Laboratory	**Electronics Regional Test Laboratory (West), Plot No. F 7 & 8, MIDC Area, Andheri (East), Mumbai, Maharashtra**
Accreditation Standard	**ISO/IEC 17025: 2005**
Certificate Number	**TC-5435** **Page 1 of 47**
Validity	**18.12.2018 to 17.12.2020** **Last Amended on --**

"In view of the transition deadline for ISO/IEC 17025:2017, the validity of this accreditation certificate will cease on 30.11.2020"

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection

ELECTRICAL TESTING

I.	**MEASURING INSTRUMENTS-ELETCRICAL & ELECTRONICS (STATIC) METERS**			
1.	**AC Static Watthour Meters Class 1 & 2**	Impulse voltage test	Cl. No. 12.7.6.2 IS 13779	Qualitative Up to 6 kV
		Ac voltage Test	Cl. No. 12.7.6.3 IS 13779	Qualitative Up to 5 kV
		Insulation resistance test	Cl. No. 12.7.6.4 IS 13779	1 MΩ to 2 GΩ @ 500V DC
		Limits of Error due to variation of current	Cl. No. 11.1 IS13779:1999	10 to 320 V
				5 mA to 100 A
				0.25 Lag to 0.8 Lead
		Test of meter constant	Cl. No. 12.15 IS 13779	5 mA to 100 A
		Test of starting condition	Cl. No. 12.14 IS 13779	10 to 320 V
		Test of no-load condition	Cl. No. 12.13 IS 13779	10 to 320 V
		Test of ambient temp. Influence	Cl. No. 12.12 IS 13779	Qualitative 10 to 100ºC
		Repeatability of error	Cl. No. 12.17 IS 13779	10 to 320 V
				5 mA to 100 A
				0.25 Lag to 0.8 Lead
		Test of influence Quantities/Magnetic Influence Tests	Cl. No. 12.11 IS 13779	Qualitative 0.5mT to 0.2 T ACDC
		Test of power consumption	Cl. No. 12.7.1 IS 13779	10mW to 10W
				10mVA to 20VA
		Test of influence of supply voltage	Cl. No. 12.7.2 IS 13779	10 to 300 V

Ravi Johri
Convenor

Alok Jain
Program Manager

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
		Test of Influence of Short Time Over current	Cl. No. 12.7.3 IS 13779	Qualitative (5 to 3000) A
		Test of influence of self-heating	Cl. No. 12.7.4 IS 13779	10 to 320 V
				5 mA to 100 A
		Test of influence of Heating	Cl. No. 12.7.5 IS 13779	Qualitative (0 to 100)ºC
		Test of immunity to earth fault	Cl. No. 12.8 IS 13779	Qualitative 10 to 320 V
		Spring hammer test	Cl. No. 12.3.3 IS 13779	Qualitative (0.2 to 1.0) Nm
		Test of resistance to heat & fire	Cl. No. 12.4 IS 13779	Qualitative 550ºC to 960 ºC
		General and Constructional requirements	Cl. No. 6 IS 13779	Qualitative Test
		Marking of Meters	Cl. No. 7 IS 13779	Qualitative Test
2.	**Static Meters for Active Energy (Class 1 & 2)**	Impulse voltage test	Cl. No. 7.3.2 of IEC 62052-11 IEC 62052-11	Up to 6 kV Qualitative
		Ac voltage Test	Cl. No. 7.3.3 of IEC 62053-21 IEC 62052-11	Up to 5 kV Qualitative
		Limits of Error due to variation of current	Cl. No. 8.1 of IEC 62053-21 IEC 62052-11	10 to 320 V
				5 mA to 100 A
				0.25 Lag to 0.8 Lead
		Test of meter constant	Cl. No. 8.4 of IEC 62053-21 IEC 62052-11	5 mA to 100 A
		Test of starting	Cl. No. 8.3.3 of	10 to 320 V

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
		condition	IEC 62053-21 IEC 62052-11	
		Test of no-load condition	Cl. No. 8.3.32of IEC 62053-21 IEC 62052-11	10 to 320 V
		Test of influence Quantities/ Magnetic Test	Cl. No. 8.2 of IEC 62053-21 IEC 62052-11	0.5mT to 0.2 T ACDC
		Test of power consumption	Cl. No. 7.1 of IEC 62052-21 IEC 62052-11	10mW to 10W
				10mVA to 20VA
		Test of influence of supply voltage	Cl. No. 7.1.2 of IEC 62052-11 IEC 62053-21	10 to 300 V
		Test of Influence of Short Time Over current	Cl. No. 7.2 of IEC 62053-21 IEC 62052-11	5 to 3000 A
		Test of influence of self-heating	Cl. No. 7.3 of IEC 62053-21 IEC 62052-11	10 to 320 V
				5 mA to 100 A
		Test of influence of Heating	Cl. No. 7.2 of IEC 62052-11 IEC 62053-21	Qualitative (0 to 100)ºC
		Test of immunity to earth fault	Cl. No. 7.4 of IEC 62052-11 IEC 62053-21	Qualitative 10 to 320 V
		Spring hammer test	Cl. No. 5.2.2.1 of IEC 62052-11 IEC 62053-21	Qualitative (0.2 to 1.0) Nm
		Test of resistance to heat & fire	Cl. No. 5.9 of IEC 62052-11 IEC 62053-21	Qualitative 960 ºC

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
		General and Constructional requirements	Cl. No. 5.1 of IEC 62052-11 IEC 62053-21	Qualitative Test
		Marking of Meters	Cl. No. 5.12 of IEC 62052-11 IEC 62053-21	Qualitative Test
3.	**AC Static Watthour Meters Class 1 & 2**	Impulse voltage test	Cl. No. 5.4.6.2 CBIP 304	Up to 6 kV Qualitative
		Ac voltage Test	Cl. No. 5.4.6.3 CBIP 304	Up to 5 kV Qualitative
		Insulation resistance test	Cl. No. 5.4.6.4 CBIP 304	1 MΩ to 2 GΩ @500 VDC
		Limits of Error due to variation of current	Cl. No. 5.6.8 CBIP 304	10 to 320 V
		Test of meter constant	Cl. No. 5.6.6 CBIP 304	5 mA to 100 A
				0.25 Lag to 0.8 Lead
		Test of starting condition	Cl. No. 5.6.5 CBIP 304	5 mA to 100 A
		Test of no-load condition	Cl. No. 5.6.4 CBIP 304	10 to 320 V
		Repeatability of error	Cl. No. 5.6.9 CBIP 304	10 to 320 V
		Test of ambient temp. Influence	Cl. No. 5.6.3 CBIP 304	10 to 100ºC
		Test of influence Quantities/ Magnetic Influence Tests	Cl. No. 5.6.2 CBIP 304	(10 to 320) V/ 1mA to 100A
				0.5 mT to 0.27 T AC/DC
		Test of power consumption	Cl. No. 5.4.1 CBIP 304	10mW to 10W
				10mVA to 20VA
		Test of influence of supply voltage	Cl. No. 5.4.2 CBIP 304	(0 to 300) V
		Test of Influence of	Cl. No. 5.4.3	(5 to 300) A/

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
		Short Time Over current	CBIP 304	(50 to 3000) A
		Test of influence of self-heating	Cl. No. 5.4.4 CBIP 304	(10 to 320) V/ 1mA to 100A
		Test of influence of Heating	Cl. No. 5.4.5 CBIP 304	Qualitative (0 to 100)ºC
		Abnormal Voltage Condition	Cl. No. 4.4.7 CBIP 304	Qualitative (0 to 260) V/(0 to 100) A
		Spring hammer test	Cl. No. 5.2.1 CBIP 304	Qualitative (0.2 to 1.0) Nm
		Test of resistance to heat & fire	Cl. No. 5.2.4 CBIP 304	Qualitative 550 ºC to 960 ºC
		General and Constructional requirements	Cl. No. 4.2 CBIP 304	Qualitative Test
		Marking of Meters	Cl. No. 4.2.2.11 CBIP 304	Qualitative Test
4.	**AC Direct Connected Static Prepayment Meters for Active Energy (Class 1 and 2)**	Impulse voltage test	Cl. No. 5.4.6.2 IS 15884	Up to 6 kV Qualitative
		Ac voltage Test	Cl. No. 5.4.6.3 IS 15884	Up to 5 kV Qualitative
		Insulation resistance test	Cl. No. 5.4.6.4 IS 15884	1 MΩ to 2 GΩ @ 500 VDC
		Limits of Error due to variation of current	Cl. No. 4.6.1 IS 15884	10 to 320 V
				5 mA to 100 A
				0.25 Lag to 0.8 Lead
		Test of meter constant	Cl. No. 5.6.5 IS 15884	5 mA to 100 A
		Test of starting condition	Cl. No. 5.6.4 IS 15884	10 to 320 V
		Test of no-load condition	Cl. No. 5.6.3 IS 15884	10 to 320 V

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
		Repeatability of error	Cl. No. 5.6.7 IS 15884	10 to 320 V
				5 mA to 100 A
				0.25 Lag to 0.8 Lead
		Test of influence Quantities/ Magnetic Influence Tests	Cl. No. 4.6.2 IS 15884	0.5mT to 0.2 T ACDC
		Test of power consumption	Cl. No. 5.4.1 IS 15884	10mW to 10W
				10mVA to 20VA
		Test of influence of supply voltage	Cl. No. 4.4.2 and 5.4.2 IS 15884	10 to 300 V
		Test of Influence of Short Time Over current	Cl. No. 5.4.3 IS 15884	(5 to 3000) A
		Test of influence of self-heating	Cl. No. 5.4.4 IS 15884	10 to 320 V
				5 mA to 100 A
		Test of influence of Heating	Cl. No. 5.4.5 IS 15884	Qualitative (0 to 100)ºC
		Spring hammer test	Cl. No. 5.2.1 IS 15884	Qualitative (0.2 to 1.0) Nm
		Test of resistance to heat & fire	Cl. No. 5.2.4 IS 15884	Qualitative 550 ºC to 960 ºC
5.	**AC Static Transformer Operated Watthour and VAR hour Meters Class 0.2S, 0.5S and 1.0 S**	Impulse voltage test	Cl. No. 12.7.6.2, IS 14697	Up to 6 kV
		Ac voltage Test	Cl. No. 12.7.6.3, IS 14697	Up to 5 kV
		Insulation resistance test	Cl. No. 12.7.6.4, IS 14697	1 MΩ to 2 GΩ
		Limits of Error due to variation of current	Cl. No. 11.1, IS 14697	10 to 320 V
				1 mA to 100 A
				0.25 Lag to 0.8 Lead
		Test of meter constant	Cl. No. 12.14, IS 14697	5 mA to 100 A

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
		Test of starting condition	Cl. No. 12.13, IS 14697	10 to 320 V
		Test of no-load condition	Cl. No. 12.12, IS 14697	10 to 320 V
		Test of ambient temp. Influence	Cl. No. 12.11, IS 14697	10 to 100ºC
		Repeatability of error	Cl. No. 12.16, IS 14697	10 to 320 V
				5 mA to 100 A
				0.25 Lag to 0.8 Lead
		Test of influence Quantities/ Magnetic Influence Tests	Cl. No. 12.10, IS 14697	0.5mT to 0.2 T ACDC
		Test of power consumption	Cl. No. 12.7.1, IS 14697	10mW to 10W
				10mVA to 20VA
		Test of influence of supply voltage	Cl. No. 12.7.2, IS 14697	10 to 300 V
		Test of Influence of Short Time Over current	Cl. No. 12.7.3, IS 14697	(5 to 3000) A
		Test of influence of self-heating	Cl. No. 12.7.4, IS 14697	10 to 320 V
				5 mA to 100 A
				1 mA to 100 A
		Test of influence of Heating	Cl. No. 12.7.5, IS 14697	(0 to 100)ºC
		Test of immunity to earth fault	Cl. No. 12.17, IS 14697	10 to 320 V
		Spring hammer test	Cl. No. 12.3.3, IS 14697	(0.2 to 1.0) Nm
		Test of resistance to heat & fire	Cl. No. 12.4, IS 14697	960 ºC
		General and Constructional requirements	Cl. No. 6, IS 14697	Qualitative

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
		Marking of Meters	Cl. No. 7, IS 14697	Qualitative
6.	**Static Meters for Active Energy (Class 0.2S and 0.5 S)**	Impulse voltage test	Cl. No. 7.3.2 of IEC 62052-11 IEC 62053-22	Up to 6 kV Qualitative
		Ac voltage Test	Cl. No. 7.3.3 of IEC 62052-11 IEC 62053-22	Up to 5 kV Qualitative
		Limits of Error due to variation of current	Cl. No. 8.1 of IEC 62053-22 IEC 62052-11	10 to 320 V
				5 mA to 100 A
				0.25 Lag to 0.8 Lead
		Test of meter constant	Cl. No. 8.4 of IEC 62053-22 IEC 62052-11	5 mA to 100 A
		Test of starting condition	Cl. No. 8.3.3 of IEC 62053-22 IEC 62052-11	10 to 320 V
		Test of no-load condition	Cl. No. 8.3.32of IEC 62053-22 IEC 62052-11	10 to 320 V
		Test of influence Quantities/Magnetic Test	Cl. No. 8.2 of IEC 62053-22 IEC 62052-11	Qualitative 0.5mT to 0.2 T ACDC
		Test of power consumption	Cl. No. 7.1 of IEC 62052-22 IEC 62052-11	10mW to 10W
				10mVA to 20VA
		Test of influence of supply voltage	Cl. No. 7.1.2 of IEC 62052-11 IEC 62053-22	10 to 300 V
		Test of Influence of Short Time Over current	Cl. No. 7.2 of IEC 62053-22 IEC 62052-11	Qualitative 5 to 3000 V
		Test of influence of self-	Cl. No. 7.3 of	10 to 320 V

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
		heating	IEC 62053-22 IEC 62052-11	5 mA to 100 A
		Test of influence of Heating	Cl. No. 7.2 of IEC 62052-11 IEC 62053-22 IEC 62052-11	Qualitative (0 to 100)ºC
		Test of immunity to earth fault	Cl. No. 7.4 of IEC 62052-11 IEC 62053-22 IEC 62052-11	Qualitative 10 to 320 V
		Spring hammer test	Cl. No. 5.2.2.1 of IEC 62052-11 IEC 62053-22	(Qualitative 0.2 to 1.0) Nm
		Test of resistance to heat & fire	Cl. No. 5.9 of IEC 62052-11 IEC 62053-22 IEC 62052-11	Qualitative 550 ºC to 960 ºC
		General and Constructional requirements	Cl. No. 5.1 of IEC 62052-11 IEC 62053-22	Qualitative Test
		Marking of Meters	Cl. No. 5.12 of IEC 62052-11 IEC 62053-22	Qualitative Test
II.	**WIRING ACCESSORIES**			
1.	**Electronic Fan Regulator**	Complete Type testing facility main listed below	IS 11037 amd 1 to 3	
		Temperature Rise test	Cl. No. 9.3.1, IS 11037 amd 1 to 3	(1to 50) °C

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
		Leakage Current	Cl. No. 9.3.2, IS 11037 amd 1 to 3	10 uA to 200mA
		High voltage test	Cl. No. 9.3.3, IS 11037 amd 1 to 3	1500 VAC (nominal) Qualitative
		Insulation resistance	Cl. No. 9.3.4, IS 11037 amd 1 to 3	1 MΩ to 1 TΩ @500 VDC
		Earthing Connection	Cl. No. 9.3.5, IS 11037 amd 1 to 3	At 25 A AC.
				30 mV to 30 VAC
		Protection against Electric Shock	Cl. No. 9.3.6, IS 11037 amd 1 to 3	Qualitative 0.1 V to 240VAC
				100 uA to 200mA
		Voltage Drop	Cl. No. 6.7, IS 11037 amd 1 to 3	0.1 V to 240 VAC
		Performance	Cl. No. 7, IS 11037 amd 1 to 3	Qualitative
				1 to 5000 rpm
		Mechanical Strength	Cl. No. 9.3.8, IS 11037 amd 1 to 3	Qualitative 0.2 to 1 joule
		Creepage distance & clearance	Cl. No. 9.3.9, IS 11037 amd 1 to 3	0.1 mm to 10 mm
		Mechanical Endurance test	Cl. No. 9.3.10, IS 11037 amd 1 to 3	Qualitative
III.	**POWER STABILIZERS AND UPS-UNITERRUPTED POWER SYSTEM**			
1.	**UPS, Inverter**	Steady state input voltage tolerance (Line Regulation)	Cl. No. 6.4.1.1, IEC 62040-3 IS 16242(Part 3)	70 % to 120 % of nominal input voltage @230 V.
		Harmonic distortion of input current	Cl. No. 6.4.1.4, IEC 62040-3 IS 16242(Part 3)	1 % to 100 % @ 1 A to 20 A
		Power factor	Cl. No. 6.4.1.5,	0.1 to unity

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
			IEC 62040-3 IS 16242(Part 3)	
		Efficiency measurement of UPS & Inverter	Cl. No. 6.4.1.6, IEC 62040-3 IS 16242(Part 3)	100 VA to 10 kVA rating. 10 % to 99 %
		Load Regulation	Cl. No. 6.4.2.1 to 6.4.2.4, IEC 62040-3 IS 16242(Part 3)	0.5 % to 10 %
		Overload protection	Cl. No. 6.4.2.10.1 and 6.4.2.10.2, IEC 62040-3 IS 16242(Part 3)	100 % to 150 % of rated load.
		Dynamic performance (Transient response)	Cl. No. 6.4.2.11.4 and 6.4.2.11.5, IEC 62040-3 IS 16242(Part 3)	20 % to 100 % of rated load.
IV.	**MEASURING INSTRUMENTS-ELECTRICAL & ELECTRONCICS INSTRUMENTS & TRANSDUCERS**			
1.	**Direct Acting Indicating Analogue Electrical Measuring Instruments -Ammeter -Voltmeter**	High voltage test	Cl. No. 7.1 (Part 1) IS 1248 Part 1, 2 and 9. IEC 60051 Part 1, 2 and 9.	Up to 5 kV Qualitative
		Intrinsic error	Cl. No. 2 (part 9) IS 1248 Part 1, 2 and 9. IEC 60051 Part 1, 2 and 9.	50mV to1000V DC 50mV to 750 VAC 1mA to 20 A DC 10mA to 20 A AC
			Clause No.6, Table 2	50mV to1000V DC

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
		Variation due to influence quantities	(Part 1) IS 1248 Part 1, 2 and 9. IEC 60051 Part 1, 2 and 9	50mV to 750 VA
				1mA to 20 A DC
				10mA to 20 A AC
		Overshoot	Cl. No. 7.2.1 IS 1248 Part 1, 2 and 9. IEC 60051 Part 1, 2 and 9.	50mV to1000V AC/DC
		Response time	Cl. No. 7.2.2 IS 1248 Part 1, 2 and 9. IEC 60051 Part 1, 2 and 9.	2 s to 10 s
		Short term Overload	Cl. No. 7.4.2 IS 1248 Part 1, 2 and 9. IEC 60051 Part 1, 2 and 9.	100mV to 2000V AC/DC
		Continues Overload	Cl. No. 7.4.1 IS 1248 Part 1, 2 and 9. IEC 60051 Part 1, 2 and 9.	50mV to1200V DC 50mV to 1000 VAC
				1mA to 20 A DC 10mA to 20 A AC
		Self-Heating	Cl. No. 7.3 IS 1248 Part 1, 2 and 9. IEC 60051 Part 1, 2 and 9.	50mV to1000V DC 50mV to 750 VAC
				1mA to 20 A DC 10mA to 20 A AC
		Deviation from zero	Cl. No. 7.6 IS 1248 Part 1, 2 and 9. IEC 60051 Part 1, 2 and 9.	0 to 1000V AC/DC 0 to 100A AC/DC
2.	**Digital Measuring Instruments for Measuring and Controls -Ammeter -Voltmeter**	Intrinsic Error Test	Cl. No. 4.2, IS 13875 Part 1,2 & 3	
		1. Voltage DC		50mV to 1000 V DC
		2. Voltage AC		50 mV to 750 V AC
		3. Current DC		1mA to 20 A DC
		4. Current AC		10mA to 20 A AC
		Influence Error test		Same as Intrinsic Error tests
			Cl. No. 4.4, IS 13875	50mV to 1000 V DC

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
		1. Due to change in ambient temp.	Part 1,2 & 3	50 mV to 750 V AC
				1mA to 20 A DC
				10mA to 20 A AC
		2. Due to RH	Cl. No. 4.5, IS 13875 Part 1,2 & 3	50mV to 1000 V DC
				50 mV to 750 V AC
				1mA to 20 A DC
				10mA to 20 A AC
		3. Due to Position	Cl. No. 4.6, IS 13875 Part 1,2 & 3	50mV to 1000 V DC
				50 mV to 750 V AC
				1mA to 20 A DC
				10mA to 20 A AC
		4. Due to supply Voltage	Cl. No. 4.8, IS 13875 Part 1,2 & 3	50mV to 1000 V DC
				50 mV to 750 V AC
				1mA to 20 A DC
				10mA to 20 A AC
3.	**Electrical Measuring Transducers for Converting AC Electrical Quantities to Analog or Digital Signals**	Intrinsic error and class index	IEC 60688 IS 14570 Cl. No. 4.2 of IS 14570 Cl. No. 4.4 of IEC 60688	50 mV to 750 V AC
				10mA to 20 A AC
		Ripple	IEC 60688 IS 14570 Cl. No. 5.4 Cl. No. 5.5	1 % to 10 %
		Response Time	IEC 60688 IS 14570 Cl. No. 5.5 Cl. No. 5.6	100 µS to 20 s.
		Limiting conditions for storage and transport	IEC 60688 IS 14570 Cl. No. 5.10 Cl. No. 5.11	-40 °C to + 100 °C

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
		Variations due to auxiliary supply voltage	IEC 60688: 2012 IS 14570 Cl. No. 6.2	50 mV to 750 V AC
				10mA to 20 A AC
		Variations due to auxiliary supply freq.	IEC 60688: 2012 IS 14570 Cl. No. 6.3	50 mV to 750 V AC
				10mA to 20 A AC
		Variations due to ambient temperature	IEC 60688 IS 14570 Cl. No. 6.4	50 mV to 750 V AC
				10mA to 20 A AC
		Variations due to freq. of i/p quantities	IEC 60688 IS 14570 Cl. No. 6.	50 mV to 750 V AC
				10mA to 20 A AC
		Variations due to output load	IEC 60688 IS 14570 Cl. No. 6.9	50 mV to 750 V AC
				10mA to 20 A AC
		Variations due to magnetic field of external origin	IEC 60688 IS 14570 Cl. No. 6.11	50 mV to 750 V AC
				10mA to 20 A AC
		Variations due to self heating	IEC 60688 IS 14570 Cl. No. 6.	50 mV to 750 V AC
				10mA to 20 A AC
		Variations due to continuous operation	IEC 60688 IS 14570 Cl. No. 6.15	50 mV to 750 V AC
				10mA to 20 A AC
		Variations due to common mode interference	IEC 60688 IS 14570 Cl. No. 6.16	50 mV to 750 V AC
				10mA to 20 A AC
			IEC 60688	50 mV to 750 V AC

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
		Variations due to series mode interference	IEC 60688 IS 14570 IS 14570 Cl. No. 6.17 Cl. No. 6.17.2	10mA to 20 A AC
		Permissible Excessive input	IEC 60688 IEC 60688 IS 14570 IS 14570 Cl. No. 6.18 Cl. No. 6.17.5	0 to 1000V / 0 to 20 A
		High Voltage test	IEC 60688 IEC 60688 IS 14570 IS 14570 Cl. No. 6.19 Cl. No. 6.18	Qualitative Up to 5 kV
		Impulse Voltage Test	IEC 60688 IEC 60688 IS 14570 IS 14570 Cl. No. 6.20 Cl. No. 6.19	Qualitative Up to 5 kV
		Temp. rise test	IEC 60688 IEC 60688 IS 14570 IS 14570 Cl. No. 6.22 Cl. No. 6.21	Qualitative 1°C to 100 °C
V.	**POWER STABILIZERS AND UPS-SERVO OPERATED AC VOLTAGE STABILIZERS**			

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
1.	**Servo Motor Operated Automatic Line Voltage Corrector**	Physical examination	Cl. No. 6 and 10, IS 9815	Qualitative test
		Insulation resistance	Cl. No. 11.4, IS 9815	1 MΩ to 1 TΩ @ 500 VDC
		High voltage test	Cl. No. 11.5, IS 9815	Qualitative Up to 5 kV
		Provision of Earthling	Cl. No. 7.2, IS 9815	0.1 to 25 A AC
		Leakage Current	Cl. No. 7.3, IS 9815	100 uA to 200 mA
		Output Voltage	Cl. No. 11.6, IS 9815	1 to 300VAC
		No-load Current	Cl. No. 11.7, IS 9815	1 mA to 10 A
		Measurement of no-load losses	Cl. No. 11.8, IS 9815	5% to 99%
		Load loss test & efficiency	Cl. No. 11.9, IS 9815	5% to 99%
		Induced voltage	Cl. No. 11.10, IS 9815	10 to 600 V 50 Hz to 1000 Hz.
		Test for continuous operation	Cl. No. 11.11, IS 9815	160 V to 270 V
		Temperature Rise test	Cl. No. 11.12, IS 9815	Qualitative 2°C to 200 °C
		Rate of correction	Cl. No. 11.13, IS 9815	100ms to 10 s.
		Lock Rotor test for servo	Cl. No. 11.14, IS 9815	1 mA to 10 A 2°C to 200 °C
VI.	**BATTERIES**			

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
1.	**Heavy Duty Dry Cell Batteries (Type: R 03, R 6, R 14, R 20)**	Dimensions	Cl. No. 5 & 7, IS 9128	(1 to 100) mm
		Initial life test (capacity test)	Cl. No. 10.4, IS 9128	Time: 1s to 8 h Voltage: 1mV to 2V
		Delayed life test (6 months)	Cl. No. 10.5, IS 9128	Time: 1s to 8 h Voltage: 1mV to 2V
		Delayed life test (12months)	Cl. No. 10.5, IS 9128	Time: 1s to 8 h Voltage: 1mV to 2V
		Delayed life test under dry heat condition	Cl. No. 10.6, IS 9128	Temperature: (40±2) ºC Time: 1s to 8 h Voltage: 1m V to 2 V
		Resistance to leakage of electrolyte	Cl. No. 10.7, IS 9128	Time: 1s to 8 h Voltage: 1m V to 2 V
2.	**Multipurpose Dry Batteries (Type: R 6, R 14, R 20)**	Dimensions	Cl. No. 5.7, IS 8144	1mm to 100mm
		Initial life test (capacity test)	Cl. No. 9.4, IS 8144	Time: 1s to 8 h Voltage: 1mV to 2V
		Delayed life test (6 months)	Cl. No. 9.5, IS 8144	Time: 1s to 8 h Voltage: 1mV to 2V
		Delayed life test (12months)	Cl. No. 9.5, IS 8144	Time: 1s to 8 h Voltage: 1mV to 2V
		Delayed life test under dry heat condition	Cl. No. 9.7, IS 8144	Temperature: (40±2) ºC Time: 1s to 8 h Voltage: 1m V to 2 V
		Resistance to leakage of electrolyte	Cl. No. 9.6, IS 8144	Qualitative Time: 1s to 8 h Voltage: 1mV to 2V

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection

ELECTRONICS TESTING

I.	**EMI TEST FACILITY**			
1.	**Industrial, Scientific, Medical equipment**	Conducted Emission on Power Lines (Continuous)	CISPR 11	Frequency range: 9 kHz to 30 MHz Single Phase:230/240 Vac, Input current:200 A, Three Phase: 380/440 Vac, Input current:200 A/Phase
	Household appliances		CISPR 14-1	
	Lighting appliances		CISPR 15	
	UPS		IEC 62040-2	
	Laboratory equipment		IEC 61326-1	
	Information technology equipment		CISPR 22	
	Residential, commercial and light-industrial environments		IEC 61000-6-3	
	Heavy Industrial environments		IEC 61000-6-4	
	Medical electrical equipment		IEC 60601-1-2	

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
	Electrical equipment for measurement, control and laboratory use-In vitro diagnostic (IVD) medical equipment		IEC 61326-2-6(2012)	
	Sound and television broadcast receivers and associated equipment/ Multimedia Equipment		CISPR 13 CISPR 32	
	Audio, Video, Audio-Visual and Entertainment Lighting Control equipment for professional use		BS EN 55103-1	
	Energy Meter		IS 13779 IS 15884 IEC 14697 IEC 62052-11	
2.	**Industrial, Scientific, Medical equipment**	Radiated Emission	CISPR 11	Frequency range: 30 MHz to 1 GHz Single Phase:230/240 Vac, Input current:200 A, Three Phase:
	Household appliances		CISPR 14-1	
	Lighting appliances		CISPR 15	

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
	UPS		IEC 62040-2	380/440 Vac, Input current:200 A /Phase
	Information technology equipment		CISPR 22	
	Residential, commercial and light-industrial environments		IEC 61000-6-3	
	Heavy Industrial environments		IEC 61000-6-4	
	Medical electrical equipment		IEC 60601-1-2	
	Electrical equipment for measurement, control and laboratory use		IEC 61326-1	
	Electrical equipment for measurement, control and laboratory use-In vitro diagnostic (IVD) medical equipment		IEC 61326-2-6	

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
	Sound and television broadcast receivers and associated equipment/Multimedia Equipment		CISPR 13 CISPR 32	
	Audio, Video, Audio-Visual and Entertainment Lighting Control equipment for professional use		BS EN 55103-1	
	Energy Meter		IS 15884 IEC 14697	
3.	**Household electrical / electronic appliances, AC Static Watt-hour Meters, Static Prepayment Meters**	Disturbance power	CISPR 14-1 IS 13779 IEC 14697 IEC 62052-11	Frequency range:30 to 300 MHz
4.	**Industrial, Scientific, Medical equipment, Household appliances, Lighting equipment, Information technology equipment,**	Current harmonic emissions	IEC 61000-3-2	Input Voltage: 220 to 240 VAC / 50 Hz Single Phase Max. current capability:16 A Measurement up to 50th harmonic of nominal current

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
	Process control and allied equipment			
5.	**Industrial, Scientific, Medical equipment, Household appliances, Lighting equipment, Information technology equipment, Process control and allied equipment**	Voltage fluctuations and Flicker	IEC 61000-3-3 (2017)	Input Voltage: 220 to 240 VAC / 50 Hz, Single Phase Max. current capability:16 A
6.	**Industrial, Scientific, Medical equipment, Household appliances, Lighting equipment, Information technology equipment, Audio, Video, Audio-Visual and Entertainment Lighting Control equipment for professional use, Sound and**	Electrical Fast Transient / Burst on power lines and I / O data and control lines	IEC 61000-4-4 IEC 61000-6-1 IEC 61000-6-2 IEC 61326-1 IEC 61326-2-6 CISPR 24 BS EN 55103-2 CISPR 20 CISPR 35 IEC 61547 IEC 62052-11 IS 13779 IS14697 IS 15884	Pulse amplitude: 0.5 to 4.0 kV

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
	television broadcast receivers and associated equipment/Multimedia Equipment, Electrical equipment for measurement, control and laboratory use, Electrical equipment for measurement, control and laboratory use-In vitro diagnostic (IVD) medical equipment, Medical electrical equipment, Lighting appliances, UPS, AC Static Watt-hour Meters, Static Prepayment Meters			
7.	**Industrial, Scientific, Medical equipment, Household appliances, Lighting**	Electrostatic discharge	IEC 61000-4-4 IEC 61000-6-1 IEC 61000-6-2 IEC 61326-1 IEC 61326-2-6 CISPR 24	Pulse amplitude: Air discharge: 0 to 15 kV Contact discharge:

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
	equipment, Information technology equipment, Audio, Video, Audio-Visual and Entertainment Lighting Control equipment for professional use, Sound and television broadcast receivers and associated equipment/ Multimedia Equipment, Electrical equipment for measurement, control and laboratory use, Electrical equipment for measurement, control and laboratory use-In vitro diagnostic (IVD) medical equipment, Medical electrical equipment,		BS EN 55103-2 CISPR 20 CISPR 35 IEC 61547 IEC 62052-11 IS 13779 IS14697 IS 15884	0 to 8 kV

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
	Lighting appliances, UPS, AC Static Watt-hour Meters, Static Prepayment Meters			
8.	**Industrial, Scientific, Medical equipment, Household appliances, Lighting equipment, Information technology equipment, Audio, Video, Audio-Visual and Entertainment Lighting Control equipment for professional use, Sound and television broadcast receivers and associated equipment/Multimedia Equipment, Electrical equipment for measurement, control and laboratory use,**	Radiated susceptibility	IEC 61000-4-3 IEC 61000-6-1 IEC 61000-6-2 IEC 61326-1 IEC 61326-2-6 CISPR 24 BS EN 55103-2 CISPR 20 IEC 61547 CISPR 35 IS 13779 IS14697 IS 15884 IEC 62052-11	Frequency range: 80 MHz to 1000 MHz Field Strength: 1 to 10 V/m at 3-meters test distance

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
	Electrical equipment for measurement, control and laboratory use-In vitro diagnostic (IVD) medical equipment, Medical electrical equipment, Lighting appliances, UPS, AC Static Watt-hour Meters, Static Prepayment Meters			
9.	**Industrial, Scientific, Medical equipment, Household appliances, Lighting equipment, Information technology equipment, Audio, Video, Audio-Visual and Entertainment Lighting Control equipment for professional use, Sound and television broadcast**	Conducted susceptibility	IEC 61000-4-3 IEC 61000-6-1 IEC 61000-6-2 IEC 61326-1 IEC 61326-2-6 CISPR 24 BS EN 55103-2 CISPR 20 IEC 61547 CISPR 35(2016), IS 13779 IS14697 IS 15884 IEC 62052-11	Frequency range: 150 kHz to 80 MHz Field strength: 10 V rms

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
	receivers and associated equipment/ Multimedia Equipment, Electrical equipment for measurement, control and laboratory use, Electrical equipment for measurement, control and laboratory use-In vitro diagnostic (IVD) medical equipment, Medical electrical equipment, Lighting appliances, UPS, AC Static Watt-hour Meters, Static Prepayment Meters			
10.	**Industrial, Scientific, Medical equipment, Household appliances, Lighting equipment, Information**	High Energy Surge on power lines	IEC 61000-4-5 IEC 61000-6-1 IEC 61000-6-2 IEC 61326-1 IEC 61326-2-6 CISPR 24 BS EN 55103-2 CISPR 20	Surge Voltage: 0 to 6 kV Surge Current: 0 to 3 kA Pulse shape:1.2/50us/8/20us

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
	technology equipment, Audio, Video, Audio-Visual and Entertainment Lighting Control equipment for professional use, Sound and television broadcast receivers and associated equipment/ Multimedia Equipment, Electrical equipment for measurement, control and laboratory use, Electrical equipment for measurement, control and laboratory use-In vitro diagnostic (IVD) medical equipment, Medical electrical equipment, Lighting appliances, UPS, AC Static Watt-		CISPR 35 IS 13779 IS14697 IEC 61547 IEC 62052-11	

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
	hour Meters, Static Prepayment Meters			
11.	**Industrial, Scientific, Medical equipment, Household appliances, Lighting equipment, Information technology equipment, Audio, Video, Audio-Visual and Entertainment Lighting Control equipment for professional use, Sound and television broadcast receivers and associated equipment/ Multimedia Equipment, Electrical equipment for measurement, control and laboratory use, Electrical equipment for measurement,**	Power frequency magnetic field	IEC 61000-4-8 IEC 61000-6-1 IEC 61000-6-2 IEC 61326-1 IEC 61326-2-6 CISPR 24 BS EN 55103-2 IEC/CISPR 20 CISPR 35 IS 13779 IS14697 IEC 61547 IEC 62052-11	1 to 1000 A/m

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
	control and laboratory use-In vitro diagnostic (IVD) medical equipment, Medical electrical equipment, Lighting appliances, UPS, AC Static Watt-hour Meters, Static Prepayment Meters			
12.	**Industrial, Scientific, Medical equipment, Household appliances, Lighting equipment, Information technology equipment, Audio, Video, Audio-Visual and Entertainment Lighting Control equipment for professional use, Sound and television broadcast receivers and associated equipment/**	Voltage dips / Voltage interruptions	IEC 61000-4-11 IEC 61000-6-1 IEC 61000-6-2 IEC 61326-1 IEC 61326-2-6 CISPR 24 BS EN 55103-2 CISPR 20 IEC 61547.	Duration:1.5 ms to 500 ms Dips / interruption:100 %

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
	Multimedia Equipment, Electrical equipment for measurement, control and laboratory use, Electrical equipment for measurement, control and laboratory use-In vitro diagnostic (IVD) medical equipment, Medical electrical equipment, Lighting appliances, UPS, AC Static Watt-hour Meters, Static Prepayment Meters			
13.	**Industrial Process control and allied equipment**	1 MHz Damped Sinusoidal	IEC 61000-4-18	Duration:2 to10 sec Voltage up to 2.75 kV
II.	**ENVIRONMENTAL TEST FACILITY**			

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
1.	**Electrical & Electronic Items and Related Materials**	Dry heat	IS 9000, P-III Sec(1 to 5) IEC 60068-2-2 (2007-ed-5) JSS:50101 JSS:55555 Test no.17. QM 333 :March 2010 IEC 60571	Ambient to 200 º C Work space: (1 M X 1M X 1M) (2M X 2M X 2M)
		Cold	IS 9000, P-IISec(1 to 4) IEC 0068-2-1 JSS:50101 JSS:55555 Test No.20 QM 333:March 2010 IEC 60571	Ambient to-40 º C Work space: (1 M X 1M X 1M) (2M X 2M X 2M)
		Damp heat(Cyclic)	IS 9000, P-V Sec.1 to 2 (1981) (RA 2016) IEC 60068-2-30 JSS:50101 JSS:55555 QM 333 IEC 60571	25 to 85 º C 20 to 98 % RH Work space: (1 M X 1M X 1M) (2M X 2M X 2M)
		Damp heat (Steady State)	IS 9000, P-IV (1979) (RA 2015) IEC 60068-2-78 JSS:50101 JSS:55555Test no.10. QM 333:March 2010	25 to 85 º C 20 to 98 % RH Work space: (1 M X 1M X 1M) (2M X 2M X 2M)
		Tropical Exposure	JSS:55555 Test No.27.	Ambient to 75 º C Humidity:95 % RH Work space: (1 M X 1M X 1M)

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
				(2M X 2M X 2M)
2.	**Electrical & Electronic Items and Related Materials**	Composite Temp / Humidity test (moisture resistance)	IS 9000, P-VI IEC:60068-2-38 JSS:50101	-10 to 65 º C 20 to 95 % RH Work space: (1 M X 1M X 1M) (2M X 2M X 2M)
		Temperature Cycling / Thermal Shock	IS 9000, P-XIV IEC:60068-2-14 JSS:50101 JSS:55555 QM 333	-65 to 200 º C Work space: (1 M X 1M X 1M) (2M X 2M X 2M) **Thermal shock:** Work space: (0.45 M X 0.35 M X 0.35 M)
		Salt Spray	IS 9000, P-XI IEC:60068-2-11 JSS:50101 JSS:55555 Test No.9. IEC:60571 QM 333	Ambient to 55 º C Work space: (1.6 M X 0.7 M X 0.65 M)
		Vibration Sine / Random Test	IS 9000, P-VIII (1981) (RA 2015) IEC:60068-2-6/64 (2008-ed-4) JSS:50101 (1996) JSS:55555:(2012,Rev.3) Test no.28. QM 333 IEC:60571 IEC:61373	Freq:5 to 2500 Hz Disp:50.0 mm Accel:50 g (bare table) . Freq:100 to 900 Hz Disp:50.0 mm Accel:80 g (bare table)

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
3.	**Electrical & Electronic Items and Related Materials**	Bump Test	IS 9000, P-VII IEC 60068-2-27 JSS:50101 JSS:55555 TEST No.5. QM 333:March 2010	10 g to 40 g
		Shock Test	IS 9000, P-VII IEC 60068-2-27 JSS:50101 JSS:55555 Test No.24 QM 333 IEC:60571	15 g to 100 g (Half Sine)
		Drop Test	IS 9000, P-VII (1979) (RA 2016),Section 3 JSS:55555 Test No.13 QM 333:March 2010, Test No.10	Test Platform: Thickness:6.5 mm Length:1500 mm Width:1250 mm
		Topple Test	IS 9000, P-VII Section 3 JSS:55555 Test No.26 QM 333:March 2010, Test No.11	Test Platform: Thickness:6.5 mm Length:1500 mm Width:1250 mm
		Free Fall Test	IS 9000, P-VII QM 333:March 2010, Test No.12	Test Platform: Thickness:6.5 mm Length:1500 mm Width:1250 mm
		Driving Rain Test	IS 9000 (Part 16) JSS:55555	Ambient temp 450 L/ h at 200 kPa (Work space:600 mm diameter)

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
		Degree of Protection	IEC 60947-1,AD3.2, 2001-12 IEC:60529 IS 4691 IS 12063	Qualitative (IP IX to IP 6X IP XI to IP X7) Work space: (1 M X 1M X 1M)
III.	**SAFETY TESTING**			
1.	**Information Technology Equipment (Computer Systems, Monitors, Printers, Scanners, Keyboards, Telephones & Automatic Data Processing Machine,Power Adapters,Mobiles Phones,Cash Registers,Copying Machines,Smart Card Readers,Passport Reader,Power Banks for use in**	Input Current	IEC 60950-1 Edition 2.2 IS 13252 Clause 1.6.2	Current:0.5 mA to 20A Power:30 W to 6000 W
		Durability	IEC 60950-1 Edition 2.2 IS 13252 Clause 1.7.11	Qualitative Visual
		Access to energize parts	IEC 60950-1 Edition 2.2 IS 13252 Clause 2.1.1.1	Qualitative Visual
		Energy Hazard	IEC 60950-1 Edition 2.2 IS 13252, Clause 2.1.1.5	Qualitative 300 W
		Discharge of Capacitor	IEC 60950-1 Edition 2.2 IS 13252 Clause 2.1.1.7	Qualitative 200mV/Div 5s/Div

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
	portable applications)	Limited power source measurement test	IEC 60950-1 Edition 2.2 IS 13252 Clause 2.5	60 V 20 A max 300 VA
		Resistance of Earthing Conductor	IEC 60950-1Edition 2.2 IS 13252 Clause 2.6.3.4	1 mΩ to 600 m Ω
		Humidity conditioning	IEC 60950-1Edition 2.2 IS 13252 Clause 2.10	Qualitative 20º C to 100º C 90% to 96% RH
		Creepage and Clearance	IEC 60950-1 Edition 2.2 IS 13252 Clause 2.10	0.5mm to 100mm
		Steady force test	IEC 60950-1Edition 2.2 IS 13252 Clause 3.1.5, 3.1.9, 4.2.2, 4.2.4	Qualitative Upto 250 N 0.1 to 60 Sec
		Stability test	IEC 60950-1Edition 2.2 IS 13252 Clause 4.1	Qualitative 10º & 15º
		Impact test	IEC 60950-1Edition 2.2 IS 13252 Clause 4.2.5	Qualitative (0.5 J to 5 J)
		Drop Test	IEC 60950-1Edition 2.2 IS 13252 Clause 4.2.6	Qualitative Upto 1000 mm
		Stress Relief Test	IEC 60950-1Edition 2.2 IS 13252 Clause 4.2.7	Qualitative 70º C

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
		Temperature Tests	IEC 60950-1Edition 2.2 IS 13252 Clause 4.5.2	25 to 225ºC
		Resistance to Abnormal heat	IEC 60950-1Edition 2.2 IS 13252 Clause 4.5.5	0.5mm to 5 mm
		Touch current	IEC 60950-1Edition 2.2 IS 13252 Clause 5.1	30 uA to 9 mA
		Electric strength	IEC 60950-1Edition 2.2 IS 13252 Clause 5.2	Qualitative 0 V to 5 kV AC 0 to 6 kV DC 1 to 60 Sec
		Abnormal operations	IEC 60950-1Edition 2.2 IS 13252 Clause 5.3.1	25 to 225ºC
		Impulse Test	IEC 60950-1Edition 2.2 IS 13252 Clause 6.2.1	160 V to 4 kV
		Voltage Surge test	IEC 60950-1Edition 2.2 IS 13252 Clause 7.4.2	0.5 kV to 12 kV
2.	**Audio, Video and similar electronic apparatus and components (LED/ LCD/ Plasma TV, Power**	Marking and Instructions requirements	IEC 60065 Edition 8.0, IS 616 Clause 5	Qualitative Visual
		Ionizing Radiation	IEC 60065 Edition 8.0, IS 616 Clause 6.1	0 to 100 mR/h

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
	Amplifiers, Video Games, optical disc player etc	Heating	IEC 60065 Edition 8.0, IS 616 Clause 7.1	25 to 225º C
		Heat resistance of insulating material	IEC 60065 Edition 8.0, IS 616 Clause 7.2	Upto 25 mm
		Construction requirement	IEC 60065 Edition 8.0, IS 616 Clause 8	Qualitative Visual
		Electric shock Hazard under normal operating condition	IEC 60065 Edition 8.0, IS 616 Clause 9	Qualitative Visual
		Touch current	IEC 60065 Edition 8.0, IS 616 Clause 9	30 uA to 9 mA
		Withdrawal of MAINS plug	IEC 60065 Edition 8.0, IS 616 Clause 9	Qualitative 200mV/Div 5s/Div
		Accessibility	IEC 60065 Edition 8.0, IS 616 Clause 9.1.1.2	Qualitative Visual
		Resistance to external forces test	IEC 60065 Edition 8.0, IS 616 Clause 9.1.7	Up to 250N
		Surge test	IEC 60065 Edition 8.0, IS 616 Clause 10.2	0.5kV to 12kV
		Humidity conditioning	IEC 60065 Edition 8.0, IS 616 Clause 10.3	Qualitative 20º C to 100º C 90% to 96% RH

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
		Insulation Resistance	IEC 60065 Edition 8.0, IS 616 Clause 10.4	1MΩ to 1 GΩ @ 500Vdc
		Dielectric strength	IEC 60065 Edition 8.0, IS 616 Clause 10.4.	Qualitative 0 V to 5kV AC 0 to 6kV DC 1 to 60 Sec
		Fault Conditioning	IEC 60065 Edition 8.0, IS 616 Clause 11	25 to 225ºC
		Mechanical Strength Vibration Test	IEC 60065 Edition 8.0, IS 616 Clause 12.1.3	Qualitative Visual
		Impact test	IEC 60065 Edition 8.0, IS 616 Clause 12.1.4	Qualitative (0.5 J to 5 J)
		Drop Test	IEC 60065 Edition 8.0, IS 616 Clause 12.1.5	Qualitative Upto 1000 mm
		Stress Relief Test	IEC 60065 Edition 8.0, IS 616 Clause 12.1.6	Qualitative 70º C
		Clearance and Creepage Distances	IEC 60065 Edition 8.0, IS 616 Clause 13	0.5mm to 100mm
		Provisions for Protective Earthing	IEC 60065 Edition 8.0, IS 616 Clause 15.2	1 mΩ to 600 mΩ

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
		External Flexible Cords-Strain relief test	IEC 60065 Edition 8.0, IS 616 Clause 16.5	Qualitative Up to 0.25 Nm Up to 200 mm
		Stability requirement	IEC 60065 Edition 8.0, IS 616 Clause 19	Qualitative 10º to 15º
3.	**Measurement, control and laboratory equipment**	Fault Conditioning	IEC 61010-1 3RD ED (Clause 4.4)	25 to 225ºC
		Input Current/Power Input frequency	IEC 61010-1 3RD ED (Clause 5.1.3)	Current:0.5mA to 20A Power:30 W to 6000 W
		Durability of markings	IEC 61010-1 3RD ED (Clause 5.3)	Visual
		Residual Energy	IEC 61010-1 3RD ED (Clause 6.1.1)	Qualitative 200mV/Div
		Accessibility	IEC 61010-1 3RD ED (Clause 6.2)	Qualitative Visual
		Touch current	IEC 61010-1 3RD ED (Clause 6.2.2)	30 uA to 9 mA
		Limit values for accessible parts	IEC 61010-1 3RD ED, (Clause 6.3)	60 V 20 A max 300 VA
		Impedance of Protective Bonding	IEC 61010-1 3RD ED (Clause 6.5.2.3, 6.5.2.4, 6.5.2.5, 6.5.2.6, 6.5.4)	1 mΩ to 600 mΩ
		Capacitive discharge test	IEC 61010-1 3RD ED (Clause 6.6.2, 6.10.3)	Qualitative 200mV/Div 5s/Div
		Insulation requirements-Creepage distances and clearance	IEC 61010-1 3RD ED (Clause 6.7, 10.5.1)	0.5mm to 100mm

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
		Humidity conditioning	IEC 61010-1 3RD ED (Clause 6.8.2)	Qualitative 20º C to 100º C 90% to 96% RH
		Voltage test	IEC 61010-1 3RD ED (Clause 6.8.3)	Qualitative 0 V to 5kV AC 0 to 6kV DC 1 to 60 Sec
		Impulse withstand voltage test	IEC 61010-1 3RD ED (Clause 6.8.3.3)	0.5kV to 12kV
		Cord Anchorages	IEC 61010-1 3RD ED (Clause 6.10.2.2)	Qualitative Up to 25 Nm Up to 200mm
		Stability test	IEC 61010-1 3RD ED (Clause 7.4)	Qualitative 10º to 15º
		Strength of handle	IEC 61010-1 3RD ED (Clause 7.5)	Qualitative
		Static test	IEC 61010-1 3RD ED (Clause 8.2.1)	Qualitative
		Impact test	IEC 61010-1 3RD ED (Clause 8.2.2)	Qualitative (0.5 J to 5 J)
		Drop Test	IEC 61010-1 3RD ED (Clause 8.3)	Qualitative Up to 1000 mm
		Limited Energy circuit	IEC 61010-1 3RD ED (Clause 9.4)	60 V 20 A max 300 VA
		Surface temperature limits for protection against burns	IEC 61010-1 3RD ED (Clause 10.1)	25 to 225ºC
		Resistant to elevated temperature	IEC 61010-1 3RD ED (Clause 10.5.2)	Qualitative 70ºC
		Insulating material-Ball Pressure test	Cl. No. -61010-1:2010-06, 3RD ED (Clause 10.5.3)	0.5 mm to 5mm

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
		Vicat Softening test	Cl. No. -61010-1:2010-06, 3RD ED (Clause 10.5.3)	0.1 mm
		Ionizing Radiation	Cl. No. -61010-1:2010-06, 3RD ED (Clause 12.2.1)	0 to 100mR/h
		Sound Pressure Level	Cl. No. -61010-1:2010-06, 3RD ED (Clause 12.5.1)	upto 114dBA
4.	**Household and similar electrical appliances (Microwave Ovens, Electric Clocks, Fans, Vacuum Cleaner, Kitchen Machines-Mixer grinder, Storage Water Heater, Instantaneous Water Heater, Water Pumps, Portable Immersion Heater, Air Cooler, Electric Iron etc.)**	Markings & Instructions	IEC 60335-1 Cl. No. 5.1 Edition IS 302-1 Amendment No.1 IS 302-1Amendment No.2 March 2013 to IS 302-1:2008 IS 302-2-25 IS 302-2-26 Part-2-2:2009-12, Part-2-7 Part-2-8 Part-2-10 Part-2-14 Part-2-17 Part-2-21 Part-2-24 Part-2-26 Part-2-29 Part-2-35 Part-2-40 Part-2-41 Part-2-73 Part-2-74 Part-2-79	Visual
		Accessibility to live part		Visual
		Power Input and Current		Current:0.5mA to 20A Power:3.7 mW to 6000W
		Heating		Qualitative 25 to 225ºC
		Leakage Current		30 uA to 9 mA
		Electric Strength		Qualitative 0 V to 5kV AC 0 to 6kV DC 1 to 60 Sec
		Transient Over voltages		0.5kV to 12kV
		Moisture Resistance		Qualitative 20º C to 100º C 90% to 96% RH
		Abnormal operation		25 to 225ºC
		Stability		Qualitative 10º to 15º
		Impact Test		Qualitative (0.5 J to 5 J)
		Cord anchorage		Qualitative Up to 25 Nm Up to 200mm
		Provision for earthing		1 mΩ to 600 m Ω

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
		Clearances, creepage distances and solid Insulation	Part-2-80	0.5mm to 100mm
		Resistance to Heat-Ball pressure Test		0.5mm to 5mm
		Resistance to Fire-Glow wire test		Qualitative 500 ºC to 960ºC
5.	**Safety of Machinery-Electrical Equipment of machines**	Verification of the Continuity of the bonding circuit	IEC 60204-1, Edition 5.1 Clause no 18	1 mΩ to 600 m Ω
		Insulation Resistance Test		1 M Ω to 1 GΩ @ 500 V DC
		Voltage Test		Qualitative upto 5kV AC upto 6kV DC 1 to 60 Sec
		Residual Voltage test		Qualitative 300mV/Div
6.	**Safety of power Transformers**	Marking and other information	IEC 61558-1, Edition 2.1, (Clause no. 8)	Qualitative Visual
		Accessibility to live part	IEC 61558-1, Edition 2.1 (Clause no. 9.1)	Qualitative Visual
		Electrical discharge	IEC 61558-1, Edition 2.1 (Clause no. 9.2)	Qualitative 200mV/Div 5s/Div
		Output Voltage and output current under load	IEC 61558-1, Edition 2.1 (Clause no. 11.0)	Current:0.5mA to 20A Power:30 W to 6000 W
		Heating	IEC 61558-1, Edition 2.1 (Clause no. 14.0)	25 to 225ºC
		Short Circuit and overload protection	IEC 61558-1, Edition 2.1 (Clause no. 15.0)	25 to 225ºC

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
		Mechanical Strength	IEC 61558-1, Edition 2.1 (Clause no. 16.0)	Qualitative Up to 200N Up to 5Nm
		Humidity Treatment	IEC 61558-1, Edition 2.1 (Clause no. 17.2)	Qualitative 20º C to 100º C 90% to 96% RH
		Insulation resistance	IEC 61558-1, Edition 2.1 (Clause no. 18.2)	1MΩ to 1 GΩ @ 500 Vdc
		Dielectric strength Test	IEC 61558-1, Edition 2.1 (Clause no. 18.3)	Qualitative 0 V to 5kV AC 0 to 6kV DC 1 to 60 Sec
		Touch Current	IEC 61558-1, Edition 2.1 (Clause no. 18.5)	30 uA to 9 mA
		Construction	IEC 61558-1, Edition 2.1 (Clause no. 19.0)	Qualitative
		Components	IEC 61558-1, Edition 2.1 (Clause no. 20.0)	Qualitative
		Provision for protective earthing	IEC 61558-1, Edition 2.1 (Clause no. 24.0)	1 mΩ to 600 m Ω
		Creepage distances, Clearances and distance through insulation	IEC 61558-1, Edition 2.1 (Clause no. 26.0)	0.5mm to 100mm
		Resistance to Heat	IEC 61558-1, Edition 2.1 (Clause no. 27.1)	0.5 mm to 5 mm
		Resistance to abnormal Heat under fault condition	IEC 61558-1, Edition 2.1 (Clause no. 27.2)	Qualitative 70ºC
		Resistance to fire	IEC 61558-1, Edition 2.1 (Clause no. 27.3)	Qualitative 500°C to 960ºC

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
7.	**Uninterruptible power systems (UPS)**	Power Interfaces	IEC 62040-1 IS 16242 (Part 1) (Clause no. 4.6)	Current:0.5 mA to 20A Power: 30 W to 6000 W
		Marking and Instruction	IEC 62040-1 IS 16242 (Part 1) (Clause no. 4.7)	Qualitative Visual
		Protection against electric shock & energy hazard	IEC 62040-1 IS 16242 (Part 1) (Clause no. 5.1)	Qualitative 300VA
		Discharge of capacitors	IEC 62040-1 IS 16242 (Part 1) (Clause no. 5.1.1)	Qualitative 200mV/Div 5s/Div
		Protective Earthing	IEC 62040-1 IS 16242 (Part 1) (Clause no. 5.3)	1 mΩ to 600 m Ω
		Clearances and Creepage Distances	IEC 62040-1 IS 16242 (Part 1) (Clause no. 5.7)	0.5mm to 100mm
		Stability	IEC 62040-1 IS 16242 (Part 1) (Clause no. 7.2)	Qualitative 10º to 15º
		Mechanical strength	IEC 62040-1 IS 16242 (Part 1) (Clause no. 7.3)	Qualitative (0.5 J to 5 J)
		Temperature Rise	IEC 62040-1 IS 16242 (Part 1) (Clause no. 7.7)	25 to 225ºC
		Earth Leakage	IEC 62040-1 IS 16242 (Part 1) (Clause no. 8.1)	30 µA to 6 mA

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
		Electric Strength test	IEC 62040-1 IS 16242 (Part 1) (Clause no. 8.2)	Qualitative upto 5kV AC upto 6kV DC 1 to 60 Sec
8.	**d.c or a.c Supplied electronic control gear for LED Modules**	Marking	IS 15885 (Part 2/ Section13):2012 Clause no. 7	Visual
		Protection against accidental contact with live part	IS 15885 (Part 2/ Section13):2012 Clause no. 8	Qualitative Visual
		Provision for Earthing	IS 15885 (Part 2/ Section13):2012 Clause no. 10	1 mΩ to 600 m Ω
		Moisture Resistance and Insulation	IS 15885 (Part 2/ Section13):2012 Clause no. 11	Qualitative 20º C to 100º C 90% to 96% RH
		Electric Strength	IS 15885 (Part 2/ Section13):2012 Clause no. 12	Qualitative 0 V to 5kV AC 0 to 6kV DC 1 to 60 Sec
		Transformer Heating	IS 15885 (Part 2/ Section13):2012 Clause no. 15	25 to 225ºC
		Creepage Distances and Clearances	IS 15885 (Part 2/ Section13):2012 Clause no. 17	0.5mm to 100mm
		Resistance to Heat	IS 15885 (Part 2/ Section13):2012 Clause no. 18	0.5 mm to 5 mm

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
		Resistance to Fire	IS 15885 (Part 2/ Section13):2012 Clause no. 18	Qualitative 500ºC to 960 ºC
9.	**Measuring relays and protection equipment- Product Safety requirement**	Protection against electric shock	IEC 60255-27 Edition 2.0 Clause no. 5	Qualitative Visual
		Discharge of capacitors	IEC 60255-27 Edition 2.0 Clause no. 5.1.3	Qualitative 200mV/Div 5 s/Div
		Accessibility	IEC 60255-27 Edition 2.0 Clause no. 5.1.5	Qualitative Visual
		Bonding of Protective conductor	IEC 60255-27 Edition 2.0 Clause no. 5.1.6	1 mΩ to 600 m Ω
		Leakage Current	IEC 60255-27 Edition 2.0 Clause no. 5.1.8	30 uA to 9 mA
		Clearances and Creepage distances	IEC 60255-27 Edition 2.0 Clause no. 5.1.10	0.5mm to 100mm
		Single fault condition	IEC 60255-27 Edition 2.0 Clause no. 5.2	25 to 225ºC
		Temperature under normal operation	IEC 60255-27 Edition 2.0 Clause no. 7.3.12	25 to 225ºC
		Limited Energy Circuit	IEC 60255-27 Edition 2.0 Clause no. 7.12	60 V 20 A max 300 VA
		Marking Durability	IEC 60255-27 Edition 2.0 Clause no. 9.1.11	Visual
		Dielectric Voltage test	IEC 60255-27 Edition 2.0 Clause No.10.6.4.3	Qualitative 0 V to 5kV AC 0 to 6kV DC 1 to 60 Sec
		Insulation Resistance	IEC 60255-27 Edition 2.0 Clause no. 10.6.4.4	1MΩ to 1GΩ @ 500 Vdc