. 0.02-200mm Qualitative test Qualitative test
12.	Self Ballasted Fluorescent Lamps¹	Dimensions Starting and Run-up Lamp wattage Luminous flux Color Lumen maintenance	IS:15111 (Pt II): 2002 Reaffirmed 2007 IEC 60969 Edition 1.2	0.01mm to 200mm 0.001mm to 25mm 0.1Lm-199990Lm Power : 25mW to 400 kW pk 0.1Lm-199990Lm 5 SDCM 0.1Lm-199990Lm


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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
		Life Harmonics Power Factor	IS:15111 (Pt II): 2002 Reaffirmed 2007 IEC 60969 Edition 1.2	0.1Lm-199990Lm Harmonics up to 99 th Power factor : ± 0.000 to ± 1.000 9 kHz-30 MHz
		Radiated & Conducted Emission		
13.	Fire Alarm Control Panel ¹ (Except Detection System)	General and performance Test Test Environments Inspection and performance requirements Operational Test	IS:2189:99 Reaffirmed 2004	Qualitative test Qualitative test Qualitative test Qualitative test
14.	Direct Acting Indicating Analogue Electrical Measuring Instruments Ammeter Voltmeter Wattmeter Frequency Meter Power Factor Meter ¹	-Intrinsic Error -Variation due to ferromagnetic support - Variation due to Ambient temperature & humidity - Variation due to position, - Variation due to Voltage / current component of ac measured, DC measured quantities - Variation due to PF -Variation due to battery Voltage, -unbalance current, - conductive support, -simultaneous influence of Voltage and PF, -Interaction between measuring elements of poly-phase instruments, auxiliary supply voltage, frequency.	IS:1248:2003	Voltage: 0.5V to 600V, Frequency: DC & 45-65Hz Current: 0.05A to 100A Power: Up to 24 kW Power factor : ± 0.000 to ± 1.000 40° C to 200° C -70°C to+10°C 40°C, 55°C, 65°C Voltage : 0.5V to 600V, Frequency: DC & 45-65KHz Current : 0.05A to 100A Power : Up to 400 KW Power factor : ± 0.000 to ± 1.000

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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
		<ul style="list-style-type: none">- Limit value of temperature- Damping- Deviation from Zero- Permissible overload- Overload of short duration on instrument and accessories- Overload continuous on instrument and accessories- Current circuit continuity after high current- Effect of vibration and shock- Self heating	IS:1248:2003	Acc:150m/s ² to 15000m/s ² Duration of Pulse: 0.5m Sec to 18m Sec Pulse shape : Half sine, Saw Tooth, Triangular, & Trapezoidal Max. Force: 5000 kgf (Peak Sine) 5000 kgf (RMS Random) Freq: 5 Hz-2 kHz Displacement: 50.0 mm (P-P) (1 sec to 1hr)
15.	Digital Measuring Instruments ¹ -Ammeter -Voltmeter -Wattmeter -Frequency Meter -Power Factor Meter	<ul style="list-style-type: none">-Intrinsic Error-Influence Error-Influence Error-Ambient temperature-Influence Error-Relative humidity	IS:13875:1993 Reaffirmed 2006	Voltage : 0.5V to 600V, Frequency: DC & 45-65 kHz Current : 0.05A to 100A Power : Upto 400 kW Power factor : ± 0.000 to ± 1.000 Duration of Pulse: 0.5m sec to 18 msec Pulse shape: Half sine, Saw Tooth, Triangular & Trapezoidal

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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
		-Influence Error -Change in position -Influence Error -Supply voltage -Mechanical Load	IS:13875:1993 Reaffirmed 2006	Max. Force: 5000 kgf (Peak Sine) 5000 kgf (RMS Random) Freq: 5 Hz-2 kHz Displacement: 50.0 (1 sec to 1hr) 40° C to 200° C -70°C to +10°C 40°C, 55°C, 65°C
16.	Electronic Ballast ¹	Marking General Requirement Starting conditions Operating conditions Circuit Power Factor Supply Current Max. Current in any lead of a cathode Current waveform Magnetic screening Lumen factor Mains transient over voltage	IS 13021(Pt II)- 91 Reaffirmed 2005 IEC 60929 Edition 3	Qualitative test Qualitative test Upto to 270V 20 µA- 30 A Voltage : 0.5V to 600V Frequency: DC & 45-65 kHz Current : 0.05A to 100A Power : Up to 400 KW Power factor : ± 0.000 to ± 1.000 0.1-199990Lm Current limitation of 16A for 1phase 32 A for 3 phase Max amplitude : 4 kV

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17.	Solid State Inverter¹	Operational test for abnormal condition	IS 13021(Pt II)- 91 Reaffirmed 2005 IEC 60929 Edition 3	Qualitative test
		Endurance		Qualitative test
		Visual Examination	IS:13314-92 Reaffirmed 2003	Qualitative tests
		High Voltage Test		0- 5 kV
		Insulation Resistance		0- 250/1000 MΩ
		No Load test		20mA -30 A
18.	Automatic Line Voltage Corrector (Step Type)¹	Output test		Upto 270V
		Dry Heat Test		40° C to 200° C
		Damp Heat Test (Cycle)		40°C, 55°C, 65°C
		Cold Test		R.H.: Ambient to 95% -70°C to+10°C
		Harmonic contents		DC to 99 th Fundamental
		Marking		Qualitative tests
18.	Automatic Line Voltage Corrector (Step Type)¹	Physical examination	IS 8448- 89 Reaffirmed 2003	Qualitative tests
		Output voltage		0-300 V & 0- 120A
		High Voltage Test		0- 5 kV
		Insulation Test		0- 250/1000 M.ohm
		No load current		0-300 V & 0- 120A


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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
		Protection against electric shock	IS 8448- 89 Reaffirmed 2003	As per fig. Upto 200 N 0-20 mA 0-25 A, 12 V dc V:200 mV-1000 V acV:200 mV-720 V 0-5kV ac,0-7kV dc 0-20 mA ac 0-200 mm
		Stability		0-200 N
		Mechanical strength		0-200 N 0-5 Nm
		Provision for earthing		0-25 A, 12 V
19.	Automatic Line Voltage Corrector¹ (Step Type)	Screws and connections	IS 8448- 89 Reaffirmed 2003	0.4-50 Nm
		Temperature rise		0-300 V & 0- 120 A Upto 1000°C
		Leakage current		0-20mA
		Creepage distances and clearances		0-200mm
		Induced voltage		Up to 1000V & 120 Hz.
		Damp heat		40°C, 55°C, 65°C R.H.: Ambient to 95%
		Stability test for relay operation		0-300 V & 0- 120A
		Continuous operation		Up to 5 kVA, 0-300 V


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20.	Automatic Line Voltage Corrector¹ (Servo Motor Operated)	Physical examination High Voltage Test Insulation Test Leakage current Provision for earthing Output voltage No load current No load losses Load loss test and efficiency Induced voltage	IS 9815-94 Reaffirmed 2004	0-300 V & 0- 120A Qualitative Tests 0- 5 kV 0- 250/1000 MΩ 0-20 mA 0-25A, 12V 0-300 V Up to 100A 25 mW – 200 kW _{PK} 25 mW – 200 kW _{PK} Up to 1000 V & 120 Hz.
21.	Double-Capped Fluorescent Lamps¹	Visual examination and Checking for Marking Lamp & Cap Dimension Torsion Test Burning Test Starting Characteristic Test of Electrical Luminous and colour characteristics Lumen Maintenance	IS2418 :1977 Pt-1, II, III & IV IEC: 60080 Edition 2	Qualitative tests 0.01 mm to 200 mm 0.001 mm to 25 mm 60 Nm Qualitative tests 0.1 Lm-199990 Lm Power : 25 mW to 1.00 kW 0.1Lm-199990 Lm 5 SDCM

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22.	Reciprocating Internal Combustion Engine Driven Alternator Current Generating Sets ¹	Sound power level	ISO3744:1981 ISO8528-10 (Part-I)	Up to 140 dB
23.	Photovoltaic Systems- Power Conditioners ¹	Efficiency	IEC 61683 Edition I	Power: 25mW to 10 kW Power factor : UPF
24.	Static Energy Meters For Active/Reactive Energy ²	Functional Test Impulse voltage test AC Voltage Test Insulation Test Test on Limit of error and interpretation of test results	IS 13779-1999 Reaffirmed 2004 , IS 14697:1999 Reaffirmed 2004 CBIP 88& 304:2008, IS 15707:2006, IEC62052-11(2003), IEC-62053-21*(2003), IEC-62053-22*(2003) & IEC-62053-23*(2003)	30-300 V & 1mA- 120A Up to 12 kV, Source Impedance: 50& 500 Ω & Upto 6 kV Source Impedance:2 & 12 Ω 50V- 5 kV 0- 250/1000 M.ohm 30-300 V & 1mA- 120A
25.	Static Energy Meters For Active/Reactive Energy ¹	Insulation Test Test on Limit of error and interpretation of test results Test of meter Constant Test of Starting Condition	IS 13779-1999 Reaffirmed 2004 , IS 14697:1999 Reaffirmed 2004 CBIP 88& 304:2008, IS 15707:2006, IEC62052-11(2003), IEC-62053-21*(2003), IEC-62053-22*(2003) &	0- 250/1000 MΩ 30-300 V & 1mA- 120A 30-300 V & 1mA- 120A 30-300 V & 1mA-120A

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