

<b>Laboratory</b>	<b>Kailtech Test and Research Centre Private Limited, 141-C, Electronic Complex Industrial Area, Pardesipura, Indore, Madhya Pradesh</b>		
<b>Accreditation Standard</b>	<b>ISO/IEC 17025: 2005</b>		
<b>Discipline</b>	<b>Electrical Testing</b>	<b>Issue Date</b>	<b>07.11.2016</b>
<b>Certificate Number</b>	<b>T-4240</b>	<b>Valid Until</b>	<b>17.09.2018</b>
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<b>S. No.</b>	<b>Product / Material of Test</b>	<b>Specific Test Performed</b>	<b>Test Method Specification against which tests are performed</b>	<b>Range of Testing / Limits of Detection</b>
<b>I. DOMESTIC ELECTRICAL APPLIANCES</b>				
<b>1.</b>	<b>Domestic (Household And Similar) Electrical Appliances</b>	Marking and instructions	IS 302-1: 2008 (Cl. 7) IS 302-2-25: 2014 (Cl. 7) IS 302-2-26: 2014 (Cl. 7)	Qualitative
		Protection against access to live parts	IS 302-1: 2008 (Cl. 8) IS 302-2-25: 2014 (Cl. 8) IS 302-2-26: 2014 (Cl. 8)	Qualitative (Force Upto 500 N)
		Power Input And Current	IS 302-1: 2008 (Cl. 10) IS 302-2-25: 2014 (Cl. 10) IS 302-2-26: 2014 (Cl. 10)	0.1 A to 15 A 1VAC to 300 VAC 1 W to 5000 W
		Heating	IS 302-1: 2008 (Cl. 11) IS 302-2-25: 2014 (Cl. 11) IS 302-2-26: 2014 (Cl. 11)	Ambient to 400 °C
		Leakage current Electric strength at operating temperature	IS 302-1: 2008 (Cl. 13) IS 302-2-25: 2014 (Cl. 13) IS 302-2-26: 2014 (Cl. 13)	Upto 4 mA Qualitative (0.01 KVAC to 10 KVAC)
		Transient Over Voltage	IS 302-1: 2008 (Cl. 14) IS 302-2-25: 2014 (Cl. 14) IS 302-2-26: 2014 (Cl. 14)	Qualitative
		Moisture resistance	IS 302-1: 2008 (Cl. 15) IS 302-2-25: 2014 (Cl. 15) IS 302-2-26: 2014 (Cl. 15)	Qualitative (Upto 50°C, 95% RH)
		Leakage current Electric strength	IS 302-1: 2008 (Cl. 16) IS 302-2-25: 2014 (Cl. 16) IS 302-2-26: 2014 (Cl. 16)	Upto 4 mA Qualitative (0.01 KVAC to 10 KVAC)
		Endurance	IS 302-2-25: 2014 (Cl. 18)	Qualitative

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	<b>Domestic (Household And Similar) Electrical Appliances</b>	Stability and mechanical hazards	IS 302-1: 2008 (Cl. 20) IS 302-2-25: 2014 (Cl. 20) IS 302-2-26: 2014 (Cl. 20)	Qualitative
		Mechanical Strength	IS 302-1: 2008 (Cl. 21) IS 302-2-25: 2014 (Cl. 21) IS 302-2-26: 2014 (Cl. 21)	Qualitative
		Provision for earthing	IS 302-1: 2008 (Cl. 27) IS 302-2-25: 2014 (Cl. 27) IS 302-2-26: 2014 (Cl. 27)	0.01 VAC to 9.99 VAC 0 to 50 A 0.01 $\Omega$ to 1 $\Omega$
		Clearances Creepage distances and solid insulation	IS 302-1: 2008 (Cl. 29) IS 302-2-25: 2014 (Cl. 29) IS 302-2-26: 2014 (Cl. 29)	0.01 mm to 300 mm
		Resistance to heat & fire	IS 302-1: 2008 (Cl. 30) IS 302-2-25: 2014 (Cl. 30) IS 302-2-26: 2014 (Cl. 30)	Qualitative
		Radiation, Toxicity and similar hazards	IS 302-2-25: 2014 (Cl. 32)	Qualitative (9.99 mW/cm <sup>2</sup> )

## **II. LAMPS, LUMINARIES AND ACCESSORIES**

<b>1.</b>	<b>Lamp, Luminaries and Accessories</b>	Marking	IS 10322 (Part 1/Sec III): 2014 IS 10322 (Part 5/Sec I): 2012 (Cl.6) IS 10322 (Part 5/Sec II): 2012 (Cl.6) IS 10322 (Part 5/Sec III): 2012 (Cl.6) IS 10322 (Part 5/Sec V): 1987 (Cl.5)	Qualitative (Durability Test)
		Creepage distances and clearances	IS 10322 (Part 1/Sec XI): 2014 IS 10322 (Part 5/Sec I): 2012 (Cl. 8) IS 10322 (Part 5/Sec II): 2012 (Cl. 8) IS 10322 (Part 5/Sec III): 2012 (Cl.8)	0.01 mm to 300 mm

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	<b>Lamp, Luminaries and accessories</b>	Provision for Earthing	IS 10322 (Part 1/Sec VII): 2014 IS 10322 (Part 5/Sec I): 2012 (Cl. 9) IS 10322 (Part 5/Sec II): 2012 (Cl. 9) IS 10322 (Part 5/Sec III): 2012 (Cl.9) IS 10322 (Part 5/Sec V): 1987 (Cl. 8)	0.01 VAC to 9.99 VAC 0.01 A to 50 A Upto 300 mm 0.01 $\Omega$ to 1 $\Omega$
		Protection Against Electric Shock	IS 10322 (Part 1/Sec VIII): 2014 IS 10322 (Part 5/Sec I): 2012 (Cl. 12) IS 10322 (Part 5/Sec II): 2012 (Cl. 12) IS 10322 (Part 5/Sec III): 2012 (Cl.12) IS 10322 (Part 5/Sec V):1987 (Cl.11)	Qualitative (Force Upto 500 N)
		Resistance to Dust and Moisture	IS 10322 (Part 1/Sec IX): 2014 IS 10322 (Part 5/Sec I): 2012 (Cl. 14) IS 10322 (Part 5/Sec II): 2012 (Cl. 14) IS 10322 (Part 5/Sec III): 2012 (Cl.14) IS 10322 (Part 5/Sec V):1987 (Cl.13.5)	Qualitative
		Insulation Resistance And Electric Strength Test	IS 10322 (Part 1/Sec X): 2014 IS 10322 (Part 5/Sec I): 2012 (Cl. 15) IS 10322 (Part 5/Sec II):2012 (Cl. 15) IS 10322 (Part 5/Sec III):2012(Cl.15) IS 10322 (Part 5/Sec V):1987 (Cl.13.6)	Qualitative (10 °C to 50 °C, Upto 95 % RH, 11M $\Omega$ to 1 T $\Omega$ , 2 M $\Omega$ to 2 G $\Omega$ ) Qualitative (0.01 kV to 10 kV)

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	<b>Lamp, Luminaries and accessories</b>	Resistance to Heat ,Fire & Tracking	IS 10322 (Part 1/Sec XIII): 2014 IS 10322 (Part 5/Sec I): 2012 (Cl. 16) IS 10322 (Part 5/Sec II):2012 (Cl. 16) IS 10322 (Part 5/Sec III):2012 (Cl.16) IS 10322 (Part 5/Sec V): 1987 (Cl. 13.7)	Qualitative
<b>III. UNINTERRUPTED POWER SYSTEMS</b>				
<b>1.</b>	<b>Uninterruptible power systems (UPS)</b>	Power Interface	IS 16242 (Part 1): 2014 IEC 62040-1: 2008 (Cl. 4.6)	0.1 A to 15 A, 1 VAC to 300 VAC 1 W to 5000 W
		Markings and Instructions	IS 16242 (Part 1): 2014 IEC 62040-1: 2008 (Cl. 4.7)	Qualitative (Visual Inspection)
		Protection For UPS Intended to be used in operator access areas	IS 16242 (Part 1): 2014 IEC 62040-1: 2008 (Cl. 5.1.1)	Qualitative
		Protective earthing and bonding	IS 16242 (Part 1): 2014 IEC 62040-1: 2008 (Cl. 5.3)	0.01 VAC to 9.99 VAC 0.01 A to 50 A
		Over current and earth fault protection	IS 16242 (Part 1): 2014 IEC 62040-1: 2008 (Cl. 5.5)	Qualitative
		Clearance ,Creepage	IS 16242 (Part 1): 2014 IEC 62040-1: 2008 (Cl. 5.7) RD (2.10.3& 2.10.4)	0.01 mm to 300 mm
		Stability	IS 16242 (Part 1): 2014 IEC 62040-1: 2008 (Cl. 7.2)	Qualitative

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	<b>Uninterruptible power systems (UPS)</b>	Mechanical Strength	IS 16242 (Part 1): 2014 IEC 62040-1: 2008 (Cl. 7.3) RD (Cl. 4.2.1 to 4.2.7)	Qualitative
		Temperature Rise	IS 16242 (Part 1): 2014 IEC 62040-1: 2008 (Cl. 7.7)	Ambient to 400 °C
		General Provision For Earth Leakage	IS 16242 (Part 1): 2014 IEC 62040-1: 2008 (Cl. 8.1)	Upto 4 mA
		Electric Strength	IS 16242 (Part 1): 2014 IEC 62040-1: 2008 (Cl. 8.2)	Qualitative (0.01 kV to 10 kV)

#### **IV. BATTERIES**

<b>1.</b>	<b>Secondary cells and batteries containing alkaline or other non acid electrolytes safety requirements for portable sealed secondary cells and for batteries made from them for use in portable applications</b>	Continuous low rate charging (Cells)	IS 16046: 2015 IEC 62133: 2012 (Cl. 7.2.1)	Qualitative (Upto 24 VDC, 10 A)
		Vibration	IS 16046: 2015 IEC 62133: 2012 (Cl. 7.2.2)	Qualitative
		Moulded case stress at high ambient temperature (batteries)	IS 16046: 2015 IEC 62133: 2012 (Cl. 7.2.3)	Qualitative (Ambient to 300 °C, 0 to 10 hrs)
		Temperature Cycling	IS 16046: 2015 IEC 62133: 2012 (Cl. 7.2.4)	Qualitative ( (-)20 °C to 300 °C)
		Incorrect installation (Cells)	IS 16046: 2015 IEC 62133: 2012 (Cl. 7.3.1)	Qualitative (Ambient to 300 °C, Resistance : 1 Ω)
		External short circuit	IS 16046: 2015 IEC 62133: 2012 (Cl. 7.3.2)	Qualitative (Ambient to 300 °C, Resistance : 0.1 Ω)

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	<b>Secondary cells and batteries containing alkaline or other non acid electrolytes safety requirements for portable sealed secondary cells and for batteries made from them for use in portable applications</b>	Free fall	IS 16046: 2015 IEC 62133: 2012 (Cl. 7.3.3)	Qualitative
		Mechanical Shock (crash hazard)	IS 16046: 2015 IEC 62133: 2012 (Cl. 7.3.4)	Qualitative
		Thermal Abuse (Cells)	IS 16046: 2015 IEC 62133: 2012 (Cl. 7.3.5)	Qualitative (Upto 300 °C)
		Crushing of cells	IS 16046: 2015 IEC 62133: 2012 (Cl. 7.3.6)	Qualitative
		Low pressure cells	IS 16046: 2015 IEC 62133: 2012 (Cl. 7.3.7)	Qualitative
		Over charge for nickel systems	IS 16046: 2015 IEC 62133: 2012 (Cl. 7.3.8)	Qualitative (Upto 24 VDC, 10 A)
		Forced discharge cells	IS 16046: 2015 IEC 62133: 2012 (Cl. 7.3.9)	Qualitative (Upto 24 VDC, 10 A)
		Continuous charging at constant voltage (Cells)	IS 16046: 2015 IEC 62133: 2012 (Cl. 8.2.1)	Qualitative (Upto 24 VDC, 10 A)
		Moulded case stress at high ambient temperature (batteries)	IS 16046: 2015 IEC 62133: 2012 (Cl. 8.2.2)	Qualitative (Ambient to 300 °C 0 to 10 hrs)
		External short circuit (Cells)	IS 16046: 2015 IEC 62133: 2012 (Cl. 8.3.1)	Qualitative (Ambient to 300 °C Resistance : 0.1 Ω)
		External short circuit (battery)	IS 16046: 2015 IEC 62133: 2012 (Cl. 8.3.2)	Qualitative (Ambient to 300 °C Resistance : 0.1 Ω)

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	Secondary cells and batteries containing alkaline or other non acid electrolytes safety requirements for portable sealed secondary cells and for batteries made from them for use in portable applications	Free fall	IS 16046: 2015 IEC 62133: 2012 (Cl. 8.3.3)	Qualitative
		Thermal Abuse (Cells)	IS 16046: 2015 IEC 62133: 2012 (Cl. 8.3.4)	Qualitative (Upto 300 °C)
		Crush (cells)	IS 16046: 2015 IEC 62133: 2012 (Cl. 8.3.5)	Qualitative
		Over charge of battery	IS 16046: 2015 IEC 62133: 2012 (Cl. 8.3.6)	Qualitative (Upto 24 VDC, 10 A)
		Forced discharge cells	IS 16046: 2015 IEC 62133: 2012 (Cl. 8.3.7)	Qualitative (Upto 24 VDC, 10 A)

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