

Laboratory **Electronics Test & Development Centre, Dr. VSI Estate, Thiruvanimiyur, Chennai, Tamil Nadu**

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

Certificate Number **TC-7951**

Page 1 of 13

Validity **26.09.2018 to 25.09.2020**

Last Amended on --

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

I.	BATTERIES			
1.	Dry Cells R6, R14, R20	Dimensions and terminals	IS 8144 Cl. 5 & 7	Up to 300 mm
		Markings	IS 8144 Cl.9	Qualitative (Visual)
		Initial Life test	IS 8144 Cl.10.4	Discharge resistors 1 Ω to 300Ω
		Delayed Life test	IS 8144 Cl.10.5	Discharge resistors 1 Ω to 300Ω
		Materials and construction	IS 8144 Cl.6	Qualitative (Visual)
		Delayed Life test under Dry heat conditions	IS 8144 Cl.10.6	Temp. :-40 °C to 300°C RH:15 % to 98%
		Leakage test for batteries marked leak proof or any other marking to similar effect	IS 8144 Cl.10.7	Discharge resistors 1 Ω to 300Ω
2.	Dry Cells R03, R6, R14, R20	Dimensions and terminals	IS 9128 Cl.5 and 7	Up to 300 mm
		Markings	IS 9128 Cl.9	Qualitative (Visual)
		Initial Life test	IS 9128 Cl.10.4	Discharge resistors 1 Ω to 300Ω
		Delayed Life test	IS 9128 Cl.10.5	Discharge resistors 1 Ω to 300Ω
		Materials and construction	IS 9128 Cl.6	Qualitative (Visual)
		Delayed Life test under Dry heat conditions	IS 9128 Cl.10.6	Discharge resistors 1 Ω to 300Ω
		Resistance to Leakage of electrolytes	IS 9128 Cl.10.7	Discharge resistors 1 Ω to 300Ω

Laboratory **Electronics Test & Development Centre, Dr. VSI Estate, Thiruvanmiyur,
Chennai, Tamil Nadu**

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

Certificate Number **TC-7951**

Page 2 of 13

Validity **26.09.2018 to 25.09.2020**

Last Amended on --

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

I.	DOMESTIC ELECTRONIC APPLIANCES & ACCESSORIES			
1.	AC Static Watt Hour – Class 1 & 2 (1 Φ and 3 Φ)	Impulse Voltage	IS 13779 (A5) Cl.12.7.6.2	0.25 kV to 10 kV
		AC High Voltage Test	IS 13779 Cl.12.7.6.3	1 kV to 5 kV AC, 50 Hz
		Insulation Resistance Test	IS 13779 Cl.12.7.6.4	500 kΩ to 5x10 ⁹ Ω
		Limits of error	IS 13779 Cl.11.11	3*40 V to 300 V 45 Hz to 55 Hz, 3*10 mA to 120 A, 0.25 Lag-UPF-0.25 Lead
		Interpretation of test results	IS 13779 Cl.12.16	Qualitative
		Meter constant	IS 13779 Cl.12.15	3*40 V to 300 V 45 Hz to 55 Hz, 3*10 mA to 120 A, 0.25 Lag-UPF-0.25 Lead
		Starting condition	IS 13779 Cl.12.14	2 mA (min)
		Initial start-up of meter	IS 13779 Cl.11.4.1	50 V to 240V AC 1 s to 10 s.
		No load condition	IS 13779 Cl.12.13	50 V to 240V AC 1min to 200 min
		Ambient temperature influence	IS 13779 Cl.12.12	10 °C to 45 °C
		Repeatability of error	IS 13779 Cl.12.17	3*40 V to 300 V 45 Hz to 55 Hz, 3*10 mA to 120 A, 0.25 Lag-UPF-0.25 Lead
		Influence quantities a. Voltage Variation b. Frequency Variation	IS 13779 Cl.12.11	3*40 V to 300 V 45 Hz to 55 Hz, 3*10 mA to 120 A, 0.25 Lag-UPF-0.25 Lead

Laboratory **Electronics Test & Development Centre, Dr. VSI Estate, Thiruvanmiyur,
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Accreditation Standard **ISO/IEC 17025: 2005**

Certificate Number **TC-7951**

Page 3 of 13

Validity **26.09.2018 to 25.09.2020**

Last Amended on --

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		c. Waveform 10% of 3 rd harmonic in current circuit d. DC & even harmonics in AC current circuit e. Magnetic Influence f. EMHF Test		
		Power Consumption test	IS 13779 Cl.12.7.1	0.05 W to 20 W, 0.05 VA to 20 VA
		Influence of supply voltage	IS 13779 Cl.12.7.2	40 V to 400 V 10 ms to 1 s
		Influence short-time over currents	IS 13779 Cl.12.7.3	20 A to 3900 A 10 ms ± 0.6 ms
		Influence of self heating	IS 13779 Cl.12.7.4	3*40 V to 300 V 45 Hz to 55 Hz, 3*10 mA to 120 A, 0.25 Lag-UPF-0.25 Lead
		Influence of heating	IS 13779 Cl.12.7.5	Ambient to 60 °C
		Influence of immunity to earth fault	IS 13779 Cl.12.8	Visual
		Radio Interference measurement**	IS 13779 Cl.12.9.5	150 kHz-30MHz: 46dB(µV)-66dB(µV); 30MHz-300MHz: 35dB(pW)- 55dB(pW)
		Fast Transient Burst Test	IS 13779 Cl.12.9.4	Qualitative 4 kV
		Immunity to Electrostatic Discharges	IS 13779 Cl.12.9.2	Qualitative 8 kV Contact, 15 kV Air
		Immunity to Electromagnetic HF Field (IEC61000-4-3:1995)	IS 13779 Cl.12.9.3	Qualitative 10 V/m, 1 GHz
		Dry Heat Test	IS 13779 (A5) Cl.12.6.1	Ambient to180 °C;

Neeraj Verma
Convenor

Birendra Prasad Murmu
Program Manager

Laboratory **Electronics Test & Development Centre, Dr. VSI Estate, Thiruvanimiyur,
Chennai, Tamil Nadu**

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

Certificate Number **TC-7951**

Page 4 of 13

Validity **26.09.2018 to 25.09.2020**

Last Amended on --

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
		Cold test	IS 13779 Cl.12.6.2	(-) 40 °C to Ambient
		Damp Heat Cyclic Test	IS 13779 Cl.12.6.3	Ambient to 95 °C 15 % RH to 98% RH
		Vibration test	IS 13779 Cl.12.3.2	10 Hz to 150 Hz; 0.15 mm/2g
		Spring Hammer Test	IS 13779 Cl.12.3.3	2.2 J
		Protection against penetration of Dust & Water	IS 13779 Cl.12.5	IP51
		Resistance to heat & fire	IS 13779 Cl.12.4	640 °C to 975 °C
		General & constructional requirements	IS 13779 Cl.6.0-6.11 & 7.0 – 7.2	Qualitative (Visual)
2.	AC Static Transformer operated Watt hour & VAR-hour meters Cl. 0.2S & 0.5S (1 Φ and 3 Φ)	Impulse Voltage	IS 14697 Cl.12.7.6.2	0.25 kV to 10 kV
		AC High Voltage Test	IS 14697 Cl.12.7.6.3	1 kV to 5 kV AC, 50 Hz
		Insulation Resistance Test	IS 14697 Cl.12.7.6.4	500 kΩ to 5x10 ⁹ Ω
		Limits of error	IS 14697 Cl.11.1	3*40 V to 300 V 45 Hz to 55 Hz, 3*10 mA to 120 A, 0.25 Lag-UPF-0.25 Lead
		Interpretation of test results	IS 14697 Cl.12.15	Qualitative
		Meter constant	IS 14697 Cl.12.14	3*40 V to 300 V 45 Hz to 55 Hz, 3*10 mA to 120 A, 0.25 Lag-UPF-0.25 Lead
		Starting condition	IS 14697 Cl.12.13	2 mA (min)
		Initial start-up of meter	IS 14697 Cl.11.4.1	50 V to 240V AC 1s to 10 s.
		No load condition	IS 14697 Cl.12.12	50 V to 240 V AC 1min to 200 min
		Ambient temperature influence	IS 14697 Cl.12.11	10°C to 45 °C

Laboratory **Electronics Test & Development Centre, Dr. VSI Estate, Thiruvanimiyur, Chennai, Tamil Nadu**

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

Certificate Number **TC-7951**

Page 5 of 13

Validity **26.09.2018 to 25.09.2020**

Last Amended on --

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	IS 14697 Cl.12.16	3*40 V to 300 V 45 Hz to 55 Hz, 3*10 mA to 120 A, 0.25 Lag-UPF-0.25 Lead
		Influence quantities a. Voltage Variation b. Frequency Variation c. Waveform 10% of 3 rd harmonic in current circuit d. DC & even harmonics in AC current circuit e. Magnetic Influence f. EMHF Test	IS 14697 Cl.12.10	3*40 V to 300 V 45 Hz to 55 Hz, 3*10 mA to 120 A, 0.25 Lag-UPF-0.25 Lead
		Power consumption test	IS 14697 Cl.12.7.1	0.05 W to 20 W, 0.05 VA to 20 VA
		Influence of supply voltage	IS 14697 Cl.12.7.2	40 V to 400 V 10 ms to 1 s
		Influence short-time over currents	IS 14697 Cl.12.7.3	20 A to 3900 A; 10 ms ± 0.6 ms
		Influence of self heating	IS 14697 Cl.12.7.4	3*40 V to 300 V 45 Hz to 55 Hz, 3*10 mA to 120 A, 0.25 Lag-UPF-0.25 Lead
		Influence of heating	IS 14697 Cl.12.7.5	Ambient to 60 °C
		Influence of immunity to earth fault	IS 14697 Cl.12.17	Qualitative (Visual)
		Radio Interference measurement	IS 14697 Cl.12.9.5	150 kHz to 30MHz 46dB(µV) to 66dB(µV) 30MHz to 300MHz 35dB(pW) to 55dB(pW)
		Fast Transient Burst Test	IS 14697 Cl.12.9.4	Qualitative (4 kV)

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Laboratory **Electronics Test & Development Centre, Dr. VSI Estate, Thiruvanmiyur, Chennai, Tamil Nadu**

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

Certificate Number **TC-7951** **Page 6 of 13**

Validity **26.09.2018 to 25.09.2020** **Last Amended on --**

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
		Immunity to Electrostatic Discharges	IS 14697 Cl.12.9.2	Qualitative (8 kV Contact, 15 kV Air)
		Immunity to Electromagnetic HF Field	IS 14697 Cl.12.9.3 (IEC61000-4-3:1995)	Qualitative 10 V/m, 1 GHz
		Dry Heat Test	IS 14697 Cl.12.6.1	Ambient to 180 °C
		Cold test	IS 14697 Cl.12.6.2	(-)40 °C to Ambient
		Damp Heat Cyclic Test	IS 14697 Cl.12.6.3	Ambient to 95°C; 15% RH to 98% RH
		Vibration test	IS 14697 Cl.12.3.2	10 Hz to 150 Hz; 0.15 mm/2g
		Spring Hammer Test	IS 14697 Cl.12.3.3	2.2 J
		Protection against penetration of Dust & Water	IS 14697 Cl.12.5	IP51
		Resistance to heat & fire	IS 14697 Cl.12.4	640 °C to 975 °C
		General & constructional requirements	IS 14697 Cl.6.0-6.11 & 7.0 – 7.2	Qualitative (Visual)
3.	Electricity metering equipment (ac) -Static meters for active energy Cl.1 & 2 Single / Three Phase	Impulse Voltage	IEC 62053-21(RD IEC 62052-11:2003) Cl.7.3.2	0.25 kV to 10 kV
		AC High Voltage Test	IEC 62053-21(RD IEC 62052-11:2003) Cl.7.3.3	1 kV to 5 kV AC, 50 Hz
		Meter constant	IEC 62053-21(RD IEC 62052-11:2003) Cl.8.4	3*40 V to 300 V 45 Hz to 55 Hz, 3*10 mA to 120 A, 0.25 Lag-UPF-0.25 Lead
		Starting condition	IEC 62053-21(RD IEC 62052-11:2003) Cl.8.3.3	2 mA (min)
		No load condition	IEC 62053-21(RD IEC 62052-11:2003) Cl.8.3.2	50 V to 240V AC 1min to 200 min
		Ambient temperature influence	IEC 62053-21(RD IEC 62052-11:2003) Cl.8.2	10 °C to 45 °C
		Influence quantities	IEC 62053-21(RD IEC 62052-11:2003) Cl.8.2	3*40 V to 300 V 45 Hz to 55 Hz,

Laboratory **Electronics Test & Development Centre, Dr. VSI Estate, Thiruvanimiyur, Chennai, Tamil Nadu**

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

Certificate Number **TC-7951**

Page 7 of 13

Validity **26.09.2018 to 25.09.2020**

Last Amended on --

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
				3*10 mA to 120 A, 0.25 Lag-UPF-0.25 Lead
		Power consumption test	IEC 62053-21(RD IEC 62052-11:2003) Cl.7.1	0.05 W to 20 W, 0.05 VA to 20 VA
		Influence of supply voltage	IEC 62053-21(RD IEC 62052-11:2003) Cl.7.1.2	40 V to 400 V; 10 ms to 1 s
		Influence short-time over currents	IEC 62053-21(RD IEC 62052-11:2003) Cl.7.2	20 A to 3900 A; 10 ms ± 0.6 ms
		Influence of self heating	IEC 62053-21(RD IEC 62052-11:2003) Cl.7.3	3*40 V to 300 V 45 Hz to 55 Hz, 3*10 mA to 120 A, 0.25 Lag-UPF-0.25 Lead
		Influence of heating	IEC 62053-21(RD IEC 62052-11:2003) Cl.7.2	Ambient to 60 °C
		Influence of immunity to earth fault	IEC 62053-21(RD IEC 62052-11:2003) Cl.7.4	Qualitative (Visual)
		Radio Interference measurement	IEC 62053-21(RD IEC 62052-11:2003) Cl.7.5.8	150 kHz to 30MHz: 46dB(µV) to 66dB(µV); 30MHz to 300MHz: 35dB(pW) to 55dB(pW)
		Fast Transient Burst Test	IEC 62053-21(RD IEC 62052-11:2003) Cl.7.5.4	Qualitative 4 kV
		Surge Test	IEC 62053-21(RD IEC 62052-11:2003) Cl.7.5.6	Qualitative 6 kV
		Immunity to Electrostatic Discharges	IEC 62053-21(RD IEC 62052-11:2003) Cl.7.5.2	Qualitative 8 kV Contact, 15 kV Air
		Immunity to Electromagnetic HF Field (IEC61000-4-3:1995)	IEC 62053-21(RD IEC 62052-11:2003) Cl.7.5.3	Qualitative 10 V/m, 1 GHz
		Dry Heat Test	IEC 62053-21(RD IEC 62052-11:2003) Cl.6.3.1	Ambient to 180 °C
		Cold test	IEC 62053-21(RD IEC 62052-11:2003) Cl.6.3.2	(-)40 °C to Ambient

Laboratory **Electronics Test & Development Centre, Dr. VSI Estate, Thiruvanimiyur, Chennai, Tamil Nadu**

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

Certificate Number **TC-7951**

Page 8 of 13

Validity **26.09.2018 to 25.09.2020**

Last Amended on --

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		Damp Heat Cyclic Test	IEC 62053-21(RD IEC 62052-11:2003) Cl.6.3.3	Ambient to 95°C; 15% RH to 98% RH
		Vibration test	IEC 62053-21(RD IEC 62052-11:2003) Cl.5.2.2.3	10 Hz to 150 Hz; 0.15 mm/2g
		Spring Hammer Test	IEC 62053-21(RD IEC 62052-11:2003) Cl.5.2.2.1	2.2 J
		Protection against penetration of Dust & Water	IEC 62053-21(RD IEC 62052-11:2003) Cl.5.9	IP51
		Resistance to heat & fire	IEC 62053-21(RD IEC 62052-11:2003) Cl.5.8	640°C to 975 °C
4.	Electricity metering equipment (AC) -Static meters for active energy Cl. 0.2S & 0.5S (1 Φ and 3 Φ)	Impulse Voltage	IEC 62053-22 (RD IEC 62052-11: 2003) Cl.7.3.2	0.25 kV to 10 kV
		AC High Voltage Test	IEC 62053-22 (RD IEC 62052-11: 2003) Cl.7.3.3	1 kV to 5 kV AC, 50 Hz
		Limits of error	IEC 62053-22 (RD IEC 62052-11: 2003) Cl.8.1	3*40 V to 300 V 45 Hz to 55 Hz, 3*10 mA to 120 A, 0.25 Lag-UPF-0.25 Lead
		Interpretation of test results	IEC 62053-22 (RD IEC 62052-11: 2003) Cl.8.6	Qualitative
		Meter constant	IEC 62053-22 (RD IEC 62052-11: 2003) Cl.8.4	3*40 V to 300 V 45 Hz to 55 Hz, 3*10 mA to 120 A, 0.25 Lag-UPF-0.25 Lead
		Starting condition	IEC 62053-22 (RD IEC 62052-11: 2003) Cl.8.3.3	2 mA (min)
		No load condition	IEC 62053-22 (RD IEC 62052-11: 2003) Cl.8.3.2	50 V to 240V AC 1min to 200 min
		Ambient temperature influence	IEC 62053-22 (RD IEC 62052-11: 2003) Cl.8.2	10 °C to 45 °C
		Influence quantities	IEC 62053-22 (RD IEC 62052-11: 2003) Cl.8.2	3*40 V to 300 V 45 Hz to 55 Hz, 3*10 mA to 120 A, 0.25 Lag-UPF-0.25 Lead

Laboratory **Electronics Test & Development Centre, Dr. VSI Estate, Thiruvanimiyur, Chennai, Tamil Nadu**

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

Certificate Number **TC-7951**

Page 9 of 13

Validity **26.09.2018 to 25.09.2020**

Last Amended on --

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		Power consumption test	IEC 62053-22 (RD IEC 62052-11: 2003) Cl.7.1	0.05 W to 20 W, 0.05 VA to 20 VA
		Influence of supply voltage	IEC 62053-22 (RD IEC 62052-11: 2003) Cl.7.1.2	40 V to 400 V 10 ms to 1 s
		Influence short-time over currents	IEC 62053-22 (RD IEC 62052-11: 2003) Cl.7.2	20 A to 3900 A; 10 ms ± 0.6 ms
		Influence of self heating	IEC 62053-22 (RD IEC 62052-11: 2003) Cl.7.3	3*40 V to 300 V 45 Hz to 55 Hz, 3*10 mA to 120 A, 0.25 Lag-UPF-0.25 Lead
		Influence of heating	IEC 62053-22 (RD IEC 62052-11: 2003) Cl.7.2	Ambient to 60 °C
		Influence of immunity to earth fault	IEC 62053-22 (RD IEC 62052-11: 2003) Cl.7.4	Qualitative (Visual)
		Radio Interference measurement	IEC 62053-22 (RD IEC 62052-11: 2003) Cl.7.5.8	150 kHz-30MHz: 46dB(µV)-66dB(µV); 30MHz-300MHz: 35dB(pW)- 55dB(pW)
		Fast Transient Burst Test	IEC 62053-22 (RD IEC 62052-11: 2003) Cl.7.5.4	Qualitative 4 kV
		Surge Test	IEC 62053-22 (RD IEC 62052-11: 2003) Cl.7.5.6	Qualitative 6 kV
		Immunity to Electrostatic Discharges	IEC 62053-22 (RD IEC 62052-11: 2003) Cl.7.5.2	Qualitative 8 kV Contact, 15 kV Air
		Immunity to Electromagnetic HF Field (IEC61000-4-3:1995)	IEC 62053-22 (RD IEC 62052-11: 2003) Cl.7.5.3	Qualitative 10 V/m, 1 GHz
		Dry Heat Test	IEC 62053-22 (RD IEC 62052-11: 2003) Cl.6.3.1	Ambient to 180 °C
		Cold test	IEC 62053-22 (RD IEC 62052-11: 2003) Cl.6.3.2	(-)40 °C to Ambient
		Damp Heat Cyclic Test	IEC 62053-22 (RD IEC 62052-11: 2003) Cl.6.3.3	Ambient to 95°C; 15% RH to 98% RH

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

Certificate Number **TC-7951**

Page 10 of 13

Validity **26.09.2018 to 25.09.2020**

Last Amended on --

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		Vibration test	IEC 62053-22 (RD IEC 62052-11: 2003) Cl.5.2.2.3	10 Hz to150 Hz; 0.15 mm/2g
		Spring Hammer Test	IEC 62053-22 (RD IEC 62052-11: 2003) Cl.5.2.2.1	2.2 J
		Protection against penetration of Dust & Water	IEC 62053-22 (RD IEC 62052-11: 2003) Cl.5.9	IP51
		Resistance to heat & fire	IEC 62053-22 (RD IEC 62052-11: 2003) Cl.5.8	640 °C to 975 °C
5.	Electricity metering equipment (AC) - Static meters for Reactive energy Cl. 2 & 3 (3 Φ)	Impulse Voltage	IEC 62053-23 (RD IEC 62052-11: 2003) Cl.7.3.2	0.25 kV to 10 kV
		AC High Voltage Test	IEC 62053-23 (RD IEC 62052-11: 2003) Cl.7.3.3	1 kV to 5 kV AC, 50 Hz
		Meter constant	IEC 62053-23 (RD IEC 62052-11: 2003) Cl.8.4	3*40 V to 300 V 45 Hz to 55 Hz, 3*10 mA to 120 A, 0.25 Lag-UPF-0.25 Lead
		Starting condition	IEC 62053-23 (RD IEC 62052-11: 2003) Cl.8.3.3	2 mA (min)
		No load condition	IEC 62053-23 (RD IEC 62052-11: 2003) Cl.8.3.2	50 V to 240V AC 1min to 200 min
		Ambient temperature influence	IEC 62053-23 (RD IEC 62052-11: 2003) Cl.8.2	10 °C to 45 °C
		Influence quantities	IEC 62053-23 (RD IEC 62052-11: 2003) Cl.8.2	3*40 V to 300 V 45 Hz to 55 Hz, 3*10 mA to 120 A, 0.25 Lag-UPF-0.25 Lead
		Power consumption test	IEC 62053-23 (RD IEC 62052-11: 2003) Cl.7.1	0.05 W to 20 W, 0.05 VA to 20 VA
		Influence of supply voltage	IEC 62053-23 (RD IEC 62052-11: 2003) Cl.7.1.2	40 V to 400 V; 10 ms to 1 s
		Influence short-time over currents	IEC 62053-23 (RD IEC 62052-11: 2003) Cl.7.2	20 A to 3900 A; 10 ms ± 0.6 ms

Laboratory **Electronics Test & Development Centre, Dr. VSI Estate, Thiruvanniyur, Chennai, Tamil Nadu**

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

Certificate Number **TC-7951**

Page 11 of 13

Validity **26.09.2018 to 25.09.2020**

Last Amended on --

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
		Influence of self heating	IEC 62053-23 (RD IEC 62052-11: 2003) Cl.7.3	3*40 V to 300 V 45 Hz to 55 Hz, 3*10 mA to 120 A, 0.25 Lag-UPF-0.25 Lead
		Influence of heating	IEC 62053-23 (RD IEC 62052-11: 2003) Cl.7.2	Ambient to 60 °C
		Influence of immunity to earth fault	IEC 62053-23 (RD IEC 62052-11: 2003) Cl.7.4	Visual
		Radio Interference measurement	IEC 62053-23 (RD IEC 62052-11: 2003) Cl.7.5.8	150 kHz to 30MHz: 46dB(µV) to 66dB(µV); 30MHz to 300MHz: 35dB(pW) to 55dB(pW)
		Fast Transient Burst Test	IEC 62053-23 (RD IEC 62052-11: 2003) Cl.7.5.4	Qualitative 4 kV
		Surge Test	IEC 62053-23 (RD IEC 62052-11: 2003) Cl.7.5.6	Qualitative 6 kV
		Test of immunity to Electrostatic Discharges	IEC 62053-23 (RD IEC 62052-11: 2003) Cl.7.5.2	Qualitative 8 kV Contact, 15 kV Air
		Immunity to Electromagnetic HF Field (IEC61000-4-3:1995)	IEC 62053-23 (RD IEC 62052-11: 2003) Cl.7.5.3	Qualitative 10 V/m, 1 GHz
		Dry Heat Test	IEC 62053-23 (RD IEC 62052-11: 2003) Cl.6.3.1	Ambient to 180 °C
		Cold test	IEC 62053-23 (RD IEC 62052-11: 2003) Cl.6.3.2	(-)40 °C to Ambient
		Damp Heat Cyclic Test	Cl.6.3.3	Ambient to 95°C; 15% RH to 98% RH
		Vibration test	IEC 62053-23 (RD IEC 62052-11: 2003) Cl.5.2.2.3	10 Hz to 150 Hz; 0.15 mm/2g
		Spring Hammer Test	IEC 62053-23 (RD IEC 62052-11: 2003) Cl.5.2.2.1	2.2 J
		Protection against penetration of Dust & Water	IEC 62053-23 (RD IEC 62052-11: 2003) Cl.5.9	IP51

Laboratory **Electronics Test & Development Centre, Dr. VSI Estate, Thiruvanimiyur, Chennai, Tamil Nadu**

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

Certificate Number **TC-7951**

Page 12 of 13

Validity **26.09.2018 to 25.09.2020**

Last Amended on --

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
		Test of resistance to heat & fire	IEC 62053-23 (RD IEC 62052-11: 2003) Cl.5.8	640 °C to 975 °C
II.	EMC TEST FACILITY			
1.	EMI/EMC Testing (All Products)	Radio Interference Measurement	IS:13779:1999 (IS:6842:1997) / IS 14697:1999 / IS 6873 (Part 7: 2012) / CISPR-22:2008	150 kHz to 30MHz 46dB(μV) to 66dB(μV)
		Disturbance Voltage		
		Electrostatic Discharge	IS:13779:1999 / IS 14697:1999 / IEC61000-4-2: 2008	Air: 0.2kV to 16.5 kV Contact: 0.2 kV to 9 kV
		Electric Fast Transient (Burst)	IS:13779:1999 / IS 4697:1999 / IEC61000-4-4: 2012	250V to 4.4kV; Waveform: 5/50ns Burst Period: 300ms
		Surge	IEC61000-4-5:2014	Open circuit voltage: 250V to 6kV Waveform: 1.2/50μs Short circuit current: 250 A to 3 kA Waveform:8/20μs
		Dips & Interrupts (PQF)	IEC61000-4-11:2004	Up to 16 A for 1φ Phase
		Power Frequency Magnetic Field	IEC61000-4-8:2009	50Hz, 1 A/m to 1000A/m
III.	ENVIRONMENTAL TEST FACILITY			
1.	Environmental Test Facilities (Upto 1000 litre)	Dry heat	IEC 60068-2-2 IS 9000 Part 3 Sec 1 to 5	Ambient to 300°C Test Space: 1.2m ³
		Cold	IEC 60068-2-1 IS 9000 Part 2 Sec 1 to 4	Upto -40°C Test Space: 1.0m ³
		Humidity (steady state)	IEC 60068-2-67 IS 9000 Part IV	Ambient to 80°C RH 20% to 95%

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

Certificate Number **TC-7951**

Page 13 of 13

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Last Amended on --

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
		Humidity (Cyclic)	IEC 60068-2-30 IS 9000 Part V Sec 1 & 2	Test Space: 1.0m ³
		Sand & Dust	IEC 60068-2-68: 2007 IS 9000 Part XII: 1981	Ambient to 60°C Test Space: 0.75m ³
		Vibration (Sinusoidal)	IEC60068-2-6: 2007 IS 9000:1981 Part VIII: 1981	Frequency: 5 Hz to 2000Hz Displacement: 51mm(p-p) Velocity: 1.6m/sec Acceleration: upto 100g Test Space: (0.9x0.8)m ²
		Vibration (Random)	IEC 60068-2-55: 2007	Frequency: 10Hz to 2000Hz Acceleration: upto 100g Test Space: (0.9x0.8)m ²
		Shock	IEC 60068-2-27:2007 IS 9000:2006 Part VII Sec1	Variable upto 100g, Pulse width: 6ms to 18ms Test Space: (0.9x0.8)m ²
		Bump	IEC 60068-2-27:2007 IS 9000:2006 Part VII Sec2	Variable upto 100g 1 to 4 bumps/sec Test Space: (0.9x0.8)m ²
		Drop & Topple	IEC 60068-2-31:2007 IS 9000: 2006 Part VII Sec 3	Upto 100mm
		Free fall	IEC 60068-2-32:1980 IS 9000: 2006 Part VII Sec 4	Upto 1m on 13 mm steel/ thick wooden plate
		Freefall, repeated	IEC 60068-2-32:1980 IS 9000: 2006 Part VII Sec 5	Upto 1m
		Ingress Protection	IEC 60529/ IEC 60947	1X to 6X X1 to X8