Laboratory	**Nashik Engineering Cluster, "SAHASHTRARASHMI", C-10, MIDC, Ambad, Nashik, Maharashtra**
Accreditation Standard	**ISO/IEC 17025: 2005**
Certificate Number	**TC-5448** **Page 1 of 6**
Validity	**12.03.2018 to 11.03.2020** **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
		CHEMICAL TESTING		
I.				
1.	**Plain Carbon & Low Alloy Steels**	Carbon	ASTM E415-08 IS 8811	0.08 % to 1.10 %
		Manganese		0.10 % to 1.5 %
		Silicon		0 .01 % to 0.75 %
		Sulphur		0.01 % to 0.10 %
		Phosphorous		0.01 % to 0.10 %
		Chromium		0.02 % to 2.00 %
		Nickel		0.02 % to 5.00 %
		Molybdenum		0.02 % to 0.60 %
		Vanadium		0.004 % to 0.10 %
		Aluminium		0.02 % to 0.10 %
		Copper		0.04 % to 0.60 %
		Cobalt		0.005% to 0.10%
		Niobium		0.02 % to 0.085 %
		Titanium		0.004 % to 0.01 %
		Tin		0.001 % to 0.01 %
		Boron		0.002 % to 0.007 %
2.	**Stainless Steel**	Carbon	ASTM E 1086-14 IS 9879	0.01 % to 0.30 %
		Manganese		0.10 % to 1.50 %
		Silicon		0.05 % to 1.0 %
		Sulphur		0.005 % to 0.10 %
		Phosphorous		0.005 % to 0.10 %
		Chromium		0.50 % to 25.0 %
		Nickel		2.0 % to 25.0 %
		Molybdenum		0.05 % to 3.00 %
		Copper		0.05 % to 2.50 %
3.	**Aluminum and its Alloys**	Copper	ASTM E1251-17a	0.05 % to 5.5 %
		Silicon		0.01 % to 16.0 %
		Iron		0.2 % to 1.0 %
		Magnesium		0.03 % to 1.5 %

Pankaj Goyal
Convenor

N. Venkateswaran
Program Director

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
		Zinc		0.05 % to 0.50 %
		Manganese		0.05 % to 1.0 %
		Chromium		0.01 % to 0.20 %
		Nickel		0.01 % to 2.0 %
		Titanium		0.05 % to 0.20 %
		Lead		0.04 % to 0.20 %
		Tin		0.002 % to 0.20 %
		Vanadium		0.005 % to 0.02 %
4.	**Copper and its Alloys**	Zinc	BSEN 15079	0.01 % to 35.0 %
		Iron		0.01 % to 4.00 %
		Nickel		0.05 % to 2.0 %
		Lead		0.01 % to 4.0 %
		Tin		0.01 % to 5.0 %
		Manganese		0.01 % to 1.0 %
		Aluminium		0.05 % to 12.0 %
		Phosphorous		0.001 % to 0.5 %
		Bismuth		0.001 % to 0.10 %
		Silicon		0.005 % to 1.0 %
		Arsenic		0.001 % to 0.30 %
		Cobalt		0.001 % to 0.50 %
		Antimony		0.001 % to 1.00 %
		Silver		0.0003 % to 1.60 %

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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

ELECTRICAL TESTING

I.	**TRANSMISSION LINE EQUIPMENT AND ACCESSORIES**			
1.	**Current Transformer, Up to 3200 A/1A-5A, 0.005 accuracy class**	Verification of marking	IEC 61869-2 Clause 7.3.6 IS 16227	Qualitative
		Inter-turn overvoltage Test	IEC 61869-2 Clause 7.3.200	0 to 3 kV & 10A
		Power Frequency dry withstand test on secondary terminal	IEC 61869-2 Clause 7.3.4 IS 16227	1 kV to 3.3 kV
		Test for accuracy	IEC 61869-2 Clause 7.2.6 , 7.3.5 IS 16227	5 to 3200A /5A & 1A
		Power frequency voltage withstand test on primary terminals	IEC 61869-2 Clause 7.3.1 IS 16227	1kV to 100 kV (100mA 50 Hz)
		Impulse voltage withstand test	IEC 61869-2 Clause 7.2.3 IS 16227	10kVp to 300kVp (15kJ) Rise Time 1.2 µs Fall Time 50µs
		Partial discharge measurement.	IEC 61869-2 Clause 7.3.2 IS 16227	2.5 pC to 50000 pC
2.	**Potential Transformer Up to 33kV Accuracy class: 0.05**	Verification of marking	IEC 61689-3 Clause 7.3.6 IS 16227	Qualitative
		Power frequency voltage withstand test on primary terminals	IEC 61689-3 Clause 7.3.1 IS 16227	0.5 kV to 3.3 kV
		Power frequency voltage withstand test on secondary terminals	IEC 61689-3 Clause 7.3.4 IS 16227	0.5 kV to 3.3 kV
		Test for accuracy	IEC 61689-3 Clause 7.3.5, Clause 7.2.6	3.3kV to 33kV

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
			IS 16227	
		Partial discharge measurement	IEC 61689-3 Clause 7.3.2 IS 16227	2.5 pC to 50000 pC
		Impulse voltage test on primary terminals	IEC 61689-3 Clause 7.2.3 IS 16227	10kVp-300kVp (15kJ) Rise Time 1.2 µs Fall Time 50µs
3.	**H.T. XLPE Cable Single / Three Core Upto 33kV**	Lightning Impulse Voltage withstand test	IS 7098 (Part 2) Clause 19.6 IS 7098 (Part 3) Clause 20.15 IEC: 60502 (Part 2)	10kVp-300kVp (15kJ) Rise Time 1.2 µs Fall Time 50µs
4.	**Insulators, Bushings, Upto 33 kV**	Lightning Impulse Voltage Withstand Test	IEC: 60060- 1 IEC:60137 IEC:60383	10kVp-300kVp (15kJ) Rise Time 1.2 µs Fall Time 50µs
		Power Frequency Voltage Test		1kV to 100kV
5.	**Circuit Breakers, H.T. Panels, Upto 33 kV**	Lightning Impulse Voltage Withstand Test	IS/IEC: 62271-1 IEC 62271-100 IEC 62271- 200	10kVp-300kVp (15kJ) Rise Time 1.2 µs Fall Time 50µs
		Power Frequency Voltage Test		1kV to 100kV
6.	**A. B. Switch, H. G. Fuse**	Lightning Impulse Voltage Withstand Test	IEC 60298 IEC 60265-1 IEC 62271-102 IEC 62271-103 IEC 60353 IEC 62271-203	10kVp-300kVp (15kJ) Rise Time 1.2 µs Fall Time 50µs
		Power Frequency Voltage Test		1 kV to 100 kV
7.	**High Voltage Test Facility**			
a.	**H.T. XLPE Cable Single / Three Core**	Impulse withstand test	IS 7098 (Part 2) IS 7098 (Part 3) IEC 60502 (Part 2)	300 kVp, 15 kJ Rise Time 1.2 µs Fall Time 50µs
		High voltage test		1 kV to 100 kV

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
b.	**H.T. PVC Cable Single / Three Core Upto 33 kV**	Lightning Impulse Voltage Withstand Test	IS 1554 (Part 1) IS 1554 (Part 2)	300 kVp, 15 kJ Rise Time 1.2 µs Fall Time 50µs
II.	**ENVIRONMENTAL TEST FACILITY**			
1.	**Environmental Test Facility**	Dry Heat Test	IS 9000 (Part 3) IEC 60068-5	Ambient to 180°C Max Size of Chamber 1200mm(W) × 1200mm(D) × 2000mm(H)
		Cold Test	IS 9000 (Part 2) IEC 60068-3	Ambient to -60 °C Max Size of Chamber 1200mm(W) × 1200mm(D) × 2000mm(H)
		Damp Heat Test	IS 9000 (Part 4) IS 9000 (Part 5) IEC 60068-2-78	Temp Range: -60°C to +180°C Humidity: 20% to 95% Max. Size of Chamber 1200 mm (W) X 1200 mm (D) X 2000 mm (H)
		Vibration Test	IEC 60068-2-6 IS 9000 (Part 8)	Frequency: 5-2000Hz Displacement:51mm Max Force: 1100KgF Acceleration (Bare table) : 100g
		Combined Damp Heat and Vibration Test	IS 9000 (Part 5) IEC 60068-2-6	Temp Range: -60°C to +180°C Humidity: 20% to 95% Max Size of Chamber 1200 mm (W) X 1200 mm (D) X 2000 mm (H) Frequency: 5-2000Hz

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
				Displacement:51mm Max Force: 1100KgF Acceleration (Bare table) : 100 g
		Protection against Penetration of Dust and Water Dust Test	IS 9000 (Part 12) IS/IEC 60529 Clause no 13.4	Temp Range: 10 °C to +70 °C Max Size of Chamber for IP 4X/5X/6X test: 1000mm(W) × 1000mm(D) × 2000mm(H)
		Water Ingress (Shower test)	IS/IEC 60529 Clause no 14.2.3	IP X3 IEC/JSS Standard 500 (W) x 250 (D) x 470 (H) x For IS Standard 500 mm (W) x 500 mm (D) x 1500 mm (H) x