Laboratory	**Centre of Excellence - Hydro Machines, Bharat Heavy Electricals Limited, Piplani, Bhopal, Madhya Pradesh**
Accreditation Standard	**ISO/IEC 17025: 2005**
Certificate Number	**TC-7255** ***(in lieu of T-0106)*** **Page 1 of 2**
Validity	**16.06.2018 to 15.06.2020** **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
		FLUID-FLOW TESTING		
I.	**LIQUIDS**			
1.	**Hydro Turbine Model Test of Francis, Kaplan, Pelton, Tubular, Bulb, Pump, Turbine & Pump**	Hydraulic Efficiency	IEC 60193	
		Head		4 mWC to 100 mWC (for Test Bed 1 & 2) 4 mWC to 140 mWC (for Test Bed 3)
		Flow		0.09 m^3/s to 1.8 m^3/s (for Test Bed 1 & 2) 0.09 m^3/s to1.25 m^3/s (for Test Bed 3) 0.03 m^3/s to 0.3 m^3/s (Pelton for all test bed)
		Torque		(-) 200 Nm to 3450 Nm
		Speed		200 RPM to 2200 RPM (for Test Bed1 & 2) 200 RPM to 1950 RPM (for Test Bed 3)
		Cavitation		0.01 to 1 (Thoma's Coefficient, Dimensionless quantity)
		Cavitation Visualization		Qualitative
		Runaway Speed		200 RPM to 2200 RPM (for Test Bed 1 &2) 200 RPM to 1950 RPM (for Test Bed 3)
		Pressure Pulsation		(-)10 mWC to 10 mWC
		Guide Vane Torque Kaplan Blade Torque Pelton Deflector Torque		5 Nm to 60 Nm 5 Nm to 240 Nm 5 Nm to 60 Nm

Birendra Prasad Murmu
Convenor

N. Venkateswaran
Program Director

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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
		Aeration Test	Proc. No. B-3-001 Issue. 02 Dated. Feb' 04 Amendment 02 Dated Dec' 15	Qualitative (Upto 19.0 m^3/h)
		Velocity Distribution	Proc. No. B-3-002 Issue. 02 Dated. Aug' 13 Amendment 02 Dated Dec' 15	1 m/s to 10 m /s
		Downward Axial Thrust		200 N to 15000 N
		Upward Axial Thrust		200 N to 10000 N
		Radial Thrust		20 N to 2000 N

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Convenor

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Program Director