

Laboratory Transformer Testing Laboratory, Nucon Switchgears Private Limited,
A-54, 55, Kaharni Industrial Area, Bhiwadi, Alwar, Rajasthan

Accreditation Standard ISO/IEC 17025: 2005

Certificate Number TC-7789

Page 1 of 2

Validity 30.08.2018 to 29.08.2020

Last Amended on 12.02.2019

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
<u>ELECTRICAL TESTING</u>				
I.	INDUCTORS & TRANSFORMERS			
I.	Distribution & Power Transformers Upto 50 MVA, 132/33 kV Class	Measurement of Winding DC Resistance	IS 2026-1 (Cl. 10.2) IEC 60076-1 (Cl. 11.2) IS 1180 (Cl. 21.2.a)	0.001 Ω to 300 Ω
		Voltage Ratio on each tapping and check of voltage vector relationship	IS 2026-1 (Cl. 10.3) IEC 60076-1 (Cl. 11.3) IS 1180 (Cl. 21.2.b)	0.8 to 2000
		Impedance Voltage at all tapping	IS 2026-1 (Cl. 10.4) IEC 60076-1 (Cl. 11.4) IS 1180 (Cl. 21.2.c)	1 % to 15 %
		Measurement of Load Losses	IS 2026-1 (Cl. 10.4) IEC 60076-1 (Cl.11.4) IS 1180 (21.2.c)	Upto 300 kW
		Measurement of No Load Losses & No Load Current	IS 2026-1 (Cl. 10.5) IEC 60076-1 (Cl.11.5) IS 1180 (Cl. 21.2.d)	Upto 50 kW 0 to 20 Amp.
		Insulation Resistance Test	IS 2026-1 (Cl. 10.1.3.J) IEC 60076-1 (Cl. 11.1.4.h) IS 1180 (21.2.e)	0.1 MΩ to 500 GΩ 500 V to 5 kV
		Induced Over Voltage Withstand Test	IS 2026-3 (Cl. 12.1) IEC 60076-3 (Cl. 12.1) IS 1180 (Cl. 21.2.f)	Upto 275 kV
		Verification of Vector Group & Polarity Test	IS 2026-1 (Cl. 6) IEC 60076-1 (Cl. 7)	Upto 433 V
		Capacitance & Tan Delta measurement	IS 2026-1 (Cl. 10.1.3.J) IEC 60076-1 (Cl. 11.1.4.D)	Cap: 100 pF to 15000 pF Tan Delta: 0.01 % to 100 %
		Measurement of Zero Sequence Impedance	IS 2026-1 (Cl. 10.7) IEC 60076-1 (Cl. 11.6)	1 % to 15 %

Ravi Johri
Convenor

Alok Jain
Program Manager

Laboratory Transformer Testing Laboratory, Nucon Switchgears Private Limited,
A-54, 55, Kaharni Industrial Area, Bhiwadi, Alwar, Rajasthan

Accreditation Standard ISO/IEC 17025: 2005

Certificate Number TC-7789

Page 2 of 2

Validity 30.08.2018 to 29.08.2020

Last Amended on 12.02.2019

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
		Measurement of Magnetizing Current	CBIP GP 317 (Section BB, Cl. B5)	at 415 V Upto 10 Amp.
		Measurement of Magnetic Balance	CBIP GP 317 (Section BB, Cl. B6)	at 433 V
		Harmonic Content measurement	IS 2026-1 (Cl. 10.6) IEC 60076-1 (Cl. 3.13.2)	Upto 21 st Harmonic
		Test on ON-Load Tap Changer	IS 2026-1 (Cl. 10.8) IEC 60076-1 (Cl. 11.7)	11 kV to 33 kV
		Magnetic Circuit (Isolation Test)	CBIP GP 317 (Section BB, Cl. B7) IEC 60076-1 (Cl. 11.2)	2.5 kV
		Measurement of Sound Level	IS 2026 (Part 10) IEC 60076-10 NEMA TR-1 IS 1180-1	40 dB to 120 dB
		Lightning Impulse Voltage Test (Full Wave/Chopped Wave)	IS 2026 (Part III) IEC 60076-3	50 KVp to 800 KVp
		On Load tap changer	IS 2026 (Part 1) IEC 60076-1	Qualitative
		Power taken by fans and oil pump motors	IS 2026 (Part 1) IEC 60076-1	0.1 kW to 20 kW
		Separate Source AC Voltage withstand Test (Applied Potential Test)	IS 2026 (Part 3) IEC 60076-3 IS 1180-1	5 kV to 300 kV
		Temperature Rise Test (Oil Rise & Winding Rise)	IS 2026 (Part 2) IEC 60076-2 IS 1180-1	10 °C to 100 °C
2.	Distribution & Power Transformer Upto 5 MVA, 33/11 kV Class	Separate Source Voltage Withstand	IS 2026-3 (Cl. 11) IEC 60076-3 (Cl. 11) IS 1180 (Cl. 21.2.g)	Upto 70 kV
		Temperature Rise	IS 2026-2 (Cl. 5) IEC 60076-2 (Cl. 7)	20 °C to 60 °C