

**Laboratory** National Test House (Eastern Region), Block-CP, Sector-V, Salt Lake, North 24 Parganas, Kolkata, West Bengal

Location 1: Block-CP, Sector-V, Salt Lake, North 24 Parganas, Kolkata, West Bengal

Location 2: 11/1, Judges Court Road, Alipore, North 24 Parganas, Kolkata, West Bengal

**Accreditation Standard** ISO/IEC 17025: 2017

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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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### BIOLOGICAL TESTING

Location 1				
<b>I.</b>	<b>WATER</b>			
<b>1.</b>	<b>Drinking Water</b>	Escherichia coli	IS 15185:2016	Qualitative
		Total Coliform bacteria	IS 1622:1981	Qualitative
<b>2.</b>	<b>Packaged Drinking Water</b>	Aerobic Microbial Count per ml at 20-22 Degree C in 72 hours	IS 5402:2012	1 cfu to 300 cfu
		Aerobic Microbial Count per ml at 37 Degree C in 24 hours	IS 5402:2012	1 cfu to 100 cfu
		Coliform	IS 15185:2016	Qualitative
		Escherichia coli	IS 15185:2016	Qualitative
		Faecal streptococci	IS 15186:2002	Qualitative
		Pseudomonas aeruginosa	IS 13428:2005	Qualitative
		Salmonella	IS 15187:2016	Qualitative
		Shigella	IS 5887 (Part 7):1999	Qualitative
		Staphylococcus aureus	IS 5887 (Part 2):1976	Qualitative
		Sulphite Reducing Anaerobes	IS 13428:2005	Qualitative
		Vibrio Cholera	IS 5887 (Part 5):1976	Qualitative
		Vibrio parahaemolyticus	IS 5887 (Part 5):1976	Qualitative
		Yeast & Mould	IS 5403:1999	Qualitative

### CHEMICAL TESTING

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<b>Location 1</b>				
<b>I.</b>	<b>WATER</b>			
<b>1.</b>	<b>Drinking Water</b>	Aluminum (as Al)	IS 3025 (Part 55):2003	0.1 mg/l to 20.0 mg/l
		Anionic detergents (as MBAS)	IS 13428:2005	0.1 mg/l to 1.0 mg/l
		Antimony (as Sb)	IS 13428:2005	0.005 mg/l to 10.0 mg/l
		Arsenic (as As)	IS 3025 (Part 37):1988	0.005 mg/l to 10 mg/l
		Barium (as Ba)	IS 13428:2005	0.01 mg/l to 10 mg/l
		Bromate (as BrO <sub>3</sub> )	ISO 15061:2001	0.005 mg/l to 20 mg/l
		Cadmium (as Cd)	IS 3025 (Part 41):1992	0.001 mg/l to 5.0 mg/l
		Calcium (as Ca)	IS 3025 (Part 40):1991	0.2 mg/l to 200 mg/l
		Chloride (as Cl)	IS 3025 (Part 32):1988	0.5 mg/l to 1000 mg/l
		Chromium (as Cr)	IS 13428:2005	0.01 mg/l to 1 mg/l
		Colour, Hazen Units	IS 3025 (Part 4):1983	Qualitative
		Copper (as Cu)	IS 3025 (Part 42):1991	0.01 mg/l to 10.0 mg/l
		Cyanide (as CN)	IS 3025 (Part 27):1986	Qualitative
		Dissolved solids	IS 3025 (Part 16):1991	10 mg/l to 1000 mg/l
		Fluoride	IS 3025 (Part 60):2008	0.01 mg/l to 10 mg/l
		Iron (as Fe)	IS 3025 (Part 53):2003	0.01 mg/l to 100 mg/l
		Lead (as Pb)	IS 3025 (Part 47):1994	0.005 mg/l to 10 mg/l
		Magnesium (as Mg)	IS 3025 (Part 46):1994	0.5 mg/l to 100 mg/l
		Manganese (as Mn)	IS 3025 (Part 59):2006	0.01 mg/l to 10 mg/l
		Mercury (as Hg)	IS 3025(part 44):1994	0.001 mg/l to 1.0 mg/l
		Mineral Oil	IS 3025 (Part 39):1991	0.1 mg/l to 1.0 mg/l
		Nickel (as Ni)	IS 3025 (part 54):2003	0.01 mg/l to 6.0 mg/l
		Nitrate (as NO <sub>3</sub> )	IS 3025 (Part 34):1988	0.1 mg/l to 50 mg/l
		Nitrite (as NO <sub>2</sub> )	IS 3025 (Part 34):1988	0.01 mg/l to 10 mg/l

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		Odour	IS 3025 (Part 5):1983	Qualitative
		pH value	IS 3025 (Part 5):1983	1 to 14
		Phenolic Compounds (as C6H5OH)	IS 3025 (Part 43):1992	0.001 mg/l to 1.0 mg/l
		Poly-nuclear aromatic hydrocarbons (PAH)	APHA 6440:2000	0.00005 mg/l to 1.0 mg/l
		Polychlorinated biphenyls(PCB)	IS 13428:2005	0.00005 mg/l to 1.0 mg/l
		Pottasium (as K)	IS 3025 (Part 45):1993	0.1 mg/l to 500 mg/l
		Residual free chlorine	IS 3025 (Part 26):1986	0.01 mg/l to 5 mg/l
		Selenium (as Se)	IS 3025 (Part 56):2003	0.005 mg/l to 1.0 mg/l
		Silver (as Ag)	IS 13428:2005	0.005 mg/l to 5 mg/l
		Sodium (as Na)	IS 3025 (Part 45):1993	0.1 mg/l to 500 mg/l
		Sulphide (as H2S)	IS 3025 (part 29):1986	0.01 mg/l to 5 mg/l
		Taste	IS 3025 (Part 8):1984	Qualitative
		Total Hardness (as CaCO3)	IS 3025 (Part 21):2009	0.5 mg/l to 500 mg/l
		Turbidity	IS 3025 (Part 10):1984	0.01 NTU to 800 NTU
		Zinc (as Zn)	IS 3025 (Part 49):1994	0.01 mg/l to 10 mg/l
<b>2.</b>	<b>Package Drinking Water</b>	Antimony (as Sb)	IS 13428:2005	0.005 mg/l to 10 mg/l
		Alkalinity (as HCO3)	IS 3025 (Part 23):1986	10 mg/l to 800 mg/l
		Aluminium (as Al)	IS 3025 (Part 55):2003	0.01 mg/l to 20 mg/l
		Anionic Surface active agents (as MBAS)	IS 13428:2005	Qualitative
		Arsenic (as As)	IS 3025 (Part 37):1988	0.005 mg/l to 10.0 mg/l
		Barium (as Ba)	IS 15302:2003	0.01 mg/l to 10.0 mg/l
		Borate (as B)	IS 13428:2005	0.01 mg/l to 20.0 mg/l
		Bromate (as BrO3)	ISO 15061:2001	0.005 mg/l to 20.0 mg/l
		Cadmium (as Cd)	IS 3025 (Part 41):1992	0.001 mg/l to 5.0 mg/l
		Calcium (as Ca)	IS 3025 (Part 40):1991	0.5 mg/l to 200 mg/l

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		Chlorides (as Cl)	IS 3025 (Part 32):1988	0.5 mg/l to 1000 mg/l
		Chromium (as Cr)	IS 13428:2005	0.01 mg/l to 5.0 mg/l
		Colour	IS 3025 (Part 4):1983	Qualitative
		Copper (as Cu)	IS 3025 (Part 42):1992	0.01 mg/l to 10.0 mg/l
		Cyanide (as CN)	IS 3025 (Part 27):1986	Qualitative
		Dissolved Solids	IS 3025 (Part 16):1984	10 mg/l to 1000 mg/l
		Fluoride (as F)	IS 3025 (Part 60):2008	0.01 mg/l to 5.0 mg/l
		Iron (as Fe)	IS 3025 (Part 53):2003	0.01 mg/l to 100 mg/l
		Lead (as Pb)	IS 3025 (Part 47):1994	0.005 mg/l to 10.0 mg/l
		Magnesium (as Mg)	IS 3025 (Part 46):1994	0.5 mg/l to 100 mg/l
		Manganese (as Mn)	IS 3025 (Part 59):2006	0.01 mg/l to 10.0 mg/l
		Mercury (as Hg)	IS 3025 (Part 48):1994	0.001 mg/l to 5.0 mg/l
		Mineral Oil	IS 3025 (Part 39):1991	Qualitative
		Nickel (as Ni)	IS 3025 (Part 54):2003	0.01 mg/l to 6.0 mg/l
		Nitrate (as NO <sub>3</sub> )	IS 3025 (Part 34):1988	0.1 mg/l to 50.0 mg/l
		Nitrite (as NO <sub>2</sub> )	IS 3025 (Part 34):1988	0.01 mg/l to 10.0 mg/l
		Odour	IS 3025 (Part 5):1983	Qualitative
		pH value	IS 3025 (Part 11):1983	5.0 mg/l to 12.0 mg/l
		Phenolic compounds (as C <sub>6</sub> H <sub>5</sub> OH)	IS 3025 (Part 43):1992	Qualitative
		Polychlorinated Biphenyl (PCB)	IS 13428:2005	Qualitative
		Polynuclear aromatic hydrocarbons (PAH)	APHA 6440:2000	Qualitative
		Residual Free Chlorine	IS 3025 (Part 26):1986	0.01 mg/l to 5.0 mg/l
		Selenium (as Se)	IS 3025 (Part 56):2003	0.005 mg/l to 5.0 mg/l
		Silver (as Ag)	IS 13428:2005	0.005 mg/l to 5.0 mg/l
		Sodium (as Na)	IS 3025 (Part 45):1993	0.5 mg/l to 500 mg/l
		Sulphate (as SO <sub>4</sub> )	IS 3025 (Part 24):1986	4 mg/l to 100 mg/l
		Sulphide (as H <sub>2</sub> S)	IS 3025 (Part 29):1986	0.01 mg/l to 5.0 mg/l

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		Taste	IS 3025 (Part 8):1984	Qualitative
		Total Hardness (as CaCO <sub>3</sub> )	IS 3025 (Part 21):2009	0.5 mg/l to 1000 mg/l
		Turbidity	IS 3025 (Part 10):1984	0.02 NTU to 800 NTU
		Zinc (as Zn)	IS 3025 (Part 49):1994	0.01 mg/l to 10 mg/l
<b>II.</b>	<b>PESTICIDE IN RESIDUE</b>			
<b>1.</b>	<b>Packaged Drinking Water</b>	Beta-Endosulfan	USEPA 508:1995	0.00005 mg/l to 1.0 mg/l
		Beta-HCH	USEPA 508:1995	0.00005 mg/l to 1.0 mg/l
		Butachlor	USEPA 525.2:1995	0.00005 mg/l to 1.0 mg/l
		Chloropyrifos	USEPA 525.2:1995	0.00005 mg/l to 1.0 mg/l
		Delta-HCH	USEPA 508:1995	0.00005 mg/l to 1.0 mg/l
		Dieldrin	USEPA 525.2:1995	0.00005 mg/l to 1.0 mg/l
		Endosulphan Sulphate	USEPA 508:1995	0.00005 mg/l to 1.0 mg/l
		Ethion	USEPA 1657A:2000	0.00005 mg/l to 1.0 mg/l
		Gamma-HCH (Lindane)	USEPA 508:1995	0.00005 mg/l to 1.0 mg/l
		Isoproturon	USEPA 532:2000	0.00005 mg/l to 1.0 mg/l
		Malathion	USEPA 8141A:1994	0.00005 mg/l to 1.0 mg/l
		Malaxon	USEPA 8141A:1994	0.00005 mg/l to 1.0 mg/l
		Methyl Parathion	USEPA 8141A:1994	0.00005 mg/l to 1.0 mg/l
		Monocrotophos	USEPA 8141A:1994	0.00005 mg/l to 1.0 mg/l
		o,p-DDD	USEPA 508:1995	0.00005 mg/l to 1.0 mg/l
		o,p-DDE	USEPA 508:1995	0.00005 mg/l to 1.0 mg/l
		o,p-DDT	USEPA 508:1995	0.00005 mg/l to 1.0 mg/l
		p,p-DDD	USEPA 508:1995	0.00005 mg/l to 1.0 mg/l
		p,p-DDE	USEPA 508:1995	0.00005 mg/l to 1.0 mg/l
		p,p-DDT	USEPA 508:1995	0.00005 mg/l to 1.0 mg/l
		Paraoxon methyl	USEPA 507:1995	0.00005 mg/l to 1.0 mg/l

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		Phorate	USEPA 8141A:1994	0.00005 mg/l to 1.0 mg/l
		Phorate sulfone	USEPA 8141A:1994	0.00005 mg/l to 1.0 mg/l
		Phorate sulfoxide	USEPA 8141A:1994	0.00005 mg/l to 1.0 mg/l
		Aldrin	USEPA 525.2:1995	0.00005 mg/l to 1.0 mg/l
		Alpha Endosulfan	USEPA 508:1995	0.00005 mg/l to 1.0 mg/l
		Alpha-HCH	USEPA 508:1995	0.00005 mg/l to 1.0 mg/l
		Atrazine	USEPA 525.5:2005	0.00005 mg/l to 1.0 mg/l
2.	Drinking Water	2,4-D	USEPA 515.1:1995	0.00005 mg/l to 1.0 mg/l
		Alachlor	USEPA 525.2:1994	0.00005 mg/l to 1.0 mg/l
		Aldrin	USEPA 525.2:1995	0.00005 mg/l to 1.0 mg/l
		Alpha-Endosulfan	USEPA 508:1995	0.00005 mg/l to 1.0 mg/l
		Alpha-HCH	USEPA 508:1995	0.00005 mg/l to 1.0 mg/l
		Atrazine	USEPA 525.2:1995	0.00005 mg/l to 1 mg/l
		Beta-Endosulfan	USEPA 508:1995	0.00005 mg/l to 1.0 mg/l
		Beta-HCH	USEPA 508:1995	0.00005 mg/l to 1.0 mg/l
		Butachlor	USEPA 525.2:1995	0.00005 mg/l to 1.0 mg/l
		Chloropyrifos	USEPA 525.2:1995	0.00005 mg/l to 0.1 mg/l
		Delta-HCH	USEPA 508:1995	0.00005 mg/l to 1.0 mg/l
		Dieldrin	USEPA 525.2:1995	0.00005 mg/l to 1.0 mg/l
		Endosulfan sulphate	USEPA 508:1995	0.00005 mg/l to 1.0 mg/l
		Ethion	USEPA 1657A:2000	0.00005 mg/l to 1.0 mg/l
		Gamma-HCH (Lindane)	USEPA 508:1995	0.00005 mg/l to 1.0 mg/l
		Isoproturon	USEPA 532:2000	0.00005 mg/l to 1.0 mg/l
		Malathion	USEPA 8141A:1994	0.00005 mg/l to 0.1 mg/l
		Malaxon	USEPA 8141A:1994	0.00005 mg/l to 1.0 mg/l
		Methyl Parathion	USEPA 8141A:1995	0.00005 mg/l to 1.0 mg/l
		Monocrotophos	USEPA 8141A:1994	0.00005 mg/l to 1.0 mg/l
		o,p-DDD	USEPA 508:1995	0.00005 mg/l to 1.0 mg/l
		o,p-DDE	USEPA 508:1995	0.00005 mg/l to 1.0 mg/l
		o,p-DDT	USEPA 508:1995	0.00005 mg/l to 1.0 mg/l

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		p,p-DDD	USEPA 508:1995	0.00005 mg/l to 1.0 mg/l
		p,p-DDE	USEPA 508:1995	0.00005 mg/l to 1.0 mg/l
		p,p-DDT	USEPA 508:1995	0.00005 mg/l to 1.0 mg/l
		Paraoxon methyl	USEPA 507:1995	0.00005 mg/l to 1.0 mg/l
		Phorate sulfone	USEPA 8141A:1994	0.00005 mg/l to 1.0 mg/l
		Phorate sulfoxide	USEPA 8141A:1994	0.00005 mg/l to 1.0 mg/l
		Phorate	USEPA 8141A:1994	0.00005 mg/l to 1.0 mg/l
		2, 4-D	USEPA 515.1:1995	0.00005 mg/l to 1.0 mg/l
<b>III.</b>	<b>BUILDING MATERIAL</b>			
<b>1.</b>	<b>Cement</b>			
<b>A.</b>	<b>Ordinary Portland cement</b>	Alumina	Cl 4.6.1 of IS 4032:1985	0.1 % by mass to 10.0 % by mass
		Calcium Oxide	Cl 4.7.2 of IS 4032:1985	5.0 % by mass to 70.0 % by mass
		Chlorine (as Cl)	Cl 8.4 of IS 12423:1988	0.01 % by mass to 3.0 % by mass
		Ferric Oxide	Cl 4.5.1 of IS 4032:1985	0.1 % by mass to 10.0 % by mass
		Insoluble residue	Cl. 4.10 of IS 4032:1985	0.1 % by mass to 40 % by mass
		Loss on ignition	Cl 4.2 of IS 4032:1985	0.1 % by mass to 10 % by mass
		Magnesia	Cl 4.8.2 of IS 4032:1985	0.4 % by mass to 20.0 % by mass
		Potassium Oxide	Cl 4.11 of IS 4032:1985	0.02 % by mass to 10.0 % by mass
		Silica	Cl 4.3 of IS 4032:1985	5.0 % by mass to 35.0 % by mass

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		Sodium Oxide	Cl 4.11 of IS 4032:1985	0.02 % by mass to 10.0 % by mass
		Sulphuric Anhydride	Cl 4.9 of IS 4032:1985	0.1 % by mass to 5.0 % by mass
<b>B.</b>	<b>Portland Pozzolana Cement</b>	Chloride (as Cl)	Cl 8.4 of IS 12423:1988	0.01 % by mass to 3.0 % by mass
		Magnesia	Cl 7.2.2 of IS 4032:1985	0.4 % by mass to 20.0 % by mass
		Potassium Oxide	Cl 4.11 of IS 4032:1985	0.02 % by mass to 10.0 % by mass
		Sodium Oxide	Cl 4.11 of IS 4032:1985	0.02 % by mass to 10.0 % by mass
		Total Sulphur content as Sulphuric Anhydride	Cl 4.9 of IS 4032:1985	0.1 % by mass to 5.0 % by mass
<b>C.</b>	<b>Portland Slag Cement</b>	Chloride (as Cl)	Cl 8.4 of IS 12423:1998	0.01 % by mass to 3.0 % by mass
		Loss on Ignition	Cl 4.2 of IS 4032:1985	0.1 % by mass to 10.0 % by mass
		Magnesia	Cl 6.8.2 of IS 4032:1985	0.4 % by mass to 20.0 % by mass
		Sulphur as Sulphide	Cl 6.12 of IS 4032:1985	0.01 % by mass to 3.0 % by mass
		Sulphuric Anhydride	Cl 4.9 of IS 4032:1985	0.1 % by mass to 5.0 % by mass
<b>D.</b>	<b>Pozzolana Portland Cement</b>	Insoluble residue	Cl 4.10 of IS 4032:1985	0.1 % by mass to 40 % by mass
		Loss on ignition	Cl 4.2 of IS 4032:1985	0.1 % by mass to 10.0 % by mass
<b>IV.</b>	<b>METALS &amp; ALLOYS</b>			

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1.	<b>Carbon Steel (Low Carbon, Medium Carbon &amp; High Carbon Steel)</b>			
A.	Carbon Steel	Carbon	IS 228 (Part 20):2003	0.005 % by mass to 2.0 % by mass
		Manganese	IS 228 (Part 2):1987	0.1 % by mass to 1.5 % by mass
		Phosphorus	IS 228 (Part 3):1987	0.01 % by mass to 0.25 % by mass
		Silicon	IS 228 (Part 8):1989	0.02 % by mass to 5.0 % by mass
		Sulphur	IS 228 (Part 20):2003	0.001 to 0.35

**NOTE:** The Laboratory has demonstrated competence for the stated scope for **WATER**. This however does not fully cover the specification requirements of **BIS for the Packaged Drinking Water as per IS:14543 and the Packaged Natural Mineral Water IS:13428**.

### CHEMICAL TESTING

**Birendra Prasad Murmu**  
Convenor

**Avijit Das**  
Program Manager

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Location 2				
I.	<b>PAINTS &amp; SURFACE COATING</b>			
1.	<b>Aluminium Paint For General Purpose, In Dual Container</b>	Consistency	IS 2339:2013	Qualitative
		Leafing Property	IS 2339:2013	1 % to 100 %
2.	<b>Black Japan Type A, B &amp; C</b>	Outdoor Exposure Test	IS 341:2016	Qualitative
		Reaction with white paint	IS 341:2016	Qualitative
		Resistance to Kerosene	IS 341:2016	Qualitative
		Resistance to Varnish	IS 341:2016	Qualitative
		Stripping Test	IS 341:2016	Qualitative
3.	<b>Cement Paint</b>	Drying Time	IS 5410:2013	Qualitative
		Durability	IS 5410:2013	Qualitative
		Freedom from Organic Impurities	IS 5410:2013	Qualitative
		Pot life of mixed paint	IS 5410:2013	Qualitative
		Residue on sieve	IS 5410:2013	1 % by mass to 99 % by mass
		Resistance to dry rubbing	IS 5410:2013	Qualitative
		water Repellency	IS 5410:2013	Qualitative
4.	<b>Distemper, Dry, Colour As Required</b>	Consistency	IS 427:2013	Qualitative

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		Drying Time	IS 427:2013	Qualitative
		Recoating Properties	IS 427:2013	Qualitative
		Residue on sieve	IS 427:2013	0 % by mass to 100 % by mass
		Resistance to Dry Rubbing	IS 427:2013	Qualitative
5.	<b>Enamel Synthetic Exterior Undercoat Finishing</b>	Accelerated Storage Stability	IS 2932 (Part 1):2013	Qualitative
		Consistency	IS 2932 (Part 1):2013	Qualitative
		Durability Test (Outdoor & Accelerated Weathering)	IS 2932 (Part 1):2013	Qualitative
		Resistance to Acid	IS 2932 (Part 1):2013	Qualitative
		Resistance to Alkali	IS 2932 (Part 1):2013	Qualitative
6.	<b>Enamel, Interior: a) Undercoating b) Finishing</b>	Accelerated Storage Stability	IS 133 (Part 1):2013	Qualitative
		Consistency	IS 133 (Part 1):2013	Qualitative
		Freedom from yellowing	IS 133 (Part 1):2013	Qualitative
		Resistance to water	IS 133 (Part 1):2013	Qualitative
		Thinning Properties	IS 133 (Part 1):2013	Qualitative
7.	<b>Enamel, synthetic, exterior: (a) undercoating (b) finishing for railway coaches</b>	Durability (Outdoor exposure Test)	IS 8662:2004	Qualitative
8.	<b>Knifing Stopper</b>	Rubbing Properties	IS 5083:1988	Qualitative
		Stopping Properties	IS 5083:1988	Qualitative

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9.	<b>Paints, Enamels, Varnishes, Distemper &amp; their allied products</b>	Colour	IS 101 (Part 4):1989	Qualitative
		Dry Film Thickness	IS 101 (Part 3):1989	1 um to 100 um
		Drying Time	IS 101 (Part 3):1986	Qualitative
		Durability (Accelerated Weathering Test)	IS 101 (Part 6):1997	Qualitative
		Fastness to light	IS 101 (Part 4):1988	Qualitative
		Fineness of Grind	IS 101 (Part 3):1987	1 um to 100 um
		Finish	IS 101 (Part 3):1987	Qualitative
		Flash Point	IS 101 (Part 1):1987	10 Deg C to 45 Deg C
		Freedom from coarse particle	IS 101 (Part 1):1987	Qualitative
		Keeping Properties	IS 101 (Part 6):1989	Qualitative
		Mass in kg/10 itrs	IS 101 (Part 1):1987	1 kg/10 litres to 50 kg/10 litres
		Protection Against Corrosion	IS 101 (Part 6):1988	Qualitative
		Resistance to Salt Spray	IS 101 (Part 6):1988	Qualitative
		Rosin Test	IS 101 (Part 9):1993	Qualitative
		Scratch Hardness	IS 101 (Part 5):1988	Qualitative
Skin Formation	IS 101 (Part 1):1987	Qualitative		
Total Non Volatile Matter	IS 101 (Part 8):1993	0 % by mass to 100 % by mass		
	Volatile Matter	IS 101 (Part 2):1986	1 % by mass to 50 % by mass	
	Water Content	IS 101 (Part 2):1988	0 ml to 10 ml	
	Wet Opacity	IS 101 (Part 4):1988	0 metre squire per litre to	

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		Consistency (Flow Cop)	IS 101 (Part 1):1989	500 metre squire per litre 10 Seconds to 200 Seconds
		Flexibility and Adhesion	IS 101 (Part 5):1988	Qualitative
		Gloss	IS 101 (Part 4):1988	0.1 Gloss Unit to 100 Gloss Unit
		Acid Value	IS 101 (Part 9):1993	1 % by mass to 50 % by mass
		Ash Content	IS 101 (Part 8):1993	0 % by mass to 99 % by mass
		Lead Restriction	IS 101 (Part 8):1993	0 % by mass to 1 % by mass
		Phthalic Anhydride	IS 101 (Part 8):1993	0 % by mass to 50 % by mass
		Pigment Content	IS 101 (Part 8):1990	1 % by Mass to 99 % by Mass
		Residue on Sieve	IS 101 (Part 8):1989	0 % by mass to 100 % by mass
		Resistance to Heat	IS 101 (Part 7):1990	Qualitative
		Resistance to liquid (Immersion)	IS 101 (Part 7):1990	Qualitative
		Resistance to Water	IS 101 (Part 7):1990	Qualitative
		Volume solid	IS 101 (Part 8):1993	0 to 100
10.	Polyurethane Full Gloss Enamel (Two Pack)-	Accelerated Tests	IS 13213:2018	Qualitative

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	<b>Specification</b>			
11.	<b>Ready Mixed Paint For Road Marking</b>	Consistency	IS 164:2015	Qualitative
		Recoating Properties	IS 164:2015	Qualitative
		Resistance to Bleeding	IS 164:2015	Qualitative
		Resistance to wear	IS 164:2015	Qualitative
12.	<b>Ready Mixed Paint, Air Drying, Red Oxide Zinc Chrome, Priming</b>	Accelerated Storage Stability	IS 2074 (Part 1):2015	Qualitative
		Chromic Anhydride	IS 2074 (Part 1):2015	1 % by mass to 99 % by mass
		Consistency	IS 2074 (Part 1):2015	Qualitative
		Red Oxide	IS 6947 (Part 2):1975	1 % by mass to 99 % by mass
		Resistance to Salt Spray	IS 2074 (Part 1):2015	Qualitative
		Resistance to Sea Water	IS 2074 (Part 1):2015	Qualitative
		Zinc Oxide	IS 2074 (Part 1):2015	1 % by mass to 99 % by mass
13.	<b>Ready Mixed Paint, Brushing, Bituminous Black, Lead Free, Acid, Alkali, And Heat Resisting</b>	Consistency	IS 158:2015	Qualitative
		Resistance to Acid	IS 158:2015	Qualitative
		Resistance to Alkali	IS 158:2015	Qualitative
		Resistance to Heat	IS 158:2015	Qualitative
		Stripping Test	IS 158:2015	Qualitative
14.	<b>Ready mixed paint, brushing, bituminous, black,</b>	Resistance to Acid, Alkali & Chlorine	IS 9862:1981	Qualitative

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	lead-free, acid, alkali, water and chlorine resisting	Resistance to water	IS 9862:1981	Qualitative
15.	Ready Mixed Paint, Brushing, Grey Filler, For Enamels For Use Over Primers	Flattening Properties	IS 110:2017	Qualitative
		Holdout Properties	IS 110:2017	Qualitative
16.	Thermo plastic Road Marking Material	Binder Content	BS 3262 (Part 1):1989	1 % by mass to 50 % by mass
		Cracking Resistance	BS 3262 (Part 1):1989	Qualitative
		Flow Resistance	BS 3262 (Part 1):1989	0 to 25
		Glass Bead Content	BS 3262 (Part 1):1989	1 % by mass to 50 % by mass
		Softening Point	BS 3262 (Part 1):1989	50 Deg C to 200 Deg C
		Titanium dioxide content	IS 6947 (Part 1):1973	0 % by mass to 99 % by mass
17.	Washable Distemper	Consistency	IS 428:2013	Qualitative
		Drying Time	IS 428:2013	Qualitative
		Recoating Properties	IS 428:2013	Qualitative
		Residue on sieve	IS 428:2013	0 % by mass to 100 % by mass
		Resistance to Alkali	IS 428:2013	Qualitative
		Temperature Stability	IS 428:2013	Qualitative

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### ELECTRICAL TESTING

Location 1				
I.	<b>LAMPS, LUMINARIES &amp; ACCESSORIES</b>			
1.	<b>Emergency lights</b>			
A.	<b>LED Luminaire (Emergency Lighting)</b>	Construction ( Cl.7)	IS 10322 (Part 5 / Sec 8):2013	Qualitative
		Creepage Distance & Clearance (Cl. 8)	IS 10322 (Part 5 / Sec 8):2013	0.001 mm to 100 mm
		Electric Strength ( Cl.15)	IS 10322 (Part -5/Sec - 8):2013	1 kV to 5 kV
		Endurance Test & Thermal tests (Cl.13)	IS 10322 (part 5/ Sec 8):2013	1 Deg C to 125 Deg C
		External & Internal Wiring(Cl.11)	IS 10322 (Part 5/ Sec 8):2013	Qualitative
		Insulation Resistance(Cl.15)	IS 10322 (part 5/ Sec 8):2013	0.01 M Ohm to 20000 M Ohm
		Marking	IS 10322 (Part 5/ Sec 8):2013	Qualitative
		Protection against Electric Shock (Cl.12)	IS 10322 (Part 5/ Sec 12):2013	Qualitative
		Provision for Earthing	IS 10322 (Part 5/ Sec 8):2013	Qualitative
		Resistance to Dust and Moisture (Cl 14)	IS 10322 (Part 5/Sec 8):2013	Qualitative
	Resistance to fire (Cl.16)	IS 10322 (Part 5/ Sec 8):2013	50 Deg C to 900 Deg C	
	Resistance to Heat (Cl.16)	IS 10322 (Part 5/ Sec 8):2013	0.001 mm to 2 mm	

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		Resistance to tracking Terminals (Cl.10)	IS 10322 (Part 5):2013 IS 10322 (Part 5/ Sec 8):2013	50 V to 600 V Qualitative
<b>B.</b>	<b>Flood lights</b>			
<b>1.</b>	<b>LED Luminaire (Flood Lights)</b>	Construction (Cl.7)	IS 10322 (Part 5/Sec 5):2013	Qualitative
		Creepage Distances & Clearances (Cl. 8)	IS 10322 (Part 5/ Sec 5):2013	0.1 mm to 100 mm
		Electric Strength (Cl.15)	IS 10322 (Part 5/ Sec 5):2013	1 kV to 5 kV
		Endurance Test & Thermal Tests (Cl. 13)	IS 10322 (Part 5/ Sec 5):2013	1 Deg C to 125 Deg C
		External & Internal wiring(Cl.11)	IS 10322 (Part 5/Sec 5):2013	Qualitative
		Insulation Resistance (Cl.15)	IS 10322 (Part 5/ Sec 5):2013	0.001 G Ohm to 200 G Ohm
		Marking (cl. 6)	IS 10322 (Part 5/ Sec 5):2013	Qualitative
		Protection against Electric Shock(Cl.12)	IS 10322 (Part 5/ Sec 5):2013	Qualitative
		Provision for earthing(Cl.9)	IS 10322 (Part 5/ Sec 5):2013	Qualitative
		Resistance to Dust & Moisture(Cl.14)	IS 10322 (Part 5/ Sec 5):2013	Qualitative
		Resistance to fire(Cl16)	IS 10322 (Part 5/Sec 5):2013	50 Deg C to 900 Deg C
		Resistance to heat(Cl.16)	IS 10322 (Part 5 /Sec 5):2013	0.001 mm to 2 mm
		Resistance to tracking (Cl.16)	IS 10322 (Part 5/Sec 5):2013	50 V to 600 V
		Terminals (Cl.10)	IS 10322 (Part 5/ Sec 5):2013	Qualitative

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<b>C.</b>	<b>Fluorescent Lamps</b>			
<b>1.</b>	<b>Self Ballasted Lamps for General Lighting Services</b>	Cap Temperature Rise	IS 15111 (Part 1):2002	0.1 Deg C to 125 Deg C
		Electric Strength	IS 15111 (Part 1):2002	1 kV to 5 kV
		Insulation Resistance	IS 15111 (Part 1):2002	0.001 G Ohm to 200 G Ohm
		Inter Changeability	IS 15111 (Part 1):2002	Qualitative
		Marking	IS 15111 (Part 1):2002	Qualitative
		Mechanical strength	IS 15111 (Part 1):2002	0.1 Nm to 10 Nm
		Protection against Electric Shock	IS 15111 (Part 1):2002	Qualitative
		Resistance to Flame & Ignition	IS 15111 (Part 1):2002	50 Deg C to 900 Deg C
		Resistance to Heat	IS 15111 (Part 1):2002	0.001 mm to 2 mm
<b>2.</b>	<b>Tubular Fluorescent Lamps for General Lighting Service</b>	Visual examination and checking for marking	IS 2418 (Part 1):1977	Qualitative
		Insulation resistance	IS 2418 (Part 1):1977	0.1 M Ohm to 20000 M Ohm
		Torsion	IS 2418 (Part 1):1977	0.1 Nm to 10 Nm
<b>D.</b>	<b>General purpose luminaries</b>			
<b>1.</b>	<b>LED Luminaire (Fixed General Purpose Luminaires)</b>	Electric Strength (Cl.15)	IS 10322 (Part 5/ Sec 1):2012	1 kV to 5 kV
		Endurance Test & Thermal Tests	IS 10322 (Part 5 / Sec 1):2012	1 Deg C to 125 Deg C
		Insulation Resistance (Cl. 15)	IS 10322 (Part 5 / Sec 1):2012	0.01 G Ohm to 200 G Ohm
		Marking( Cl.6)	IS 10322 (Part 5):2012	Qualitative
		Protection against Electric Shock	IS 10322 (Part 5 / Sec 1):2012	Qualitative
		Resistance to Dust &	IS 10322 (Part 5/ Sec 1):2012	Qualitative

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		Moisture (Cl.12)		
		Resistance to fire (Cl. 16)	IS 10322 (Part 5/ Sec 1):2012	50 Deg C to 900 Deg C
		Resistance to Heat (Cl. 16)	IS 10322 (Part 5/ Sec 1):2012	0.01 mm to 2 mm
		Resistance to tracking (Cl.16)	IS 10322 (Part 5/ Sec 1):2012	1 V to 600 V
		Creepage Distance & Clearance	IS 10322 (Part 5/ Sec 1):2012	0.1 mm to 100 mm
		Construction (Cl.7)	IS 10322 (Part 5/ Sec1):2012	Qualitative
		External & Internal wiring (Cl.11)	IS 10322 (Part 5/ Sec 1):2012	Qualitative
		Provision For Earthing Terminals (Cl.10)	IS 10322 (Part 5):2012 IS 10322 (Part 5/ Sec 1):2012	Qualitative Qualitative
<b>E.</b>	<b>Others</b>			
<b>1.</b>	<b>LED Luminaire (Lighting Chains)</b>	Construction	IS 10322 (part 5):2017	Qualitative
		Creepage Distances & Clearances	IS 10322 (Part 5):2017	0.1 mm to 100 mm
		Electric Strength	IS 10322 (part 5):2017	1 kV to 5 kV
		Endurance Test & Thermal Tests	IS 10322 (Part 5):2017	1 Deg C to 125 Deg C
		External & Internal wiring	IS 10322 (Part 5):2017	Qualitative
		Insulation Resistance	IS 10322 (Part 5):2017	0.001 G ohm to 200 G ohm
		Marking	IS 10322:2017	Qualitative
		Protection against Electric Shock	IS 10322 (part 5):2017	Qualitative
		Provision for earthing	IS 10322 (Part 5):2017	Qualitative
		Resistance to Dust, Solid objects &	IS 10322 (Part 5):2017	Qualitative

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		Moisture		
		Resistance to fire	IS 10322 (Part 5):2017	50 Deg C to 900 Deg C
		Resistance to heat	IS 10322 (Part 5):2017	0.001 mm to 2 mm
		Resistance to tracking	IS 10322 (Part 5):2017	50 V to 600 V
		Terminals	IS 10322 (Part 5):2017	Qualitative
2.	LED Luminaires (Handlamps)	Creepage Distances & Clearances	IS 10322 (Part 5):2013	0.01 mm to 100 mm
		Electric Strength	IS 10322 (Part 5):2013	1 kV to 5 kV
		Endurance Test & Thermal Tests	IS 10322 (Part 5):2013	1 Deg C to 125 Deg C
		External & Internal wiring	IS 10322 (Part 5):2013	Qualitative
		Insulation Resistance	IS 10322 (part 5):2013	0.001 G Ohm to 200 G Ohm
		Marking	IS 10322 (Part 5):2013	Qualitative
		Protection against Electric Shock	IS 10322 (Part 5):2013	Qualitative
		Provision for earthing	IS 10322 (Part 5):2013	Qualitative
		Resistance to fire	IS 10322 (Part 5):2013	50 Deg C to 900 Deg C
		Resistance to tracking	IS 10322 (Part 5):2013	50 V to 600 V
		Terminals	IS 10322 (Part 5):2013	Qualitative
		Resistance to Dust & Moisture	IS 10322 (Part 5/ Sec 6):2013	Qualitative
3.	Luminaire	Creepage Distance and Clearance	IS 10322 (Part 1):2014	0.1 mm to 300 mm
		Electric Strength	IS 10322 (Part 1):2014	1 kV to 5 kV
		Endurance Test and Thermal Test	IS 10322 (Part 1):2014	1 Deg C to 125 Deg C
		External & Internal Wiring	IS 10322 (Part 1):2014	Qualitative

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		Insulation Resistance	IS 10322 (Part 1):2014	0.1 M Ohm to 20000 M Ohm
		Protection against Electric Shock	IS 10322 (Part 1):2014	Qualitative
		Provision for Earthing	IS 10322 (Part 1):2014	Qualitative
		Resistance to Dust, Solid Objects and Moisture	IS 10322 (Part 1):2014	Qualitative
		Resistance to Fire	IS 10322 (Part 1):2014	50 Deg C to 900 Deg C
		Resistance to Heat	IS 10322 (Part 1):2014	0.001 mm to 2 mm
		Resistance to tracking	IS 10322 (Part 1):2014	50 V to 600 V
		Screw Terminals	IS 10322 (Part 1):2014	Qualitative
		Screwless Terminals & Electrical connections	IS 10322 (Part 1):2014	Qualitative
		Construction	IS 10322 (Part 1):2014	Qualitative
		Marking	IS 10322 (Part 1):2014	Qualitative
4.	<b>Self-Ballasted LED Lamps for General Lighting Services</b>	Cap Temperature Rise	IS 16102 (Part 1):2012	1 Deg C to 125 Deg C
		Creepage distances and clearances	IS 16102 (Part 1):2012	0.1 mm to 100 mm
		Electric Strength	IS 16102 (Part 1):2012	1 kV to 5 kV
		Insulation resistance	IS 16102 (Part 1):2012	0.1 M Ohm to 20000 M Ohm
		Interchangeability	IS 16102 (Part 1):2012	Qualitative
		Marking	IS 16102 (Part 1):2012	Qualitative
		Mechanical Strength	IS 16102 (Part 1):2012	0.1 Nm to 10 Nm
		Protection against electric shock	IS 16102 (Part 1):2012	Qualitative
		Resistance to Flame and ignition	IS 16102 (Part 1):2012	50 Deg C to 900 Deg C

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		Resistance to heat	IS 16102 (Part 1):2012	0.001 mm to 2 mm
<b>F.</b>	<b>Portable luminaries</b>			
<b>1.</b>	<b>LED Luminaire (Portable General Purpose Luminaires)</b>	Construction(CI.6)	IS 10322 (Part 5/Sec 4):1987	Qualitative
		Creepage Distances & Clearances(CI. 7)	IS 10322 (Part 5/4):1987	0.1 mm to 100 mm
		Electric Strength ( CI.13.6)	IS 10322 (Part 5/Sec 4):1987	1 kV to 5 kV
		Endurance Test & Thermal Tests ( CI.13.4)	IS 10322 (Part 5/ Sec 4):1987	1 Deg C to 125 Deg C
		External & Internal wiring (CI.10)	IS 10322 (Part 5/ Sec 4):1987	Qualitative
		Insulation Resistance (CI.13.6)	IS 10322 (Part 5/ Sec 4):1987	0.001 G Ohm to 200 G Ohm
		Marking (CI.5)	IS 10322 (Part 5/ Sec 4):1987	Qualitative
		Mechanical Strength Test (CI.13.3)	IS 10322 (Part 5/ Sec 4):1987	Qualitative
		Protection against Electric Shock (CI.11)	IS 10322 (Part 5/Sec 4):1987	Qualitative
		Provision for earthing (CI. 8)	IS 10322 (Part 5/ Sec 4):1987	Qualitative
		Resistance to Dust & Moisture(CI.13.6)	IS 10322 (Part 5/ Sec 4):1987	Qualitative
		Resistance to fire (CI.13.7)	IS 10322 (Part 5/ Sec 4):1987	50 Deg C to 900 Deg C
		Resistance to heat (CI.13.7)	IS 10322 (Part 5/ Sec 4):1987	0.001 mm to 2 mm
		Resistance to tracking (CI.13.7)	IS 10322 (Part 5/ Sec 4):1987	50 V to 600 V
		Terminals(CI.9)	IS 10322 (Part 5/ Sec 4):1987	Qualitative

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		Visual Examination(Cl.13.2)	IS 10322 (Part 5/ Sec 4):1987	Qualitative
<b>G.</b>	<b>Recessed luminaries</b>			
<b>1.</b>	<b>LED Luminaire (Recessed Luminaires)</b>	Construction (Cl. 7)	IS 10322 (Part 5/Sec 2):2012	Qualitative
		Creepage Distances & Clearances ( Cl.8)	IS 10322 (Part 5 / Sec 2): 2012	0.1 mm to 100 mm
		Electric Strength (Cl.15)	IS 10322 (Part 5 / Sec 2) :2012	1 kV to 5 kV
		Endurance Test and Thermal Tests (Cl.13)	IS 10322 (Part 5/Sec 2):2012	1 Deg C to 125 Deg C
		External & Internal wiring (Cl.11)	IS 10322 (Part 5/ Sec 2):2012	Qualitative
		Insulation Resistance (Cl.15)	IS 10322 (Part 5/Sec 2):2012	0.001 G Ohm to 200 G Ohm
		Marking (Cl.6)	IS 10322 (Part 5/Sec 2):2012	Qualitative
		Protection against Electric Shock (Cl. 12)	IS 10322 (Part 5 / Sec 2): 2012	Qualitative
		Provision for earthing (Cl. 9)	IS 10322 (part 5 / Sec 2): 2012	Qualitative
		Resistance to Dust and Moisture(Cl.14)	IS 10322 (Part 5/Sec 2):2012	Qualitative
		Resistance to fire (Cl.16)	IS 10322 (Part 5/Sec 2):2012	50 Deg C to 900 Deg C
		Resistance to heat (Cl.16)	IS 10322 (Part 5/Sec 2):2012	0.01 mm to 2 mm
		Resistance to tracking (Cl.16)	IS 10322 (Part 5/Sec 2):2012	50 V to 600 V
		Terminals (Cl.10)	IS 10322 (Part 5/Sec 2):2012	Qualitative

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H.	Road & street light luminaries			
1.	LED Luminaire (Luminaires for Road and Street Lighting)	Construction (Cl.7)	IS 10322 (Part 5/Sec 3):2012	Qualitative
		Creepage Distances & Clearances (Cl.8)	IS 10322 (Part 5/Sec 3):2012	0.001 mm to 100 mm
		Electric Strength (Cl.15)	IS 10322 (Part 5/ Sec 3):2012	1 kV to 5 kV
		Endurance Test & Thermal Tests (Cl.13)	IS 10322 (Part 5/Sec 3):2012	1 Deg C to 125 Deg C
		External & Internal wiring (Cl.13)	IS 10322 (Part 5/ Sec 3):2012	Qualitative
		Insulation Resistance (Cl.15)	IS 10322 (Part 5/Sec 15): 2012	0.001 G Ohm to 200 G Ohm
		Marking (Cl.6)	IS 10322 (Part 5/Sec 3):2012	Qualitative
		Protection against Electric Shock (Cl.12)	IS 10322 (Part 5/ Sec 3):2012	Qualitative
		Provision for earthing (Cl.9)	IS 10322 (Part 5/Sec 3):2012	Qualitative
		Resistance to Dust & Moisture (Cl.14)	IS 10322 (Part 5/ Sec 3):2012	Qualitative
		Resistance to fire (Cl.16)	IS 10322 (Part 5/Sec 3):2012	50 Deg C to 900 Deg C
		Resistance to heat (Cl. 16)	IS 10322 (Part 5/ Sec 3):2012	0.001 mm to 2 mm
		Resistance to tracking (Cl.16)	IS 10322 (Part 5/Sec 3):2012	50 V to 600 V
		Terminals (Cl. 10)	IS 10322 (Part 5/Sec 3):2012	Qualitative

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I.	Sodium vapour lamps			
1.	High Pressure Sodium Vapour Lamps.(Discharge lamps Excluding fluorescent lamps)	Lamp Dimensions	IS 9974 (Part 1):1981	0.1 mm to 700 mm
		Lamp Caps	IS 9974 (Part 1):1981	0.1 M Ohm to 20000 M Ohm
		Lamp electrical characteristics	IS 9974 (Part 1):1981	0.1 W to 600 W
		Lamp Starting Test	IS 9974 (Part 1):1981	1 Second to 3600 Second
		Lamp Warm-up Test	IS 9974 (Part 1):1981	1 Second to 3600 Second
		Marking	IS 9974 (Part 1):1981	Qualitative
J.	Starters, ballasts & capacitors			
1.	D.C. or A.C. Supplied Electronic Controlgear for LED Modules	Construction	IS 15885 (Part 2):2012	Qualitative
		Creepage distance and Clearance	IS 15885 (Part 2/ Sec 13): 2012	0.1 mm to 200 mm
		Electric Strength	IS 15885 (Part 2):2012	1 kV to 5 kV
		Marking	IS 15885 (Part 2):2012	Qualitative
		Moisture Resistance & Insulation	IS 15885 (Part 2):2012	0.1 M Ohm to 20000 M Ohm
		Protection against accidental contact with live parts	IS 15885 (Part 2):2012	Qualitative
		Provision for protective earthing	IS 15885 (Part 2):2012	Qualitative
		Resistance to corrosion	IS 15885 (Part 2):2012	Qualitative
		Resistance to fire	IS 15885 (Part 2):2012	50 Deg C to 900 Deg C

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		Resistance to heat	IS 15885 (Part 2):2012	0.001 mm to 2 mm
		Resistance to tracking	IS 15885 (Part 2):2012	50 V to 600 V
		Screw Current Carrying Parts and Connections	IS 15885 (Part 2):2012	Qualitative
		Terminals	IS 15885 (Part 2):2012	Qualitative
		Thermal Endurance Test for Winding at Ballast	IS 15885 (Part 2):2012	1 Deg C to 125 Deg C
		Transformer Heating(Cl.15)	IS 15885 (Part 2/Sec 13):2012	1 Deg C to 120 Deg C
<b>2.</b>	<b>LED Modules for General Lighting</b>	Conformity testing during manufacture	IS 16103 (Part 1):2012	Qualitative
		Input Power	IS 16103 (Part 1):2012 (RA 2017)	0.1 W to 400 W
		Function Test / Circuit Continuity	IS 16103 (Part 1):2012 (RA 2017)	Qualitative
		Earth Continuity	IS 16103 (Part 1):2012 (RA 2017)	0 to 12 V 0 to 25 A
		Electric Strength	IS 16103 (Part 1):2012 (RA 2017)	1 kV to 5 kV
		Insulation Resistance	IS 16103 (Part 1):2012 (RA 2017)	0.01 M Ohm to 20000 MOhm
		Polarity	IS 16103 (Part 1):2012 (RA 2017)	Qualitative
		Visual inspection	IS 16103 (Part 1):2012 (RA 2017)	Qualitative
		Construction	IS 16103 (Part 1):2012	Qualitative
		Creepage distances and clearances	IS 16103 (Part 1):2012	0.1 mm to 100 mm
		Electric strength	IS 16103 (Part 1):2012	1 kV to 5 kV
		Fault conditions	IS 16103 (Part 1):2012	Qualitative

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		Heat management	IS 16103 (Part 1):2012	Qualitative
		Marking	IS 16103 (Part 1):2012	Qualitative
		Moisture resistance and insulation	IS 16103 (Part 1):2012	0.1 M Ohm to 20000 M Ohm
		Protection against accidental contact with live parts	IS 16103 (Part 1):2012	Qualitative
		Provisions for protective earthing	IS 16103 (Part 1):2012	Qualitative
		Resistance to corrosion	IS 16103 (Part 1):2012	Qualitative
		Resistance to fire	IS 16103 (Part 1):2012	50 Deg C to 900 Deg C
		Resistance to heat	IS 16103 (Part 1):2012	0.001 mm to 2 mm
		Resistance to tracking	IS 16103 (Part 1):2012	50 V to 600 V
		Screws, current-carrying parts and connections.	IS 16103 (Part 1):2012	Qualitative
		Terminals	IS 16103 (Part 1):2012	Qualitative
<b>II.</b>	<b>ENVIRONMENTAL TEST FACILITY</b>			
1.	<b>Basic Environmental Testing for Electronic and Electrical Items</b>	Cold Test	IS 9000 (Part 2):1977	35°C to (-) 40°C (Chamber Size Height:950 mm, Width:1100 mm & Depth:950 mm. Test Space Volume:990 litres)
		Damp ( Cyclic) Test	IS 9000 (Part 5):1977	35°C to 40°C (Chamber Size Height:950 mm,

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				Width:1100 mm & Depth:950 mm. Test Space Volume:990 litres)
		Damp ( Steady State) Test	IS 9000 (Part 4):2008	15% to 98% (Chamber Size Height:950 mm, Width:1100 mm & Depth:950 mm. Test Space Volume:990 litres)
		Dry Heat Test	IS 9000 (Part-3):1977	35 Deg C to 180 Deg C (Chamber Size Height:950 mm, Width:1100 mm & Depth:950 mm. Test Space Volume:990 litres)

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**ELECTRICAL TESTING**

Location 2				
I.	<b>CELLS &amp; BATTERIES</b>			
1.	<b>Lead acid batteries</b>			
A.	<b>Lead Acid Storage Batteries for Motor Vehicle</b>	Physical Examination	IS 7372:1995	Qualitative
B.	<b>Lead Acid Storage Batteries for Motor Vehicle with Light weight and High Cranking</b>	Dimensions	IS 14257:1995	1 mm to 300 mm
C.	<b>Lead Acid Storage Batteries for Motor Cycle</b>	Dimensions	IS 1145:1980	1 mm to 300 mm
D.	<b>Lead Acid Storage Batteries for Motor Vehicle</b>	Air Pressure Test	IS 1145:1980	600 mm to 760 mm
		Air Pressure Test	IS 7372:1995	600 mm to 750 mm
		Capacity (C20)Test	IS 7372:1995	0.1 A to 150 A
		Capacity Test(C20)	IS 1145:1980	0.1 A to 20 A

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		Dimensions	IS 7372:1995	100 mm to 400 mm
		HRD at low Temp.	IS 7372:1995	1A to 1000A
		HRD at Normal Temperature	IS 7372:1995	1 A to 1000 A
		HRD Test at Normal Temperature	IS 1145:1980	1 A to 100 A
		Life Test	IS 1145:1980	1 V to 36 V
		Life Test	IS 7372:1995	0.01 A to 200 A
		Resistance to Over Charge	IS 1145:1980	0.1 V to 36 V
		Resistance to Over Charge	IS 7372:1995	0.1 V to 36 V
		Retention of Charge	IS 7372:1995	0.1 V to 36 V
		Retention of Charge	IS 1145:1980	0.1 V to 36 V
		Storage Test	IS 1145:1980	1 V to 36 V
		Storage Test	IS 7372:1995	1 A to 1000 A
		Vibration Test	IS 1145:1980	Qualitative
		Vibration Test	IS 7372:1995	Qualitative

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		Capacity 5 Hrs	IS 14257:1995	1 A to 400 A
E.	Lead Acid storage Batteries for Motor Vehicle with Light Weight and High Cranking	Charge Acceptance Test	IS 14257:1995	1 A to 500 A
		HRD Test at -15 deg C	IS 14257:1995	1 A to 800 A
		Life Cycle Test	IS 14257:1995	1 A to 500 A
		Over Charge Endurance Test	IS 14257:1995	1 V to 36 V
		Robustness of Fastening	IS 14257:1995	Qualitative
		Strength of Terminals	IS 14257:1995	1 N to 25 N
		Vibration Resistance Test	IS 14257:1995	Qualitative
F.	Lead Acid Traction Batteries	Marking and Polarity	IS 5154:1992	Qualitative
		Cyclic Endurance Test	IS 5154:2013	1 A to 800 A
		High Rate Discharge	IS 5154:2013	1 A to 1000 A
		Test for Capacity	IS 5154:2013	1 A to 800 A
		Test for Retention of Charge	IS 5154:2013	1 V to 36 V

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G.	<b>Low maintenance Lead Acid Secondary Cell</b>	Capacity ( C 10)	IRS S88:2004	1 A to 800 A
		Ampere Hour & Watt Hour Efficiency	IRS S88:2004	1 A to 800 A
		Dimensions	IRS S88:2004	1 mm to 300 mm
		Endurance Test	IRS S88:2004	1 A to 800 A
		Equilibrium Float Current/ Loss of Water	IRS S88:2004	1 V to 36 V
		Life Test	IRS S88:2004	1 A to 800 A
		Loss of Capacity on Storage	IRS S88:2004	1 V to 36 V
		Storage Test	IRS S88:2004	1 A to 800 A
		Sulphation	IRS S88:2004	1 to 36
		Voltage During Discharge	IRS S88:2004	1 V to 36 V
H.	<b>Lead Acid Storage Batteries for Motor Cycle</b>	Physical Examination	IS 1145:1980	Qualitative
I.	<b>Secondaries Cells and Batteries for Photo Voltaic Energy</b>	Charge Retention Test	IEC 61427:2005	1 V to 36 V
		Cyclic Endurance Test in Photo voltaic Application	IEC 61427:2005	1 A to 800 A

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	Systems(PVES)			
		Endurance In Cycle	IEC 61427:2005	1 A to 800 A
		Test for Capacity	IEC 61427:2005	1 A to 800 A
2.	Stationary Lead Acid Batteries ( Valve Regulated Type)	Abusive Over Charge	IEC 60896:2004-21 & 22	1 A to 800 A
		Charge Retention During Storage	IEC 60896:2004-21 & 22	1 V to 36 V
		Dimensional stability at elevated internal pressure and temperature	IEC 60896:2004-21 & 22	Qualitative
		Discharge Capacity	IEC 60896:2004-21 & 22	1 A to 200 A
		Float Service with Daily Discharge	IEC 60896:2004-21 & 22	1 A to 36 A
		Gas emission	IEC 60896:2004-21 & 22	Qualitative
		Impact of a stress Temperature of 55 deg C	IEC 60896:2004-21 & 22	1 A to 800 A
		Low Temperature Sensitivity	IEC 60896:2004-21 & 22	1 A to 800 A
		Marking and polarity	IEC 60896:2004-21 & 22	Qualitative
		Recharge Behavior	IEC 60896:2004-21 & 22	Qualitative

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		Service Life at operating Temperature	IEC 60896:2004-21 & 22	1 A to 300 A
		Short Circuit Current and DC Internal Resistance	IEC 60896:2004-21 & 22	1 A to 1000 A
		Valve Operation	IEC 60896:2004-21 & 22	Qualitative
3.	<b>Stationary Lead Acid Batteries with Positive Pasted Plate ( 2V Upto 8000Ah &amp; 12 Volt Upto 200Ah</b>	Visual Inspection	IS 6304:1992 (RA 2002)	Qualitative
		Ampere Hour & Watt Hour Efficiency Test	IS 6304:1992 (RA 2002)	1 A to 800 A
		Capacity Test	IS 6304:1992 (RA 2002)	1 A to 300 A
		Checking of Dimensions	IS 6304:1992 (RA 2002)	1 mm to 300 mm
		Endurance Test	IS 6304:1992 (RA 2002)	1 A to 800 A
		Test for Retention of Charge	IS 6304:1992 (RA 2002)	1 A to 800 A
		Voltage During Discharge	IS 6304:1992 (RA 2002)	1 V to 36 V
4.	<b>Secondary cells and batteries for Solar Photo voltaic</b>	Checking of Dimension	IS 16270:2014	50 mm to 300 mm
		Recovery from from	IS 16270:2014	1 A to 800 A

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	<b>Application, General requirement &amp; Method of Test</b>	sulphation test		
		Charge Retention Test	IS 16270:2014	0.01 V to 36 V
		Cyclic Endurance Test in Photo Voltaic Application in Extreme Condition	IS 16270:2014	0.01 A to 800 A
		Endurance Test	IS 16270:2014	0.01 A to 800 A
		Rated Capacity Test	IS 16270:2014	0.01 A to 800 A
5.	<b>Secondary Cells and Batteries for Solar Photo Voltaic Application, General Requirement and Method of Test</b>	Visual Examination	IS 16270:2014	Qualitative
		Water Loss in Float Charge	IS 16270:2014	0.1 V to 36 V
6.	<b>Stationary Batteries ( With Tubular Positive Plate) in Mono block container.</b>	Ampere Hour & Watt Hour Efficiency	IS 13369:2004	1 A to 800 A
		Capacity(C10)	IS 13369:1992	1 A to 800 A
		Constructional requirements	IS 13369:1992	Qualitative
		Dimensions	IS 13369:1992	1 mm to 300 mm

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		Endurance Test	IS 13369:1992	1 A to 800 A
		Equilibrium Float Current Test	IS 13369:1992	1 A to 800 A
		Loss of Capacity on Storage	IS 13369:1992	1 A to 800 A
		Water Loss	IS 13369:1992	1 mg to 1000 mg
7.	<b>Stationary Cells &amp; Batteries, Lead Acid Type, Plante Positive Plate</b>	Loss of Capacity/Retention of Charge	IS 1652:2013	1 V to 36 V
		Short Circuit current and Internal Resistance	IS 1652:2013	1 A to 1000 A
		Amperes-Hour & Watt Hour Efficiency	IS 1652:2013	1 A to 800 A
		Capacity Test ( C10)	IS 1652:2013	1 A to 800 A
		Constructional Requirements	IS 1652:2013	Qualitative
		Dimensions	IS 1652:2013	1 mm to 300 mm
		Endurance Test	IS 1652:2013	1 A to 800 A

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		Test for Suitability of Floating Battery operation	IS 1652:2013	1 V to 36 V
		Voltage During Discharge Test	IS 1652:2013	1 V to 36 V
		Water Loss Test	IS 1652:2013	1 mg to 1000 mg
		Amperes-Hour & Watt Hour Efficiency Test	IS 1651:2013	1 A to 800 A
		Capacity Test(C10)	IS 1651:2013	1 A to 800 A
		Constructional Requirements	IS 1651:2013	Qualitative
		Dimensions	IS 1651:2013	1 mm to 300 mm
		Endurance Test	IS 1651:2013	0 A to 800 A
		Loss of Capacity/ Retention of Charge	IS 1651:2013	1 V to 36 V
		Short Circuit current and Internal Resistance Test	IS 1651:2013	1 A to 800 A
		Test for suitability of floating battery operation	IS 1651:2013	1 A to 800 A

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		Voltage During Discharge	IS 1651:2013	0.1 V to 36 V
		Water Loss Test	IS 1651:2013	1 V to 36 V
8.	<b>Stationary Valve Regulated Batteries</b>	Ampere Hour & Watt Hour Efficiency	IS 15549:2005	1 A to 800 A
		Capacity ( C10)	IS 15549:2005	1 A to 800 A
		Capacity (C1)	IS 15549:2005	1 A to 800 A
		Endurance Life Cycle Test	IS 15549:2005	1 A to 800 A
		Retention of Charge	IS 15549:2005	1 V to 36 V
		Visual Examination	IS 15549:2005	Qualitative
		Voltage During Discharge	IS 15549:2005	1 V to 36 V
<b>II.</b>	<b>DOMESTIC ELECTRICAL APPLIANCES</b>			
1.	<b>Others</b>			
<b>A.</b>	<b>Electric Ceiling Fan</b>	Temperature Rise Test	IS 374:1979	1 C to 100 C
		Air Delivery Test	IS 374:1979	20 m/min to 1800 m/min
		Cree page Distance &	IS 374:1979	1 mm to 100 mm

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Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
		Clearance		
		Earthing Connection	IS 374:1979	0.001 Ohm to 100 Ohm
		Fan Speed & Input	IS 374:1979	40000 RPM 1 V to 350 V
		High Voltage	IS 374:1979	Qualitative
		Insulation Resistance Test	IS 374:1979	001 Ohm to 10000 Ohm
		Leakage Current	IS 374:1979	001 mA to 10000 mA
		Moisture Resistance Test	IS 374:1979	Qualitative
		Protection against Electric Shock	IS 374:1979	Qualitative
		Starting	IS 374:1979	1 V to 300 V
		Suspension System	IS 374:1979	Qualitative
B.	Propeller Type AC Ventilating Fan (Upto 600 mm Sweep)	AC Leakage Current	IS 2312:1967	.0001 mA to 100000 mA
		Air Delivery Test	IS 2312:1967	1 m/hr to 10000 m/hr
		Earth Continuity	IS 2312:1967	1 Ohm to 100 Ohm

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		Electric Input	IS 2312:1967	1 V to 300 V
		Fan Speed	IS 2312:1967	40000 RPM
		High Voltage Test	IS 2312:1967	Qualitative
		Insulation Resistance Test	IS 2312:1967	1 Ohm to 100000 Ohm
		Power Factor	IS 2312:1967	Qualitative
		Starting Test	IS 2312:1967	1 V to 300 V
		Temperature Rise Test	IS 2312:1967	1 C to 100 C
<b>II.</b>	<b>ENVIRONMENTAL TEST FACILITY</b>			
1.	<b>Electrical &amp; Electronics Equipment's</b>	Cold Test	IS 9000 (PART 2) 1977	Qualitative Upto -20 deg. Celcius (Chamber Size Height:950 mm, Width:1100 mm & Depth:950 mm. Test Space Volume:990 litres)
		Cold Test	IS 9000 (PART 2) 1977	Qualitative Upto -20 deg. Celcius (Chamber Size

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				Height:950 mm, Width:1100 mm & Depth:950 mm. Test Space Volume:990 litres)
		Damp Heat Test	IS 9000 (PART 5) 1977	Qualitative RH upto 98% Temp. upto 70 deg. Celcius (Chamber Size Height:950 mm, Width:1100 mm & Depth:950 mm. Test Space Volume:990 litres)
		Dry heat Test	IS 9000 (PART 3) 1977	Qualitative Upto +100 deg C (Chamber Size Height:950 mm, Width:1100 mm & Depth:950 mm. Test Space Volume:990 litres)
2.	Ingress protection test			
A.	Electrical and Electronics	Degree of Protection(IP) provided by enclosure of	IEC 60529:2010	Qualitative:Numeral 1st Characteristic:IP-2X to

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Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
	<b>Product</b>	Electrical & Electronics Product		6X Numeral 2nd Characteristic:IP-X2 to 7X
<b>3.</b>	<b>Vibration test</b>			
<b>A.</b>	<b>Electronics &amp; Electrical Product</b>	Vibration Test	IS 9000 (Part 8):2002	Qualitative:Sinusoidal Frequency Upto 3000Hz Acceleration Upto 100g Displacement Upto +/- 51 mm
		Vibration Test	IS 9000 (Part 9):2002	Qualitative:Random Type

### **ELECTRONICS TESTING**

Location 1				
<b>I.</b>	<b>SAFETY TESTING FACILITY</b>			
<b>1.</b>	<b>Others</b>			
<b>A.</b>	<b>Information Technology Equipment's Class 1 product</b>	Access to energized parts	IS 13252 (Part 1):2010	Qualitative
		Durability Test	IS 13252 (Part 1):2010	Qualitative

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Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
		Input Current Voltage, Neutral conductor	IS 13252 (Part 1):2010	1 V to 300 V
		Marking and Instructions	IS 13252 (Part 1):2010	Qualitative
B.	Audio, Video and Similar Electronics Products	Requirement of Insulating winding wires for use without additional interleaved insulation	IS 616:2017	.5 kV to 5 kV
C.	Audio, Video and Similar Electronics Apparatus	Heat Resistance of insulating Material	IS 616:2017	1 Deg C to 850 Deg C
D.	Audio, video and similar electronics Apparatus -Safety Requirements	Parts acting as a support or a mechanical barrier & Winding	IS 616:2017	.1 Deg C to 150 Deg C
		Parts other than winding, providing Electrical Insulation	IS 616:2017	1 Deg C to 150 Deg C
		Identification of Supply Voltage	IS 616:2017	Qualitative
		Instructions	IS 616:2017	Qualitative
		Terminals	IS 616:2017	Qualitative

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Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
E.	Audio,Video and similar Electronics Apparatus- safety requirements, Audio,Video and Multimedia systems and Equipment's.	Marking and Instruction	IS 616:2017	Qualitative
F.	Audio,Video and similar Electronics Apparatus-Safety Requirements	Heating under Normal Operating conditions, Accessible Parts (Temperature Rise Test)	IS 616:2017	1 Deg C to 150 Deg C
G.	Audio,Video and similar Electronics Equipment's	Safety Inter Locks	IS 616:2017	Qualitative
H.	Audio,Video and Similar Electronics equipment's	Disconnection from the mains	IS 616:2017	1 mm to 300 mm
		Clearance in circuits conductivity connected to the main	IS 616:2017	1 mm to 25 mm
		Clearance in circuits non conductivity connected to the main	IS 616:2017	1 mm to 25 mm
		Creepage Distance	IS 616:2017	1 mm to 25 mm

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Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
		Determination of Operating Voltage	IS 616:2017	1 to 300
		Drawer	IS 616:2017	Qualitative
		Drop Test	IS 616:2017	Qualitative
		Electrical connection and main fixings	IS 616:2017	Qualitative
		Electrical Shock Hazard	IS 616:2017	Qualitative
		Endurance Test for wound components with insulated winding wires without additional interleaved insulation	IS 616:2017	0.5 kV to 5 kV
		External Flexible cords	IS 616:2017	Qualitative
		Fire Enclosure	IS 616:2017	Qualitative
		Fixing of actuating Elements	IS 616:2017	Qualitative
		Fragmentation Test	IS 616:2017	Qualitative
		Heating	IS 616:2017	1 to 200
		Humidity Treatment	IS 616:2017	Qualitative

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Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
		Impact Test	IS 616:2017	Qualitative
		Insulation Resistance and Dielectric Strength	IS 616:2017	0.5 kV to 5 kV
		Jointed Insulation	IS 616:2017	Qualitative
		Main Switch	IS 616:2017	Qualitative
		Preset Controls	IS 616:2017	Qualitative
		Protective Device Clearance and creepage Distance	IS 616:2017	1 mm to 25 mm
		Remote Control devices held in hand	IS 616:2017	Qualitative
		Removal of protective cover	IS 616:2017	Qualitative
		Resistance to external source	IS 616:2017	Qualitative
		Resistance to fire	IS 616:2017	Qualitative
		Shafts of operating, Knobs , handles, levers and the like	IS 616:2017	Qualitative
		Stability and mechanical	IS 616:2017	Qualitative

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		Hazards		
		Stress Relief Test	IS 616:2017	Qualitative
		Terminals	IS 616:2017	1 mm to 300 mm
		Vibration Test	IS 616:2017	Qualitative
		Wall or ceiling mounting	IS 616:2017	Qualitative
		Withdrawal of main Plugs	IS 616:2017	Qualitative
I.	Audio, Video and similar Electronics Product	Constructional Requirements with regard to the Protection against Electrical Shock	IS 616:2017	Qualitative
J.	Audio, Video and Similar Equipment's	Motors	IS 616:2017	Qualitative
		Batteries	IS 616:2017	Qualitative
		Battery Drop Test	IS 616:2017	Qualitative
		Battery Mould Stress Relief	IS 616:2017	Qualitative
		Opto Couplers	IS 616:2017	Qualitative
		Provision for protective	IS 616:2017	1 A to 50 A

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Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
		earthing		
K.	Device forming a part of the MAINS Plug	Drop Test	IS 616:2017	Qualitative
L.	Product:Information Technology Equipment's Class 1 product	Resistance to abnormal Heat	IS 13252 (Part 1):2010	Qualitative
		Heating equipment in earth equipment	IS 13252 (Part 1):2010	Qualitative
		Oil & Grease	IS 13252 (Part 1):2010	Qualitative
		Securing of Parts	IS 13252 (Part 1):2010	Qualitative
		Edges and corners	IS 13252 (Part 1):2010	Qualitative
		Limited Current Circuits	IS 13252 (Part 1):2010	0.1 A to 20 A
		Limited Power Source	IS 13252 (Part 1):2010	0.1 W to 500 W
		Protection of the Telecommunication wiring system from over heating	IS 13252 (Part 1):2010	Qualitative
		Adhesives for Constructional Purposes	IS 13252 (Part 1):2010	Qualitative
		Adjustable control	IS 13252 (Part 1):2010	Qualitative

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		Controls		
		Batteries	IS 13252 (Part 1):2010	Qualitative
		Clearance	IS 13252 (Part 1):2010	1 mm to 25 mm
		Connection of Plugs and sockets	IS 13252 (Part 1):2010	Qualitative
		Connection of TNV Circuits to other circuits	IS 13252 (Part 1):2010	1 V to 300 V
		Containers for Liquid or gas	IS 13252 (Part 1):2010	Qualitative
		Creepage distance	IS 13252 (Part 1):2010	1 mm to 25 mm
		Determination of Working Voltage	IS 13252 (Part 1):2010	1 V to 300 V
		Direct Plug in Equipment	IS 13252:2010	1 N to 50 N
		Drop Test	IS 13252 (Part 1):2010	Qualitative
		Dust Powder , liquid &gases	IS 13252 (Part 1):2010	Qualitative
		Electric Strength	IS 13252:2010	0.1 V to 1000 V
		Electrical Strength Test	IS 13252 (Part 1):2010	10 V DC to 1000 V DC

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Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
		Energy Hazard D.C. Main Supply	IS 13252 (Part 1):2010	0.5 kV to 5 kV
		Flammable Liquid	IS 13252 (Part 1):2010	Qualitative
		Handles & Manual Controls	IS 13252 (Part 1):2010	Qualitative
		Humidity Condition	IS 13252 (Part 1):2010	Qualitative
		Impact Test	IS 13252 (Part 1):2010	Qualitative
		Manual Controls	IS 13252 (Part 1):2010	0.5 kV to 5 kV
		Materials for Fire enclosures) Flammability Test Apparatus	IS 13252 (Part 1):2010	Qualitative
		Over Current and earth fault protection primary Circuit	IS 13252 (Part 1):2010	0.1 A to 20 A
		Protected in service access Location	IS 13252 (Part 1):2010	Qualitative
		Protected in restricted access Location	IS 13252 (part 1):2010	Qualitative
		Protected in operator access area	IS 13252 (Part 1):2010	Qualitative

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Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
		Protection against overload and abnormal operation	IS 13252 (Part 1):2010	1 A to 2000 A
		Protection of cable distribution system service persons and user of other equipment connected to the system from hazardous voltage in the equipment	IS 13252 (Part 1):2010	Qualitative
		Protection of equipment user from over voltages on the cable distribution system	IS 13252 (Part 1):2010	Qualitative
		Protection of equipments user from overvoltage on Telecommunication network	IS 13252 (Part 1):2010	Qualitative
		Protection of Telecommunication network service person and user to network Protection from Hazardous Voltages	IS 13252 (Part 1):2010	Qualitative
		Protection requirements	IS 13252 (part 1):2010	Qualitative

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		for safety interlocks interlock		
		Protective earthing Conductors and protective bonding Conductors	IS 13252 (Part 1):2010	Qualitative
		Resistance to fire (Reducing the risk of ignition and spread of flame )	IS 13252 (Part 1):2010	Qualitative
		SELV Circuits	IS 13252 (Part 1):2010	1 V to 300 V
		Separations from Hazardous Voltages	IS 13252 (Part 1):2010	Qualitative
		Separations of TNV circuits from other circuits from circuit and from accessible parts	IS 13252 (Part 1):2010	1 V to 300 V
		Solid Insulation	IS 13252 (Part 1):2010	0.5 kV to 5 kV
		Steady force Test	IS 13252 (Part 1):2010	Qualitative
		Stress Relief Test	IS 13252 (Part 1):2010	Qualitative
		Temperature Limits for Materials	IS 13252 (Part 1):2010	1 Deg C to 300 Deg C

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		Temperature Test	IS 13252 (part 1):2010	Qualitative
		TNV Circuit Limits	IS 13252 (Part 1):2010	1 V to 300 V
		Top, Bottom and Side Opening	IS 13252 (Part 1):2010	Qualitative
		Top, Bottom and Side Opening	IS 13252 (Part 1):2010	Qualitative
		Touch Temperature Limits	IS 13252 (Part 1):2010	1 to 300
		Wall or Ceiling mount Equipment	IS 13252 (Part 1):2010	Qualitative
		Wiring Connection and Supplies	IS 13252 (part 1):2010	Qualitative
M.	Provision for protective earthing	Terminals for external flexible cords and for permanent connection	IS 616:2017	Qualitative
O.	Terminals for external flexible cords and for permanent connection	Device forming a part of the MAINS Plug	IS 616:2017	Qualitative

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### MECHANICAL TESTING

Location 1				
I.	<b>BUILDINGS MATERIALS</b>			
1.	<b>Aggregates</b>			
A.	<b>Natural/Synthetic Aggregates (Coarse)</b>	10% Fines Value	IS 2386 (Part 4):1963	5 kN to 500 kN
		Abrasion Value (by Los Angeles)	IS 2386 (Part 4):1963	2 % to 50 %
		Crushing Value	IS 2386 (Part 4):1963	2 % to 40 %
		Flakiness Index and Elongation Index	IS 2386 (Part 1):1963	2 % to 50 %
		Impact Value	IS 2386 (Part 4):1963	2 % to 40 %
		Sieve Analysis	IS 2386 (Part 1):1963	0.1 % to 100 % (Sieve Size:80, 63, 50, 40, 25, 20, 16, 12.5, 10, 4.75, 2.36 mm)
B.	<b>Natural/Synthetic Aggregates (Fine)</b>	Sieve Analysis	IS 2386 (Part 1):1963	0.1 % to 100 % (Sieve Size:10, 4.75, 2.36, 1.18, 0.6, 0.3, 0.15, 0.075 mm)
C.	<b>Natural/Synthetic Aggregates (Coarse)</b>	Water Absorption	IS 2386 (Part 3):1963	0.5 % to 5 %
D.	<b>Natural/Synthetic</b>	Water Absorption	IS 2386 (Part 1):1963	0.5 % to 5 %

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	<b>Aggregates (Fine)</b>			
<b>2.</b>	<b>Bricks &amp; pre-casted blocks</b>			
<b>A.</b>	<b>Common Burnt Clay, Building Bricks, Pulverized Fuel Ash-Lime Bricks</b>	Compressive Strength	IS 3495 (Part 1):1992	2.5 N/mm <sup>2</sup> to 35 N/mm <sup>2</sup>
		Dimensions	IS 1077:1992	500 mm to 5000 mm
		Water Absorption	IS 3495 (Part 2):1992	5 % to 30 %
<b>B.</b>	<b>Hardened Concrete cubes &amp; cores/Paver Blocks</b>	Compressive Strength	IS 516/IS 15658:1959	5 N/Sq mm to 80 N/Sq mm
		Pull out Bond Strength	IS 2770:1967	1 N/Sq mm to 10 N/Sq mm
<b>C.</b>	<b>Paver Blocks</b>	Dimensions	IS 15658:2006	10 mm to 300 mm
		Water Absorption	IS 15658:2006	0.5 % to 20 %
<b>3.</b>	<b>Cement</b>			
<b>A.</b>	<b>Cement (OPC, PPC &amp; PSC)</b>	Compressive Strength	IS 4031 (Part 6):1988	2 N/mm <sup>2</sup> to 60 N/mm <sup>2</sup>
		Final Setting Time	IS 4031 (Part 5):1988	30 min to 700 min
		Fineness by Blaine's Method	IS 4031 (Part 2):1999	150 m <sup>2</sup> /kg to 450 m <sup>2</sup> /kg
		Initial Setting Time	IS 4031 (Part 5):1988	5 min to 250 min
		Standard consistency	IS 4031 (Part 4):1988	20 % to 40 %
<b>3.</b>	<b>Tiles</b>			
<b>A.</b>	<b>Concrete tiles/ Chequered tiles</b>	Dimensions	IS 1237:2012	10 mm to 300 mm
		Resistance to wear	IS 1237:2012	0.5 mm to 5 mm
		Transverse Strength/ Flexural Strength	IS 1237:2012	1 N/mm <sup>2</sup> to 10 N/mm <sup>2</sup>
		Water Absorption	IS 1237:2012	0.5 % to 20 %

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<b>II. WOOD AND WOOD PRODUCTS</b>				
1.	<b>Plyboard</b>			
A.	<b>Plyboard/Particle Boards</b>	Density	IS 1734 (Part 1):1983	400 kg/m <sup>3</sup> to 1000 kg/m <sup>3</sup>
		Moisture Content	IS 1734 (Part 1):1983	1 % to 50 %
<b>III. MECHANICAL PROPERTIES OF METALS</b>				
1.	<b>Copper materials, alloys &amp; products</b>			
A.	<b>Copper Alloy Taps</b>	Hydrostatic Test up to pressure of 200 kg per square centimeter	IS 8931:1993	Qualitative
B.	<b>Gas Cartridges, Cast Copper Alloy screw down bib tap and stop valves</b>	Hydrostatic test	IS 781:1984	Qualitative:Hydrostatic tests up to pressure of 300 kg per square cm
2.	<b>Ferrous materials, alloys &amp; products</b>			
A.	<b>Assorted Products</b>	Tensile Test/UTS	IS 1608 (Part 3) 2018	60 kN to 600 kN

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Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
	<b>of Ferrous</b>	0.2% Proof Stress/Yield Strength	IS 1608 (Part 3) 2018	60 kN to 600 kN
		% Elongation	IS 1608 (Part 3) 2018	1% to 60%
		compression test	IS 1726:1991	Qualitative:Up to a maximum compressive load of 60 tonne
<b>B.</b>	<b>Cast irons and Steel Pipes</b>	Proof Pressure test	IS 1239 (Part 1):2004	Qualitative:Up to 200 kg per sq. cm and up to 250 mm dia.
<b>C.</b>	<b>Deformed Steel bars</b>	Rebend test	IS 1786:2008	Qualitative:from 5 mm to 32 mm. dia.
<b>D.</b>	<b>Fasteners</b>	Proof Load	IS 1367 (Part 3):2017	Qualitative:Up to M 30 thread of Bolt & Nut
<b>E.</b>	<b>Gate valves and Sluice valves</b>	Proof Pressure test	IS 778:1984	Qualitative:Up to 200 kg per sq. cm. and upto 250 mm dia.
<b>F.</b>	<b>Metallic materials</b>	Brinell Hardness test	IS 1500 (Part 1):2013	100 HBW to 500 HBW 2.5/187.5
		Impact Test (Charpy)	IS 1757:2014	2 J to 300 J
		Impact test(Izod)	IS 1598:1977	2 J to 168 J
		Rockwell Hardness test	IS 1586 (Part 1):2018	20 HRC to 70 HRC

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		Rockwell superficial	IS 1586 (Part 1):2012	30 HRTW to 100 HRTW
		Vickers Hardness test	IS 1501 (Part 1):2013	100 HV to 850 HV 10, 30.
G.	<b>Metallic tubes</b>	Flattening test	IS 2328:2018	Qualitative:For pipes of dia from 40mm to 200 mm.
H.	<b>Metallic wires</b>	Wrapping test	IS 1755:2018	Qualitative:For wires from 0.5 to 3 mm dia.
I.	<b>Section of Ferrous material</b>	Bend test	IS 1599:2012	Qualitative:Plates up to 25 mm thickness and bars up to 32 mm dia.
J.	<b>Steel</b>	Tensile Test/UTS	IS 1608 (Part 3) 2018	60 kN to 600 kN
		0.2% Proof Stress/Yield Strength	IS 1608 (Part 3) 2018	60 kN to 600 kN
		% Elongation	IS 1608 (Part 3) 2018	1% to 60%
K.	<b>Steel Wires</b>	Torsion Test	IS 1717:2011	Qualitative:For wires from 0.5 mm to 3 mm dia.
3.	<b>Other Non-Ferrous metals, alloys &amp; products</b>			
A.	<b>Gate Valves and Sluice Valves</b>	Proof Pressure Test	IS 778:1984	Qualitative:Up to 200 kg per sq. cm up to 300 mm

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				dia.
<b>B.</b>	<b>Metallic Material</b>	Brinell Hardness Test	IS 1500 (Part 1):2013	100 HBW to 500 HBW 2.5/187.5
		Impact Testing (Charpy)	IS 1757:2014	2 J to 300 J
		Impact Testing (Izod)	IS 1598:1977	2 J to 168 J
		Rockwell Hardness Test	IS 1586 (Part 1):2018	20 HRB to 100 HRB
		Rockwell Superficial	IS 1586 (Part 1):2018	30 HRTW to 100 HRTW
		Tensile Test/UTS	IS 1608 (Part 3) 2018	60 kN to 600 kN
		0.2% Proof Stress/Yield Strength	IS 1608 (Part 3) 2018	60 kN to 600 kN
		% Elongation	IS 1608 (Part 3) 2018	1% to 50%
		Vickers Hardness test	IS 1501 (Part 1):2013	100 HV to 850 HV 10,30 kg
<b>C.</b>	<b>Metallic Tubes</b>	Flattening test	IS 2328:2018	Qualitative:For pipes of dia 40 mm to 200 mm
<b>D.</b>	<b>Metallic Wires</b>	Wrapping test	IS 1755:2018	Qualitative:For wires 0.5 mm to 3 mm dia.

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E.	Section	Bend test	IS 1599:2012	Qualitative:Plates up to 25 mm thickness and bars up to 32 mm dia.
4.	Welds & welded test specimens			
A.	Welding Electrodes	Bend Test	IS 1599:2012	Qualitative:For electrode diameter up to 5.0 mm
		Tensile Test/UTS	IS 1608 (Part 3) 2018	60 kN to 600 kN
		0.2% Proof Stress/ Yield Strength	IS 1608 (Part 3) 2018	60 kN to 600 kN
		% Elongation	IS 1608 (Part 3) 2018	1% to 50%
B.	Welding Electrodes /All weld samples	Charpy Impact Test from at Room Temperature	IS 1757:2014	0 to 300 Joule
		Charpy Impact Test at 0 deg. C	IS 1757:2014	0 to 300 Joule
		Charpy Impact Test from RT up to -30 deg. C	IS 1757:2014	0 to 300 Joule

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<b>IV.</b>	<b>METALLOGRAPHY TEST</b>			
<b>1.</b>	<b>Ferrous materials, alloys &amp; products</b>			
<b>A.</b>	<b>Metallic Materials</b>	Coating Thickness	IS 5523:1983	1 µm to 300 µm
		Micro Structural Analysis	ASM HAND BOOK VOLUME IX:1987	1 µm to 300 µm
<b>V.</b>	<b>RUBBER AND RUBBER PRODUCTS</b>			
<b>1.</b>	<b>Industrial belts</b>			
<b>A.</b>	<b>Conveyor Belt</b>	Adhesion between cover and carcass before and after ageing	IS 1891 Part 1, Appendix G:1994	2 kN/m to 10 kN/m
		Adhesion between plies before and after ageing	IS 1891 Part 1, Appendix G:1994	3 kN/m to 12 kN/m
		Construction	IS 1891 Part 1:1994	Qualitative
		Cover Thickness	IS 1891 Part 1:1994	1 mm to 12 mm
		Elongation at break before and after ageing	IS 3400 Part 1:2012	100 % to 800 %
		Elongation at breaking	IS 1891 Part 1:1994	10 % to 40 %

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		load		
		Elongation at reference load	IS 1891 Part 1:1994	0.5 % to 5 %
		Full Thickness breaking load	IS 1891 Part 1:1994	150 kN/m to 2000 kN/m
		Full thickness of Belt	IS 1891 Part 1:1994	Qualitative
		Tensile Strength before and after ageing	IS 3400 Part 1:2012	8 MPa to 35 MPa
		Width of Belt	IS 1891 Part 1:1994	500 mm to 2400 mm
<b>2.</b>	<b>Natural rubber &amp; products</b>			
<b>A.</b>	<b>Natural rubber and products</b>	Adhesion Strength	IS 3400 (Part 5):1986	1 kN/m to 30 kN/m
		Density	IS 3400 (Part 9):2014	0.8 g/cc to 2.50 g/cc
		Elongation at break before and after ageing	IS 3400 (Part 1):2012	50 % to 800 %
		Hardness before and after ageing shore A	ASTM D 2240:2015	30 shore A to 100 shore A
		Ross Flexing Test (Cut Growth)	IS 3400 (Part 16):1974	50 % to 600 %

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Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
		Tear Strength Angular test piece	IS 3400 (Part 17):1974	5 kN/m to 100 kN/m
		Tensile strength before and after ageing	IS 3400 (Part 1):2012	50 N to 1000 N
<b>B.</b>	<b>Synthetic rubber and products</b>	Adhesion strength	IS 3400 (Part 5):1986	1 kN/m to 30 kN/m
		Elongation at break before and after ageing	IS 3400 (Part 1):2012	50 % to 800 %
		Hardness before and after ageing Shore A	ASTM D 2240:2015	30 Shore A to 100 Shore A
		Ross Flexing Test (Cut Growth)	IS 3400 (Part 16):1974	50 % to 600 %
		Tear strength angular test piece	IS 3400 (Part 17):1974	5 kN/m to 100 kN/m
<b>3.</b>	<b>Synthetic rubber &amp; products</b>			
<b>A.</b>	<b>Synthetic rubber and products</b>	Density	IS 3400 (Part 9):2014	0.8 g/cc to 2.50 g/cc
		Tensile Strength before and after ageing	IS 3400 (Part 1):2012	50 N to 1000 N
<b>VI.</b>	<b>TEXTILE MATERIALS</b>			
<b>1.</b>	<b>Coated fabrics</b>	Breaking Load	IS 7016 (Part-2) 1981	200 N to 2000 N

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Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
		Dimensional Changes	IS 2977:1989	(-) 10 % to 10 %
		Mass in GSM	IS 1964:2001	100 g/m <sup>2</sup> to 1000 g/m <sup>2</sup>
		Pressure Head Test	IS 7940:1976	Qualitative
		Width	IS 1954:1990	0.75 m to 1.55 m
<b>2.</b>	<b>Fabrics (Woven and Non Woven)</b>			
<b>A.</b>	<b>Textile Fabrics</b>	Breaking Load	IS 1969:1985	200 N to 2000 N
		Mass in GSM	IS 1964:2001	100 g/m <sup>2</sup> to 1000 g/m <sup>2</sup>
		Threads per Unit Length	IS 1963:1981	50 /dm to 500 /dm
		Width	IS 1954:1990	0.5 m to 1.5 m
<b>3.</b>	<b>Garments and Apparel</b>			
<b>A.</b>	<b>Garments</b>	Breaking Load	IS 1969:1985	200 N to 2000 N
		Mass in GSM	IS 1964:2001	100 g/m <sup>2</sup> to 1000 g/m <sup>2</sup>
		Threads per Unit Length	IS 1963:1981	50 /dm to 500 /dm
		Width	IS 1954:1990	0.75 m to 1.55 m
<b>B.</b>	<b>Yarns</b>			

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C.	Textile Fibre and Yarn	Linear Density	IS 1315:1977	1 Tex to 100 Tex
D.	Yarns	Linear Density	IS 1315:1977	10 Tex to 100 Tex
VII.	<b>PAPER &amp; PAPER PRODUCTS</b>			
1.	Paper	Breaking Strength	IS 1060 (Part 1) cl 12:1966	5 kN/m to 30 kN/m
		Brightness	IS 1060 (Part 2) cl 13:1960	30 % to 100 %
		Bursting Strength	IS 1060 (Part 1) cl 12.5:1966	0.5 kg/cm <sup>2</sup> to 10 kg/cm <sup>2</sup>
		Cobb Test	IS 1060 (Part 1) cl 13.2.2:1966	10 g/m <sup>2</sup> to 50 g/m <sup>2</sup>
		Gloss	IS 1060 (Part 1) Cl 15:1966	5 % to 80 %
		Opacity	IS 1060 (Part 1) cl 16:1966	30 % to 100 %
		Smoothness	IS 9894:1981	10 ml/min to 400 ml/min
		Substance	IS 1060 (Part 1) cl 6:1966	50 GSM to 400 GSM
		Tear Index	IS 1060 (Part 1) cl 12.7:1966	0.5 mNm <sup>2</sup> /g to 10.0 mNm <sup>2</sup> /g
		Tearing Strength	IS 1060 (Part 1) cl 12.7:1966	5 N to 80 N
		Tensile Index	IS 1060 (Part 1) cl 12:1966	10 Nm/g to 50 Nm/g
		Thickness	IS 1060 (Part 1) cl 7:1966	0.04 mm to 0.5 mm

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2.	Paper board	Breaking Strength	IS 1060 (Part 1) cl 12:1966	5 kN/m to 30 kN/m
		Brightness	IS 1060 (Part 2) cl 13:1960	30 % to 100 %
		Bursting Strength	IS 1060 (Part 1) cl 12.5:1966	0.5 kg/cm <sup>2</sup> to 30 kg/cm <sup>2</sup>
		Cobb Test	IS 1060 (Part 1) cl 13.2.2:1966	10 g/m <sup>2</sup> to 50 g/m <sup>2</sup>
		Gloss	IS 1060 (Part 1) cl 15:1966	5 % to 80 %
		Opacity	IS 1060 (Part 1) cl16:1966	30 % to 100 %
		Smoothness	IS 9894:1981	10 ml/min to 400 ml/min
		Substance	IS 1060 (Part 1) cl 6:1966	10 GSM to 400 GSM
		Tear Index	IS 1060 (Part 1) cl 12.7:1966	0.5 mNm <sup>2</sup> /g to 10 mNm <sup>2</sup> /g
		Tearing Strength	IS 1060 (Part 1) cl 12.7:1966	5 N to 80 N
		Tensile Index	IS 1060 (Part 1) cl12:1966	10 Nm/g to 50 Nm/g
		Thickness	IS 1060 (Part 1) cl 7:1966	0.1 mm to 5 mm
VIII.	<b>PLASTICS AND PLASTIC PRODUCTS</b>			
1.	Plastic materials & products			
A.	Plastic	Density	IS 13360 (Part 3) Section 1:	0.8 g/cc to 2.50 g/cc

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			1995	
		Elongation	IS 13360 (Part 5):1996	50 % to 800 %
		Hardness Shore D	ASTM D 2240:2005	30 Shore D to 100 Shore D
		Identification of Polymer	ASTM E 1252:98	Qualitative
		Izod Impact Test	IS 1998 cl 9:1962	10 kJ/m <sup>2</sup> to 200 kJ/m <sup>2</sup>
		Melt Flow Index	IS 2530 cl 7:1963	0.5 g/10 min to 30 g/10 min
		Tensile Strength	IS 13360 (Part 5) Section 1: 1996	50 N to 50000 N
		Water Absorption Test	IS 1998 cl 12:1962	0.1 % to 5 %
<b>2.</b>	<b>Polymeric Products</b>			
<b>A.</b>	<b>APP Membrane</b>	Cold flexibility	IS 13826 (Part 2):1993	Qualitative
		Elongation	IS 13826 (Part 1):1993	10 % to 60 %
		Heat Resistance Test	IS 13826 (Part 5):1993	Qualitative
		Tear Strength	IS 7193 cl B4:1994	100 N to 600 N
		Tensile Strength	IS 13826 (Part 1):1993	100 N/5 cm to 1000 N/5

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				cm
		Water Absorption Test	IS 13826 (Part 6):1993	0.1 % to 10 %
<b>B.</b>	<b>Bituminous Felt</b>	Breaking Strength	IS 13826 (Part 1):1993	500 N to 5000 N
		Heat Resistance Test	IS 13826 (Part 5):1993	Qualitative
		Pliability Test	IS 13826 (Part 2):1993	Qualitative
		Storage Sticking Test	IS 13826 (Part 3):1993	Qualitative
		Total Weight of finished Bitumen Felt	IS 1322:1993	5 kg/10m <sup>2</sup> to 40 kg/10m <sup>2</sup>
		Water Absorption Test	IS 13826 (Part 6):1993	0.1 % to 10 %
<b>C.</b>	<b>Cable Insulation and Sheathing</b>	Elongation at break before and after ageing	IS 10810 (Part 7):1984	10 % to 600 %
		Heat shock Test	IS 10810 (Part 14):1984	Qualitative
		Loss of Mass	IS 10810 (Part 10):1984	0.01 mg/cm <sup>2</sup> to 0.1 mg/cm <sup>2</sup>
		Shrinkage	IS 10810 (Part 12):1984	(-) 10 % to 10 %
		Tensile Strength before and after ageing	IS 10810 (Part 7):1984	5 MPa to 50 MPa
<b>D.</b>	<b>Unbacked Flexible</b>	Dimension Stability	IS 3464 cl 5:1986	(-) 10 % to 10 %

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	<b>PVC flooring</b>	Elastic Product	IS 3462 Appendix D:1986	2 MJ/m <sup>3</sup> to 30 MJ/m <sup>3</sup>
		Flexibility	IS 3462 Appendix A:1986	Qualitative
		Heat Ageing and Exudation	IS 3462 Appendix C:1986	Qualitative
		Ply Adhesion	IS 3464 cl 12:1986	1 kN/m to 18 kN/m

### MECHANICAL TESTING

Location 2				
I.	<b>MECHANICAL PROPERTIES OF METALS</b>			
1.	<b>Strand Wires</b>	Relaxation Test	IS 14268:2017	Qualitative: Upto 15.2 mm dia.

**Birendra Prasad Murmu**  
Convenor

**Avijit Das**  
Program Manager

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### NON-DESTRUCTIVE TESTING

Location 2				
I.	METALS & ALLOYS			
1.	Eddy Current Testing facility			

**Birendra Prasad Murmu**  
Convenor

**Avijit Das**  
Program Manager

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A.	Metals & Alloys	Coating Thickness measurement (For Anodic coating and paint coating thickness measurement on non ferrous base)	IS 6012:1992, (RA 2016)	0.1 mm to 1 mm
2.	Magnetic Particle Testing			
A.	Metals & Alloys	Surface Flaws Detection (For Detection of surface and sub surface indications)	IS 3703:2004, (RA 2014)	Qualitative
3.	Penetrant Testing Facility			
A.	Metals & Alloys	Surface Flaws Detection (For detection of surface-surface indications)	IS 3658:1999, (RA 2014)	Qualitative:Open to surface indications only.
5.	Radiography Testing Facility			
A.	Weldments & Castings (Ferrous & Non-ferrous by X-Ray only)	Radiography Testing (For Detection of surface-surface and sub surface indications)	IS 2595:2008, (RA 2013)	Qualitative:Steel Thickness or equivalent (5 mm to 30 mm)/ 2% of the thickness.
6.	Ultrasonic Testing Facility			

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Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
A.	Steel	Thickness Measurement	ASME Sec V, SE 797:2017	0.1 mm to 60 mm

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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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### PHOTOMETRY TESTING

Location 1				
I.	<b>LIGHT SOURCES (ELECTRIC LAMP)</b>			
1.	<b>Color Characteristics</b>			
A.	<b>Self-Ballasted Lamps for General Lighting Services (Performance Requirements) Max Upto 26 Watt</b>	Colour	IS 15111 (Part 2), Clause No 11:2002	0.1 to 0.999
B.	<b>Self-Ballasted LED Lamps for General Lighting Services</b>	Colour chromaticity, Color Rendering Index (CRI)	IS 16102 (Part 2):2017	0.1 to 0.999
C.	<b>Solid State Light (LED) Sources</b>	Chromaticity Coordinates, Correlated Colour Temperature (CCT)	IS 16106:2012	2000 K to 8000 K
		Colour rendering index (CRI)	IS 16106:2012	1 to 100
D.	<b>Tubular Fluorescent Lamps for General Lighting</b>	Colour characteristics	IS 2418 (Part 1):1977	2000 K to 8000 K

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E.	Service Tubular Fluorescent Lamps for General Lighting Service	Life / Lumen maintenance	IS 2418 (Part 1):1977	0.1 hour to 25000 hour
2.	Initial Rating Test			
A.	Self-Ballasted Lamps for General Lighting Services (Performance Requirements) Max Upto 26 Watt	Starting and run up	IS 15111 (Part 2):2002	1 seconds to 120 seconds
		Dimensions	IS 15111 (Part 2):2002	0.5 mm to 250 mm
		Harmonics	IS 15111 (Part 2):2002	1st order to 50th order
		Lamp Efficacy	IS 15111 (Part 2):2002	1 lm/W to 100 lm/W
		Lamp Wattage	IS 15111 (Part 2):2002	0.1 W to 26 W
		Power Factor	IS 15111 (Part 2):2002	0.1 to 1.0
B.	Self-Ballasted LED Lamps for General Lighting Services	Dimensions	IS 16102 (Part 2):2017	0.5 mm to 200 mm
		Harmonics	IS 16102 (Part 2):2017	1st order to 50th order
		Marking	IS 16102 (Part 2):2017	Qualitative
		Power Factor	IS 16102 (Part 2):2017	0.1 to 1.0
		Wattage	IS 16102 (Part 2):2017	0.5 W to 60 W
C.	Tubular Fluorescent Lamps for General Lighting Service	Electrical characteristics	IS 2418 (Part 1):1977	0.1 W to 54 W
		Testing of starting Characteristics and Burning/Starting characteristics	IS 2418 (Part 1):1977	1 Second to 3600 Second
3.	Life Test			
A.	Self-Ballasted Lamps for General Lighting Services (Performance	Life	IS 15111 (Part 2):2002	1 hour to 10000 hour

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Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
	Requirements) Max Upto 26 Watt			
B.	Self-Ballasted LED Lamps for General Lighting Services	Lamp Life	IS 16102 (Part 2):2017	1 hour to 25000 hour
4.	luminous flux output			
A.	High Pressure Sodium Vapour Lamps. (Discharge lamps Excluding fluorescent lamps)	Lamp photometric characteristics	IS 9974 (Part 1):1981	50 lm to 80000 lm
B.	Self-Ballasted Lamps for General Lighting Services (Performance Requirements) Max Upto 26 Watt	Lumen Maintenance	IS 15111 (Part 2):2002	1 lm to 2500 lm
		Luminous Flux	IS 15111 (part 2), Clause No 10:2002	1 lm to 3000 lm
C.	Self-Ballasted LED Lamps for General Lighting Services	Beam Angle	IS 16102 (Part 2):2017	0 Deg to 360 Deg
		Centre beam intensity	IS 16102 (Part 2):2017	1 cd to 100000 cd
		Luminous Flux	IS 16102 (Part 2):2017	50 Lm to 10000 Lm
D.	Solid State Light (LED) Sources	Luminaire efficacy	IS 16106:2012	1 lm/W to 200 lm/W
		Luminaire intensity distribution	IS 16106:2012	1 cd to 100000 cd
		Luminous Flux	IS 16106:2012	100 lm to 100000 lm

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E.	Tubular Fluorescent Lamps for General Lighting Service	Luminous characteristics	IS 2418 (Part 1):1977	1 lm to 10000 lm
II.	LUMINARIES			
1.	Ballast Lumen Factor			
A.	LED Modules for General Lighting	Chromaticity coordinates and correlated colour temperature	IS 16103 (Part 2):2012	2000 K to 8000 K
		Color Rendering Index (CRI)	IS 16103 (Part 2):2012	1 to 99
		Dimensions	IS 16103 (Part 2):2012	0.5 mm to 300 mm
		Endurance	IS 16103 (Part 2):2012	1 Cycles to 25000 Cycles
		Lumen maintenance	IS 16103 (Part 2):2012	1 hour to 25000 hour
		Luminous Flux	IS 16103 (Part 2):2012	50 lm to 25000 lm
		Luminous intensity	IS 16103 (Part 2):2012	10 cd to 100000 cd
		Marking	IS 16103 (Part 2):2012	Qualitative
		Module efficacy	IS 16103 (Part 2):2012	1 lm/W to 200 lm/W
		Module power	IS 16103 (Part 2):2012	0.1 W to 400 W
2.	Luminous Intensity Distribution			
A.	D.C. or A.C. Supplied	Circuit Power factor	IS 16104:2012	0.1 to 1.0
		Endurance	IS 16104:2012	Qualitative

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	<b>Electronic Controlgear for LED Modules</b>	Marking	IS 16104:2012	Qualitative
		Operational Test for abnormal condition	IS 16104:2012	Qualitative
		Output Current	IS 16104:2012	0.001 A to 10 A
		Output Voltage	IS 16104:2012	0.01 V to 300 V
		Supply Current	IS 16104:2012	0.001 A to 10 A
		Total Circuit Power	IS 16104:2012	0.1 W to 400 W
<b>B.</b>	<b>LED Luminaire</b>	Angular beam distribution	IS 16107 (Part 2):2012	0 Deg to 360 Deg
		Chromaticity coordinates and correlated colour temperature (CCT)	IS 16107 (Part 2):2012	2000 K to 8000 K
		Colour rendering index (CRI)	IS 16107 (Part 2):2012	1 to 100
		Endurance test	IS 16107 (Part 2):2012	1 Cycle to 25000 Cycle
		Life	IS 16107 (Part 2):2012	1 hour to 25000 hour
		Lighting intensity	IS 16107 (Part 2):2012	1 cd to 100000 cd
		Lumen Maintenance	IS 16107 (Part 2):2012	100 Lm to 25000 Lm
		Luminaire efficacy	IS 16107 (Part 2):2012	1 lm/W to 200 lm/W
		Luminaire intensity distribution	IS 16107 (Part 2):2012	1 cd to 100000 cd
		Luminaire power	IS 16107 (Part 2):2012	0.1 W to 200 W
		Luminous Flux	IS 16107 (Part 2):2012	100 lm to 25000 lm
		Marking	IS 16107 (Part 2):2012	Qualitative
<b>C.</b>		<b>LED Luminaire (Fixed General Purpose Luminaires)</b>	Photometric Tests	IS 10322 (Part 5) Section 1:2012
<b>D.</b>	<b>LED Luminaire</b>		Photometric Tests	IS 10322 (Part 5) Section 5,

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	(Flood Lights)		Clause No 17.3:2013	
E.	LED Luminaire (Luminaires for Road and Street Lighting)	Photometric Tests	IS 10322 (Part 5) Section 3: 2012	100 lm to 100000 lm
F.	LED Luminaire (Recessed Luminaires)	Photometric Tests	IS 10322 (Part 5) Section 2: 2012	100 lm to 25000 lm