CERTIFICATE OF ACCREDITATION

This is to attest that

GCC ELECTRICAL POWER LAB CO.

3RD INDUSTRIAL CITY, MODON 3
DAMMAM, 39558 SAUDI ARABIA

Testing Laboratory TL-1165

has met the requirements of AC89, *IAS Accreditation Criteria for Testing Laboratories*, and has demonstrated compliance with ISO/IEC Standard 17025:2017, *General requirements for the competence of testing and calibration laboratories.* This organization is accredited to provide the services specified in the scope of accreditation.

Effective Date March 27, 2024

President

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SCOPE OF ACCREDITATION

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Accredited to ISO/IEC 17025:2017 *Effective Date March 27, 2024*

Cables Systems, Cables and Accessories	
ICEA S-108-720	Extruded Insulation Power Cables Rated Above 46 Through 500 KV AC (only clauses 9.8 and 10.1)
IEC 60227-3	Polyvinyl chloride insulated cables of rated voltages up to and including 450/750 V – Part 3: Non-sheathed cables for fixed wiring. (for reference of IEC 60227-1, IEC 60227-2 and IEC 63294 standard)
IEC 60227-4	Polyvinyl chloride insulated cables of rated voltages up to and including 450/750 V - Part 4: Sheathed cables for fixed wiring. (for reference of IEC 60227-1, IEC 60227-2 and IEC 63294 standard)
IEC 60227-5	Polyvinyl Chloride Insulated Cables of Rated Voltages Up to And Including 450/750 V – Part 5: Flexible cables (cords) (for reference of IEC 60227-1, IEC 60227-2 and IEC 63294 standard)
IEC 60502-1	Power cables with extruded insulation and their accessories for rated voltages from 1 kV (Um = 1,2 kV) up to 30 kV (Um = 36 kV) – Part 1: Cables for rated voltages of 1 kV (Um = 1,2 kV) and 3 kV (Um = 3,6 kV) Clause 16 Sample tests Clause 17 Type tests, electrical Clause 18 Type tests, non-electrical (except clauses 18.15, 18.22, in clause 18.9 exclude IEC 60811-504, IEC 60811-506 test methods)
IEC 60502-2	Power cables with extruded insulation and their accessories for rated voltages from 1 kV (Um = 1,2 kV) up to 30 kV (Um = 36 kV) – Part 2: Cables for rated voltages from 6 kV (Um = 7,2 kV) up to 30 kV (Um = 36 kV) Clause 17 Sample tests Clause 18 Type tests, electrical Clause 19 Type tests, non-electrical (except clauses 19.16, 19.19, 19.20)
IEC 60502-4	Power cables with extruded insulation and their accessories for rated voltages from 1 kV (Um = 1,2 kV) up to 30 kV (Um = 36 kV) – Part 4: Test requirements on accessories for cables with rated voltages from 6 kV (Um = 7,2 kV) up to 30 kV (Um = 36 kV) (only for reference for IEC 61442 standard)
IEC 60840	Power cables with extruded insulation and their accessories for rated voltages above 30 kV (Um = 36 kV) up to 150 kV (Um = 170 kV) – Test methods and requirements Clause 12 Type tests on cable systems (exclude clause 12.5.8 to exclude only IEC 60811-504, IEC 60811-506 test methods, 12.5.14, 12.5.19) Clause 13 Prequalification test of the cable system. Clause 14 Type tests on cables Clause 15 Type tests on accessories Annex H Additional tests for accessories (exclude clause H.6)
IEC 61442	Test methods for accessories for power cables with rated voltages from 6 kV (Um = 7,2 kV) up to 30 kV (Um = 36 kV) (only clauses 4, 5, 6, 7, 9,

	15,17, 19 and 20)
IEC 62067	Power cables with extruded insulation and their accessories for rated voltages above 150 kV (Um = 170 kV) up to 500 kV (Um = 550 kV) – Test methods and requirements Clause 12 Type tests on cable systems (except clause 12.5.8 to exclude only IEC 60811-504, IEC 60811-506 test methods, 12.5.14) Clause 13 Prequalification test of the cable system Clause 14 - Type test on cables. Clause 15 - Type test on accessories. Annex H Additional tests for accessories (exclude clauses H.5, H.6)
Overhead Conductors	
ASTM B230	Standard Specification for Aluminum 1350–H19 Wire for Electrical Purposes
ASTM B231	Standard Specification for Concentric-Lay-Stranded Aluminum 1350 Conductors
ASTM B232	Standard Specification for Concentric-Lay-Stranded Aluminum Conductors, Coated- Steel Reinforced (ACSR)
ASTM B399	Standard Specification for Concentric-Lay-Stranded Aluminum-Alloy 6201-T81 and 6201-T83 Conductors
ASTM B502	Standard Specification for Aluminum-Clad Steel Core Wire for Use in Overhead Electrical Aluminum Conductors Except clause 13. Torsion Test
ASTM B549	Standard Specification for Concentric-Lay-Stranded Aluminum Conductors, Aluminum- Clad Steel Reinforced for Use in Overhead Electrical Conductors
EN 50189	Conductors for overhead lines - Zinc coated steel wires. Except 11.5.2 Torsion test
IEC 61089	Round wire concentric lay overhead electrical stranded conductors All clauses except: Annex B Stress-Strain test
IEC 62641	Conductors for overhead lines – Aluminium and aluminium alloy wires for concentric lay stranded conductors
IEC 63248	Conductors for overhead lines – Coated or cladded metallic wire for concentric lay stranded conductors. Except subclauses: 7.4.4.1 torsion, 7.4.4.3 Reverse bend, 7.4.6 Linear Expansion
Switch Gears and Control Gears	
IEC 60947-1	Low-voltage switchgear and controlgear – Part 1: General rules (only clauses 8.1.2, 9.2.2.1 Glow wire testing, 9.3.3.4.1 Dielectric properties-Type tests No.3,4, Annex M Hot wire, Arc ignition and Annex Q - Tests for environmental categories A, B, C) Subclauses: 6.2 Marking, 8.1.4, 8.2.3.4 and 8.2.3.5 Verification of clearance and creepage distances 8.1.12 Degrees of protection of enclosed equipment (IP coding)-Annex C 8.2.2, 9.3.3.3 Temperature rise test. 8.2.3.2 Impulse withstand voltage. 8.2.3.3 Power frequency test annex Q Resistance to corrosion- damp heat cycling test (Db
IEC 60947-2	Low-voltage switchgear and controlgear – Part 2: Circuit-breakers 5.2 Marking Refer to IEC 60947-1 for below subclauses:

	8.1.4, 8.2.3.4 and 8.2.3.5 Verification of Clearances and Creepage distances 8.1.12 Verification of the IP coding 8.2.2 Temperature-rise tests 8.2.3.2 Impulse withstand voltage. 8.2.3.3 Power-frequency withstand voltage.
IEC 60947-3	Low-voltage switchgear and controlgear – Part 3: Switches, disconnectors, switch-disconnectors and fuse-combination units 6.2 Marking Refer to IEC 60947-1 for below subclauses: 8.1.2.2 Resistance to abnormal heat and fire due to internal electric effects (glow-wire test) 8.1.4 Verification of Clearances and Creepage distances 8.1.12 Verification of the IP coding 8.2.3.3 Power-frequency withstand voltage. 8.2.3.2 Impulse withstand voltage. 8.2.2 Temperature-rise tests
IEC 61439-1	Low-voltage switchgear and controlgear assemblies - Part 1: General rules Subclauses: 10.2.3.2 resistance to abnormal heat and fire glow wire 10.2.4 Resistance to ultra-violet (UV) radiation 10.2.5 Lifting 10.2.7 Marking 10.2.8 mechanical Operation 8.3,10.4, Annex F Verification of Clearances and Creepage distances 8.2.1, 10.2.6 Verification of the IK coding 8.2.2, 10.3 Verification of the IP coding 10.9.2 power frequency withstand voltage 10.9.3, Annex G Impulse withstand voltage 10.10, Annex L Temperature-rise tests 10.2.2 Resistance to corrosion- damp heat cycling test (Db) 10.2.2 Resistance to corrosion- salt mist test (Ka) 10.2.3.1 Thermal stability (dry heat test)
IEC 61439-2	Low-voltage switchgear and controlgear assemblies – Part 2: Power switchgear and controlgear assemblies Refer to IEC 61439-1 for below clauses subclauses: 10.2.3.2 Resistance to abnormal heat and fire glow wire 10.2.4 Resistance to ultra-violet (UV) radiation 10.2.5 Lifting 10.2.7 Marking 10.2.8 mechanical Operation 10.4 Verification of Clearances and Creepage distances 10.2.6 Verification of the IK coding 10.3 Verification of the IP coding 10.9.2 power frequency withstand voltage 10.9.3, Annex G Impulse withstand voltage. 10.10 Temperature-rise tests 10.2.2 Resistance to corrosion- damp heat cycling test (Db) 10.2.2 Resistance to corrosion- salt mist test (Ka) 10.2.3.1 Thermal stability (dry heat test)
IEC 61439-3	Low-voltage switchgear and controlgear assemblies - Part 3: Distribution boards intended to be operated by ordinary persons (DBO) Refer to IEC 61439-1 for below clauses subclauses:

	10.2.3.2 resistance to abnormal heat and fire glow wire 10.2.4 Resistance to ultra-violet (UV) radiation 10.2.5 Lifting 10.2.7 Marking 10.13 Mechanical Operation refer to IEC 61439-1 clause 10.2.8. Verification of Clearances and Creepage distances refer to IEC 61439-1 subclause 8.3,10.4, Annex F 10.2.6 Verification of the IK coding 10.3 Verification of the IP coding 10.9.2 power frequency withstand voltage 10.9.3, Annex G Impulse withstand voltage. 10.10 Temperature-rise tests 10.2.2 Resistance to corrosion- damp heat cycling test (Db) 10.2.2 Resistance to corrosion- salt mist test (Ka) 10.2.3.1 Thermal stability (dry heat test)
IEC 61439-4	Low-voltage switchgear and controlgear assemblies – Part 4: Particular requirements for assemblies for construction sites (ACS) Refer to IEC 61439-1 for below clauses subclauses: 10.2.3.2 Resistance to abnormal heat and fire due to internal electric effects (glow-wire test) 10.2.4 Resistance to ultra-violet (UV) radiation 10.2.5 Lifting 10.2.7 Marking 10.2.8 Mechanical operation tests 10.4 Verification of Clearances and Creepage distances 10.2.6 Verification of the IK coding 10.3 Verification of the IP coding 10.9.2 Power-frequency withstand voltage 10.9.3 Impulse withstand voltage 10.10 Temperature-rise tests 10.2.2 Resistance to corrosion- damp heat cycling test (Db) 10.2.2 Resistance to corrosion- salt mist test (Ka) 10.2.3.1 Thermal stability (dry heat test)
IEC 61439-5	Low-voltage switchgear and controlgear assemblies – Part 5: Assemblies for power distribution in public networks Refer to IEC 61439-1 for below clauses subclauses: 10.2.3.2 Resistance to abnormal heat and fire due to internal electric effects (glow-wire test) 10.2.4 Resistance to ultra-violet (UV) radiation 10.2.5 Lifting 10.2.7 Marking 10.2.8 Mechanical operation tests 10.4 Verification of Clearances and Creepage distances 10.2.6 Verification of the IK coding 10.3 Verification of the IP coding 10.9.2 Power-frequency withstand voltage 10.9.3 Impulse withstand voltage 10.10 Temperature-rise tests 10.2.2 Resistance to corrosion- damp heat cycling test (Db) 10.2.2 Resistance to corrosion- salt mist test (Ka) 10.2.3.1 Thermal stability (dry heat test)
IEC 61439-6	Low-voltage switchgear and controlgear assemblies –

	Part 6: Busbar trunking systems (busways) Refer to IEC 61439-1 for below clauses subclauses: 10.2.3.2 Resistance to abnormal heat and fire due to internal electric effects (glow-wire test) 10.2.4 Resistance to ultra-violet (UV) radiation 10.2.5 Lifting 10.2.7 Marking 10.2.8 Mechanical operation tests 10.4 Verification of Clearances and Creepage distances 10.2.6 Verification of the IK coding 10.3 Verification of the IP coding 10.9.2 Power-frequency withstand voltage 10.9.3 Impulse withstand voltage 10.10 Temperature-rise tests 10.2.2 Resistance to corrosion- damp heat cycling test (Db) 10.2.2 Resistance to corrosion- salt mist test (Ka) 10.2.3.1 Thermal stability (dry heat test)
IEC 62208	Empty enclosures for low-voltage switchgear and controlgear assemblies – General requirements 8.8, 9.8 Verification of the IP coding 9.3 Marking 9.5 Lifting 9.7 Verification of the IK coding 9.9.1 Thermal stability (dry heat test) 9.9.3 Resistance to abnormal heat and fire due to internal electric effects (glow-wire test) 9.10 Power-frequency withstand voltage. 9.13 Resistance to corrosion- damp heat cycling test (Db) 9.13 Resistance to corrosion- salt mist test (Ka)
IEC 62271-1	High-voltage switchgear and controlgear – Part 1: Common specifications for alternating current switchgear and controlgear. Subclauses: 7.2.7 tests of switchgear and controlgear of $U_r \leq 245$ kV 7.2.8.2 Power Frequency voltage tests. 7.2.8.3 Switching impulse voltage tests. 7.2.8.4 Lightning impulse voltage tests 7.2.10 Partial discharge tests 7.2.11 Dielectric tests on auxiliary and control circuits 7.3 Radio interference voltage (RIV) test 7.4 Resistance measurement 7.5 Continuous current tests 7.7(1,2) Verification of the IP coding, Verification of the IK coding 7.8 Tightness tests 7.9.1 Emission tests 7.10 Additional tests on auxiliary and control circuits
Alternating Current Circuit-breakers	
IEC 62271-100	High-voltage switchgear and controlgear – Part 100: Alternating-current circuit-breakers (Clauses: 7.2.7.2, 7.2.8.2 Power Frequency voltage tests 7.2.7.3, 7.2.8.4 Lightning impulse voltage tests

	7.2.8.3 Switching impulse voltage tests 7.3 Radio interference voltage (RIV) test 7.4 Resistance measurement 7.5 Continuous current tests (Temperature-rise tests.) 7.7 (1,2) Verification of the protection (IP/IK) 7.8 Tightness tests 7.10 Additional tests on auxiliary and control circuits 7.101 Mechanical and Environmental test
Alternating Current Disconnectors and Earthing Switches	
IEC 62271-102	High-voltage switchgear and controlgear – Part 102: Alternating current disconnectors and earthing switches. Clauses: 7.2 Dielectric tests 7.3 Radio interference voltage (RIV) test 7.4 Resistance measurement 7.5 Continuous current tests 7.7 Verification of the protection 7.8 Tightness tests 7.10 Additional tests on auxiliary and control circuits 7.102 Operating and mechanical endurance tests
Alternating Current Switches for Rated Voltages Above 1 kV Up to and Including 52 kV	
IEC 62271-103	High-voltage switchgear and controlgear – Part 103: Alternating current switches for rated voltages above 1 kV up to and including 52 kV. clauses: 7.2 Dielectric tests 7.3 Radio interference voltage (RIV) test 7.4 Resistance measurement 7.5 Continuous current tests 7.7 Verification of the protection 7.8 Tightness tests 7.10 Additional tests on auxiliary and control circuits 7.102 Operating and mechanical endurance tests
AC Metal-enclosed Switchgear and Controlgear Rated Voltages Above 1 kV and Up to and Including 52 kV	
IEC 62271-200	High-voltage switchgear and controlgear – Part 200: AC metal-enclosed switchgear and controlgear for rated voltages above 1 kV and up to and including 52 kV. Subclauses:7.2.7 7.2.10 Partial discharge tests 7.2.11 Dielectric test on auxiliary and control circuits 7.4 Resistance measurement 7.5 Continuous Current tests (Heat temperature rise tests) 7.7(1,2) Verification of the IP coding, Verification of the IK coding 7.8 Tightness tests 7.102 Mechanical operation tests 7.103 Pressure withstand test for gas-filled compartments. 7.104 Tests to verify the protection of persons against dangerous electrical effects
Gas-insulated Metal-enclosed Switchgear for Rated Voltages Above 52 kV	
IEC 62271-203	High-voltage switchgear and controlgear – Part 203: AC gas-insulated metal-enclosed switchgear for rated voltages above 52 kV Clauses:

	7.2.7.2, 7.2.8.2 Power Frequency voltage tests 7.2.7.3, 7.2.8.4 Lightning impulse voltage tests 7.2.8.3 Switching impulse voltage tests 7.2.10 Partial discharge tests 7.2.11 Dielectric test on auxiliary and control circuits 7.3 Radio interference voltage (RIV) test 7.4 Resistance Measurement 7.5 Temperature-rise tests 7.7 Verification of the protection (IP/IK) 7.8 Gas tightness tests 7.10 Additional tests on auxiliary and control circuits 7.102 Mechanical and Environmental test
IEC 60068-2-2	Environmental testing - Part 2-2: Tests - Test B: Dry heat
IEC 60068-2-75	Environmental Testing – Part 2-75: Tests – Clause 5 Test Eha: Pendulum Hammer
IEC 61300-2-22	Fibre optic interconnecting devices and passive components – Basic test and measurement procedures – Part 2-22: Tests – Change of temperature
IEC 62561	Lightning protection system components (LPSC) – Part 1: Requirements for connection components Subclauses: Annex A.2 Resistance to corrosion- salt mist test cyclic (Kb)
IEC 62262	Degrees of protection provided by enclosures for electrical equipment against external mechanical impacts (IK code)
Power Transformers	
IEC 60076-1	Power transformers – Part 1: General (only clauses 11.2, 11.4 and 11.5) Subclauses: 11.1.2.1(i) Check of the ratio and polarity of built-in current transformers 11.1.2.2 (a & c) & 11.1.4 (c & d) Measurement of capacitance and (tan δ) of windings 11.1.2.2(e), 11.1.3(e) Measurement of no-load loss and current at 90% and 110% of ratted voltage 11.1.3(d) Measurement of the power taken by fan and liquid pump motor 11.1.4(l) Measurement of Frequency Response Analysis (FRA) 11.3 Measurement of Voltage Ratio and Check of Phase Displacement 11.2, 14.2.6 Induced voltage withstand test (IVW) 11.3 Induced Voltage with Partial discharge measurement (IVPD) 11.6 Measurement of zero-sequence impedance(s) on three phase Transformers 11.7 Tests on on-load tap-changers — Operation test 11.12, 11.1.2.2(b), 11.1.4(h) Measurement of DC Insulation Resistance Test
IEC 60076-2	Power transformers - Part 2: Temperature rise for liquid-immersed transformers (only clause 7)
IEC 60076-3	Power transformers – Part 3: Insulation levels, dielectric tests and external clearances in air Subclauses: 9 Insulation of auxiliary wiring (AuxW) 10 Applied Voltage 11.2 Induced voltage withstand test (IVW) 11.3 Induced Voltage with Partial discharge measurement (IVPD) 12 Line terminal AC withstand test (LTAC) 13 and 14)
IEC-60076-10	Power transformers - Part 10: Determination of sound levels (only clause

	11.2)
IEC 60076-11	Power transformers – Part 11: Dry-type transformers Subclauses: 14.2.1 Measurement of winding resistance 14.2.2 Measurement of Voltage Ratio and Check of Phase Displacement 14.2.3 Measurement of short -circuit impedance and load loss 14.2.4 Measurement of no-load loss and current 14.2.5 Applied voltage test (AV) 14.2.6 Induced voltage withstand test (IVW) 14.2.7 Induced Voltage with Partial discharge measurement (IVPD) 14.3 Type tests 14.4.2 Measurement of sound level
IEC 60076-18	Power transformers- part 18: measurement of frequency response
IEC-60270	High-voltage test techniques - Partial discharge measurements
Electrical Relays and Protection Equipment	
IEC 60068-2-6	Environmental testing – Part 2-6: Tests – Test Fc: Vibration (sinusoidal)
IEC 60255-21-1	Electrical relays Part 21: Vibration, shock, bump and seismic test on measuring relays and protection equipment Section One — Vibration tests (sinusoidal)
Insulators Rated Voltage Above 1 kV	
IEC 60168	Tests on indoor and outdoor post insulators of ceramic material or glass for systems with nominal voltages greater than 1000 V Subclauses: 4.5 Dry lightning impulse voltage test 4.7, 4.8 Wet/dry power frequency voltage test 4.6 Dry/Wet switching impulse voltage test 4.9 Power frequency puncture overvoltage test 4.10 Routine electrical test
IEC 60372	Locking devices for ball and socket couplings of string insulator units Dimensions and tests Subclause: 4.2, 4.3 Verification of dimensions and visual inspection
IEC 60383-1	Insulators for overhead lines with a nominal voltage above 1000 V – Part 1: Ceramic or glass insulator units for a.c. systems – Definitions, test methods and acceptance criteria Subclauses: 12 Dry lightning impulse voltage test 13 Wet/dry power frequency voltage test 15 Power frequency puncture overvoltage test 16 Routine electrical test 17, 22, 29 Verification of dimensions and visual inspection
IEC 60383-2	Part 2: Insulator strings and insulator sets for a.c. systems - Definitions, test methods and acceptance criteria Subclauses: 9 Dry lightning impulse voltage test 10 Wet/dry power frequency voltage test 11 Dry/Wet switching impulse voltage test
IEC 60437	Radio interference test on high-voltage insulators
IEC 60507	Artificial pollution tests on high-voltage ceramic and glass insulators to be used on a.c. systems. Only clauses 5 and 6

IEC 60660	Insulators – Tests on indoor post insulators of organic material for systems with nominal voltages greater than 1000 V up to but not including 300 kV Subclauses: 3.3 Dry lightning impulse voltage test 3.4 Wet/dry power frequency voltage test 3.5 Partial discharge measurement
IEC 61109	Insulators for overhead lines – Composite suspension and tension insulators for a.c. systems with a nominal voltage greater than 1 000 V – Definitions, test methods and acceptance criteria Subclauses: 11.1 (table 3) Dry lightning impulse voltage test 11.1 (table 3) Wet/dry power frequency voltage test 11.1 (table 3) Dry/Wet switching impulse voltage test 10.2.2 Polymeric insulator tracking and erosion test 12.3, 13.2 Verification of dimensions and visual inspection
IEC 61462	Composite hollow insulators - Pressurized and unpressurized insulators for use in electrical equipment with AC rated voltage greater than 1 000 V AC and D.C. voltage greater than 1500V - Definitions, test methods, acceptance criteria and design recommendations Only clause 7.3.3
IEC 61952	Insulators for overhead lines – Composite line post insulators for A.C. systems with a nominal voltage greater than 1 000 V – Definitions, test methods and acceptance criteria Subclauses: 11.1 Wet/dry power frequency voltage test 11.1 Dry/Wet switching impulse voltage test 10.2.2 Polymeric insulator tracking and erosion test
IEC 62155	Hollow pressurized and unpressurized ceramic and glass insulators for use in electrical equipment with rated voltages greater than 1000 V Subclauses: 10.4 Routine electrical test
IEC 62217	Polymeric HV insulators for indoor and outdoor use – General definitions, test methods and acceptance criteria 9.2.4 Wet/dry power frequency voltage test 9.3.3 Polymeric insulator tracking and erosion test
IEC 62231	Composite station post insulators for substations with a.c. voltages greater than 1 000 V up to 245 kV – Definitions, test methods and acceptance criteria Subclauses: 9.2.2, 8.2.3 Wet/dry power frequency voltage test
IEC TS 62896	Hybrid insulators for a.c. and d.c. high-voltage applications – Definitions, test methods and acceptance criteria Subclauses: 9.2 Dry lightning impulse voltage test 9.2 Wet/dry power frequency voltage test 9.2 Dry/Wet switching impulse voltage test 8.3.3 Polymeric insulator tracking and erosion test. 9.2 Power frequency puncture overvoltage test, clause 6 8.2.3.2 Verification of dimensions and visual inspection
Insulating Bushings Rated Voltage Above 1 kV	
IEC 60137	Locking devices for ball and socket couplings of string insulator units

	Dimensions and tests Subclauses: 8.4, 9.3 Dry lightning impulse voltage test 8.5 Dry or Wet switching impulse voltage withstand test. 8.2, 8.3, 9.4 Wet/dry power frequency voltage test 8.14 Verification of dimensions and visual inspection 9.5 Partial discharge measurement 8.8 Temperature rise test. 9.2 Measurement of dielectric dissipation factor (tan δ) and capacitance at ambient temperature