LVAC Switchboard Site Testing & Commissioning Checklist

Project / Site	
Panel / Board ID	
Date of Testing	
Tested By	
Witnessed By	

Pre-Test Prerequisites

✓	Checklist	Standard Reference
☐	LVAC panel erection completed in all respects (fixing, alignment and earthing)	IS 10118
☐	Bus bar bolted joints tightened and verified by torque checks	IEC 61439-1, Cl. 10.13
☐	All power and control cabling terminated, routed, and ferruled correctly	IEC 60364 / IS 732
☐	Panel internal cleaning completed (debris, dust, moisture removed)	IEC 61439-1
☐	Protection relay settings and PLC logic configured and ready	IEC 60947-2
☐	Test instruments calibrated with valid certificates	IEC 61557-2
☐	Permit to work / LOTO procedure in place	IEEE 1584

Test-1: Insulation Resistance (IR) Test

✓	Checklist	Standard Reference
☐	All ACBs racked into service position and closed	IEC 61439-1, Cl. 10.9
☐	IR measured phase-to-phase using 1000V IR tester	IEC 61557-2
☐	IR measured phase-to-neutral	IEC 61557-2
☐	IR measured phase-to-earth	IEC 61557-2
☐	IR measured neutral-to-earth	IEC 61557-2
☐	All IR values recorded and ≥ 200 MΩ	IEC 61439-1, Cl. 10.9

Test-2: Insulation Resistance & High Voltage (HV) Test

✓	Checklist	Standard Reference
☐	All ACBs in service position and closed; all outgoing feeders closed	IEC 61439-1, Cl. 10.9.2
☐	Fuses confirmed capable of withstanding 2kV applied voltage	IEC 61439-1, Cl. 10.9.2
☐	IR measured and recorded before HV test	IEC 61557-2
☐	2kV AC applied for 1 minute to each phase/neutral (others shorted & earthed)	IEC 61439-1, Cl. 10.9.2
☐	Leakage current recorded during test	IEC 61439-1, Cl. 10.9.2
☐	IR measured and recorded after HV test	IEC 61557-2
☐	Bus bar withstood HV for full 1-minute duration without breakdown	IEC 61439-1, Cl. 10.9.2

Test-3: LVAC Scheme (Control Logic) Test

✓	Checklist	Standard Reference
☐	All incomers and bus sections placed in service position	IEC 61439-1, Cl. 10.13
☐	Each incomer closes without paralleling	IEC 60947-2
☐	On incomer supply failure, breaker trips and bus section auto-closes	IEC 61439-1, Cl. 10.13
☐	On supply restoration, bus section opens before incomer recloses (with delay)	IEC 61439-1, Cl. 10.13
☐	Standby incomer interlocked against closing while another incomer in service	IEC 60947-2
☐	All operations verified against approved scheme logic / SLD	Project SLD & Logic Diagram
☐	Results recorded on scheme test format (annexure)	-

Test-4: Switch / Lamp Indication Test

✓	Checklist	Standard Reference
☐	Each indication lamp / semaphore condition simulated individually	IEC 60073
☐	Breaker test-condition indication verified (CB racked to test position)	IEC 60073
☐	Alarm indications verified for correct trigger and colour	IEC 60204-1
☐	All indications matched against approved test report	IEC 60073 / IEC 60204-1

Test-5: Breaker Test

✓	Checklist	Standard Reference
☐	PLC operating mode set to Manual for test duration	IEC 60947-2
☐	Each breaker moved: Service → Test position, verified	IEC 60947-2
☐	Each breaker moved: Test → Isolated position, verified	IEC 60947-2
☐	All position-change combinations tested per format	IEC 61439-1, Cl. 10.13
☐	In-service breakers confirmed NOT to trip during other breakers' travel	IEC 61439-1, Cl. 10.13

Test-6: Outgoing Feeder Identification

✓	Checklist	Standard Reference
☐	All outgoing feeders switched OFF prior to test	IEC 60364 / IS 732
☐	Cable IR measured for each outgoing feeder	IEC 61557-2
☐	Feeders switched ON one at a time	IEC 60364 / IS 732
☐	Voltage and phase sequence measured at load end	IEC 60364
☐	Terminal tightness, ferrules, and insulation shrouds checked	IS 1255 / IEC 60502
☐	Cable sizing verified against design document	IEC 60228
☐	Voltage drop at load end confirmed within allowable limits	IEC 60364 / IS 732

Summary

S.No	Test	Result	Tested By	Date
1	Insulation Resistance (IR) Test	Pass / Fail		
2	Insulation Resistance & HV Test	Pass / Fail		
3	LVAC Scheme (Control Logic) Test	Pass / Fail		
4	Switch / Lamp Indication Test	Pass / Fail		
5	Breaker Test	Pass / Fail		
6	Outgoing Feeder Identification	Pass / Fail		

Note:
Standard terms indicate the most relevant clause/standard for every component. Project specifications may require better acceptance values than the standard minimum (for example, IR acceptance of 200 MΩ vs. IEC 61439-1 foundation of 1000 Ω/V).