TESTING AND CALIBRATION LABORATORY ACCREDITATION PROGRAM (LAP)

Scope of Accreditation

Legal Name of Accredited Laboratory:	**Kinectrics Inc.**
Location Name or Operating as (if applicable):	Transmission and Distribution Technology
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SCC File Number:	15725
Accreditation Standard(s):	ISO/IEC 17025:2017 General requirements for the competence of testing and calibration laboratories
Fields of Testing:	Electrical/Electronic Mechanical/Physical Thermal & Fire Resistance
Initial Accreditation:	2006-11-16
Most Recent Accreditation:	2024-07-18
Accreditation Valid to:	2026-11-16

Remarque: La présente portée d'accréditation existe également en français, sous la forme d'un document distinct.
Note: This scope of accreditation is also available in French as a document issued separately.

ELECTRICAL PRODUCTS AND ELECTRONIC PRODUCTS

Components and Assemblies:

Electrical Rotating Machines

IEEE 1043	IEEE Recommended Practice for Voltage-Endurance testing of Form-Wound Bars and Coils.
IEEE Std 43 (Referenced in IEEE Std 1043)	IEEE Recommended Practice for Testing Insulation Resistance of Rotating Machinery (ANSI).
IEEE Std 286 (Referenced in IEEE Std 1043)	IEEE Recommended Practice for Measurement of Power-Factor Tip-Up of Electric Machinery Stator Coil Insulation.
IEEE Std 1434 (Referenced in IEEE Std 1043)	IEEE Guide for the Measurement of Partial Discharges in AC Electric Machinery.
ASTM D1868 (Referenced in IEEE Std 1043)	Standard Method for Detection and Measurement of Partial Discharge (Corona) Pulses in Evaluation of Insulation Systems.
IEEE Std 1553 (Referenced in IEEE Std 1043)	IEEE Standard for Voltage Endurance Testing of Form-Wound Coils and Bars for Hydrogenerators.
IEEE Std 4 (Referenced in IEEE Std 1043)	IEEE Standard for High-Voltage Testing Techniques (ANSI).
IEC 62539/IEEE Std930 (Referenced in IEEE Std 1043)	IEC/IEEE Guide for the Statistical Analysis of Electrical Insulation Breakdown Data.
IEEE 1310	IEEE Trial Use Recommended Practice for Thermal Cycle Testing of Form-Wound Stator Bars and Coils for Large Generators.
IEEE Std 1043 (Referenced in IEEE Std 1310)	IEEE Recommended Practice for Voltage-Endurance Testing of Form-Wound Bars and Coils.
IEEE Std 286 (Referenced in IEEE Std 1310)	IEEE Recommended Practice for Measurement of Power-Factor Tip-Up of Rotating Machinery Stator Coil Insulation.
IEEE Std 1434 (Referenced in IEEE Std 1310)	IEEE Guide to Measurement of Partial Discharges in Rotating Machinery.
IEEE Std 522 (Referenced in IEEE Std 1310)	IEEE Guide for Testing Turn-to-Turn Insulation on Form-Wound Stator Coils for Alternating Current Rotating Electric Machines.
IEEE Std 118 (Referenced in IEEE Std 1310)	IEEE Standard Test Code for Resistance Measurements.
IEC 60034 (Referenced in IEEE Std 1310)	Rotating Electrical Machines—Part 27: Off-line Partial Discharge Measurements on the Stator Winding Insulation of Rotating Electrical Machines.
IEEE Std 4 (Referenced in IEEE Std 1310)	IEEE Standard Techniques for High-Voltage Testing.
IEEE Std 1553 (Referenced in IEEE Std 1310)	IEEE Standard for Voltage-Endurance Testing of Form-Wound Coils and Bars for Hydrogenerators.

IEC 60034 (Referenced in IEEE Std 1310)	Rotating Electrical Machines—Part 18, Section 34: Functional Evaluation of Insulation Systems—Test Procedures for Form-Wound Windings—Evaluation of Thermomechanical Endurance of Insulation Systems.
IEEE Std 434 (Referenced in IEEE Std 1310)	IEEE Guide for Functional Evaluation of Insulation Systems for Large High-Voltage Machines Rated 2300 V and Above
IEEE Std C50.13 (Referenced in IEEE Std 1310)	IEEE Standard for Cylindrical-Rotor 50 Hz and 60 Hz Synchronous Generators Rated 10 MVA and Above.
ASTM E 1545 (Referenced in IEEE Std 1310)	Standard Test Method for Glass Transition Temperatures by Thermomechanical Analysis
IEEE 1553	IEEE Trial-Use Standard for Voltage Endurance Testing of Form-Wound Coils and Bars for Hydrogenerators.
IEEE Std 1043TM-2009 (Referenced in IEEE Std 1553)	IEEE Recommended Practice for Voltage-Endurance Testing of Form-Wound Bars and Coils.
IEEE Std 43TM-2013 (Referenced in IEEE Std 1553)	IEEE Recommended Practice for Testing Insulation Resistance of Electric Machinery.
IEEE Std 286TM-2012 (Referenced in IEEE Std 1553)	IEEE Recommended Practice for Measurement of Power Factor Tip-Up of Electric Machinery Stator Coil Insulation.
IEEE Std 1434 TM -2014 (Referenced in IEEE Std 1553)	IEEE Guide for the Measurement of Partial Discharges in AC Electric Machinery.
ASTM D 1868-13 (Referenced in IEEE Std 1553)	Standard Test Method for Detection and Measurement of Partial Discharge (Corona) Pulses in Evaluation of Insulation Systems.
IEEE Std 4TM-2013 (Referenced in IEEE Std 1553)	IEEE Standard for High-Voltage Testing Techniques.
IEEE Std 930TM-2004, (Replaced by IEC 62539 Ed. 1 (2007-07)) (Referenced in IEEE Std 1553)	IEEE Guide for the Statistical Analysis of Electrical Insulation Breakdown Data.

High Voltage Bushings

CAN/CSA-C88.1-96	Power Transformer and Reactor Bushings Only for: Clause 10.2: Power Factor and Capacitance Measurement Clause 10.3: Dry, One-Minute Low-Frequency Withstand Voltage Tests Clause 10.4: Insulation Integrity
ASTM D1868 (Referenced in CAN/CSA-C88.1-96)	Standard Test Method for Detection and Measurement of Partial Discharge (Corona) Pulses in Evaluation of Insulation Systems

IEEE Std. C57.113 (Referenced in CAN/CSA-C88.1-96)	IEEE Recommended Practice for Partial Discharge Measurement in Liquid-Filled Power Transformers and Shunt Reactors
IEEE Std. 4 (Referenced in CAN/CSA-C88.1-96)	IEEE Standard for High Voltage Testing Techniques
IEC Std. 60-1 (Referenced in CAN/CSA-C88.1-96)	High-Voltage Test Techniques Part 1: General Definitions and Test Requirements
IEC 270 (Referenced in CAN/CSA-C88.1-96)	Partial Discharge Measurements
NEMA Standards Publication No. 107 (Referenced in CAN/CSA-C88.1-96) test	Methods of Measurement of Radio Influence Voltage (RIV) of High Voltage Apparatus
IEC 60137	Insulated Bushings for alternating voltages above 1000 V Only for: Clause 9.1: Measurement of dielectric dissipation factor and capacitance at ambient temperature Clause 9.2: Dry lightning impulse voltage withstand test (BIL) Clause 9.3: Dry power frequency voltage withstand test Clause 9.4: Measurement of partial discharge quantity
IEC 60271 (Referenced in IEC 60137)	High-Voltage Test Techniques – Partial Discharge Measurements
IEEE C57.19.00	IEEE Standard General Requirements and Test Procedure for Power Apparatus Bushings Only for: Clause 7.4.1: Capacitance (C1 and C2) measurement Clause 7.4.2: Power factor Clause 7.4.3: Rated frequency dry withstand test with partial discharge measurements
ANSI C63.2 (Referenced in IEEE Std. C57.19.00)	American National Standard for Electromagnetic Noise and Field Strength Instrumentation, 10 Hz to 40 GHz Specifications
IEC 60270 (Referenced in IEEE Std. C57.19.00)	High-Voltage Test Techniques – Partial Discharge Measurements
IEEE Std. C57.12.90 (Referenced in IEEE Std. C57.19.00)	IEEE Standard Test Code for Liquid-Immersed Distribution, Power, and Regulating Transformers
IEEE Std. C57.19.01 (Referenced in IEEE Std. C57.19.00)	IEEE Standard Performance Characteristics and Dimensions for Outdoor Apparatus Bushings

IEEE Std. C57.113 (Referenced in IEEE Std. C57.19.00)	IEEE Recommended Practice for Partial Discharge Measurement in Liquid-Filled Power Transformers and Shunt Reactors
NEMA Standards Publication No. 107 (Referenced in IEEE Std. C57.19.00)	Methods of Measurement of Radio Influence Voltage (RIV) of High Voltage Apparatus

Lightning Arresters

IEC 60099-4	Surge Arresters – Part 4: Metal-Oxide Surge Arresters without Gaps for A.C.Systems Only for: Clause 8.3 Residual Voltage Tests

Power Cables

AEIC CS2	Specification for Impregnated Paper and Laminated Paper Polypropylene Insulated Cable, High-Pressure Pipe - Type Only for: Clause 12.5: Electrical Tests Clause 12.6: Qualification Tests
ANSI C42.100 (referenced in AEIC CS2)	American National Standard Dictionary of Electrical and Electronics Terms, C42.100-1972 (IEEE Std 100-1972)
IEEE 48 (referenced in AEIC CS2)	IEEE Standard for Test Procedures and Requirements for Alternating-Current Cable Terminations Used on Shielded Cables Having Laminated Insulation Rated 2.5 kV through 765 kV or Extruded Insulation Rated 2.5 kV through 500 kV
IEEE 404 (referenced in AEIC CS2)	IEEE Standard for Extruded and Laminated Dielectric Shielded Cable Joints Rated 2.5 kV to 500 kV
IEC publication 230 (referenced in AEIC CS2; IEC 60502-1; IEC 60502-2; IEC 60840; IEC 62067)	Impulse tests on cables and their accessories
IEEE STD – 82 – 2002 (referenced in AEIC CS2)	IEEE Recommended Practice for Impulse Voltage Tests on Insulated Cables and Their Accessories
ANSI /ICEA S-108-720	Standard for extruded insulation power cables rated above 46 through 345 KV Only for: Clause 10.1: Cable qualification tests
IEEE STD – 82 – 2002 (referenced in ANSI /ICEA S-108-720)	IEEE Recommended Practice for Impulse Voltage Tests on Insulated Cables and Their Accessories
ICEA T-24-380-2013 (R2019) (referenced in ANSI /ICEA S-108-720)	Partial-Discharge Test Procedure, Guide for

ANSI/ANSI P-32-382 (referenced in ANSI /ICEA S-108-720)	Short-Circuit Characteristics of Insulated Cable
ANSI/ICEA T-25-425 (referenced in ANSI /ICEA S-108-720)	Guide for Establishing Stability of Volume Resistivity for Semiconducting Polymeric Components of Power Cables
ANSI/SIA A92.2	Vehicle-Mounted Elevating and Rotating Aerial Devices Only for: Clause 5.4.2.1. Test Procedures for Category A and Category B Aerial Devices Table 1, Category A and Category B Except for: Unit Rating 765 kV
AS/NZS 1429.1	Electric Cables – Polymeric Insulated Part 1: For Working Voltages 1.9/3.3 (3.6) kV up to and including 19/33 (36) kV Only for: Table 3.1: Tests on Cable. Pass Criteria, Category and Reference
AS/NZS 1125 (referenced in AS/NZS 1429.1; AS/NZS 5000.1)	Conductors in insulated electric cables and flexible cords
AS/NZS 1660.3 (referenced in AS/NZS 1429.1; AS/NZS 5000.1)	Test methods for electric cables, cords and conductors, Method 3: Electrical tests
AS/NZS 1660.2.1 (referenced in AS/NZS 1429.1; AS/NZS 5000.1)	Test methods for electric cables, cords and conductors, Method 2.1: Insulation, extruded semi-conductive screens and non-metallic sheaths - Methods for general application
AS/NZS 1660.2.2 (referenced in AS/NZS 1429.1; AS/NZS 5000.1)	Test methods for electric cables, cords and conductors, Method 2.2: Insulation, extruded semi-conductive screens and non-metallic sheaths - Methods specific to elastomeric, XLPE and XLPVC materials
AS/NZS 1660.2.5 (referenced in AS/NZS 1429.1)	Test methods for electric cables, cords and conductors, Method 2.5: Insulation, extruded semi-conductive screens and non-metallic sheaths - Methods specific to cables above 1 kV
AS/NZS 3808 (Referenced in AS/NZS 1429.1)	Insulating and Sheathing Materials for Electric Cables

AS/NZS 5000.1	Electric cables - Polymeric insulated Part 1: For working voltages up to and including 0.6/1 (1.2) Only for: Table 6: Tests on Cable Pass Criteria, Category and Reference [Except for: Vertical flame propagation, Acid and corrosive gas emission, Melt flow index]
AS/NZS 1660.1 (referenced in AS/NZS 5000.1)	Test methods for electric cables, cords and conductors, Method 1: Conductors and metallic components
AS/NZS 1660.2.3 (referenced in AS/NZS 5000.1)	Test methods for electric cables, cords and conductors, Method 2.3: Insulation, extruded semi-conductive screens and non-metallic sheaths - Methods specific to PVC and halogen free thermoplastic materials
CSA C225-10 (R 2015)	Vehicle-Mounted Aerial Devices Only for: Clause 5.4.2.1. Test Procedures for Category A and Category B Aerial Devices Table 1, Category A and Category B Except for: Unit Rating 765 kV

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) Only for: Clause 17: Type Tests, Electrical Clause 18: Type Tests, Non-Electrical Except for: Clause:18.10:Test for Resistance of PVC Insulation and Sheaths to Cracking (Heat Shock Test) Clause 18.12: Hot Set Test for EPR, HEPR and XLPE Insulation and Elastomeric Sheaths Clause 18.14: Water Absorption Test on Insulation Clause 18.17: Shrinkage Test for XLPE Insulation Clause 18.18: Special Bending Test Clause 18.19: Determination of Hardness of HEPR Insulation Clause 18.21: Shrinkage Test for PE Oversheaths Clause 18.22: Additional Tests on Halogen Free Oversheaths
IEC 60811-201 (referenced in IEC 60502-1; IEC 60502-2; IEC 60840, IEC 62067)	Electric and optical fibre cables - Test methods for non-metallic materials - Part 201: General tests - Measurement of insulation thickness CONSOLIDATED EDITION
IEC 60811-202 (referenced in IEC 60502-1; IEC 60502-2; IEC 60840, IEC 62067)	Electric and optical fibre cables - Test methods for non-metallic materials - Part 202: General tests - Measurement of thickness of non-metallic sheath CONSOLIDATED EDITION
IEC 60811-501 (referenced in IEC 60502-1; IEC 60502-2, IEC 62067)	Electric and optical fibre cables - Test methods for non-metallic materials - Part 501: Mechanical tests - Tests for determining the mechanical properties of insulating and sheathing compounds CONSOLIDATED EDITION
IEC 60811-401 (referenced in IEC 60502-1; IEC 60502-2; IEC 60840, IEC 62067)	Electric and optical fibre cables - Test methods for non-metallic materials - Part 401: Miscellaneous tests - Thermal ageing methods - Ageing in an air oven CONSOLIDATED EDITION

IEC 60811-409 (referenced in IEC 60502-1; IEC 60502-2; IEC 60840, IEC 62067)	Electric and optical fibre cables - Test methods for non-metallic materials - Part 409: Miscellaneous tests - Loss of mass test for thermoplastic insulations and sheaths
IEC 60811-508 (referenced in IEC 60502-1; IEC 60502-2, IEC 62067)	Electric and optical fibre cables - Test methods for non-metallic materials - Part 508: Mechanical tests - Pressure test at high temperature for insulation and sheaths CONSOLIDATED EDITION
IEC 60811-504 (referenced in IEC 60502-1)	Electric and optical fibre cables - Test methods for non-metallic materials - Part 504: Mechanical tests - Bending tests at low temperature for insulation and sheaths
IEC 60811-505 (referenced in IEC 60502-1, IEC 62067)	Electric and optical fibre cables - Test methods for non-metallic materials - Part 505: Mechanical tests - Elongation at low temperature for insulations and sheaths
IEC 60811-506 (referenced in IEC 60502-1, IEC 62067)	Electric and optical fibre cables - Test methods for non-metallic materials - Part 506: Mechanical tests - Impact test at low temperature for insulations and sheaths
IEC 60811-403 (referenced in IEC 60502-1, IEC 62067)	Electric and optical fibre cables - Test methods for non-metallic materials - Part 403: Miscellaneous tests - Ozone resistance test on cross-linked compounds
IEC 60811-404 (referenced in IEC 60502-1)	Electric and optical fibre cables - Test methods for non-metallic materials - Part 404: Miscellaneous tests - Mineral oil immersion tests for sheaths
IEC 60332-1-2 (referenced in IEC 60502-1; IEC 60502-2; IEC 60840; IEC 62067)	Tests on electric and optical fibre cables under fire conditions - Part 1-2: Test for vertical flame propagation for a single insulated wire or cable - Procedure for 1 kW pre-mixed flame
IEC 60332-3-24 (referenced in IEC 60502-1; IEC 60840; IEC 62067)	Tests on electric cables under fire conditions - Part 3-24: Test for vertical flame spread of vertically-mounted bunched wires or cables - Category C
IEC 61034-2 (referenced in IEC 60502-1; IEC 60840; IEC 62067)	Measurement of smoke density of cables burning under defined conditions - Part 2: Test procedure and requirements CONSOLIDATED EDITION
IEC 60754-1 (referenced in IEC 60502-1)	Test on gases evolved during combustion of materials from cables - Part 1: Determination of the halogen acid gas content CONSOLIDATED EDITION

IEC 60754-2 (referenced in IEC 60502-1; IEC 60840)	Test on gases evolved during combustion of materials from cables - Part 2: Determination of acidity (by pH measurement) and conductivity CONSOLIDATED EDITION
IEC 60684-2 (referenced in IEC 60502-1)	Flexible insulating sleeving - Part 2: Methods of test
IEC 60811-605 (referenced in IEC 60502-1; IEC 60502-2; IEC 60840)	Electric and optical fibre cables - Test methods for non-metallic materials - Part 605: Physical tests - Measurement of carbon black and/or mineral filler in polyethylene compounds
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) Only for: Clause 18: Type Tests, Electrical Clause 19: Type Tests, Non-Electrical Except for: Clause 18.2: Cables Having Conductor Screens and Insulation Screens Clause 19.10: Test on PVC Insulation and Sheaths at Low Temperatures Clause 19.12: Ozone Resistance Test for EPR and HEPR Insulations Clause 19.14: Oil Immersion Test for Elastomeric Sheaths Clause 19.18: Shrinkage Test for XLPE Insulation Clause 19.19: Thermal Stability Test for PVC Insulation
IEC 60885-3 (referenced in IEC 60502-2; IEC 6084; IEC 62067)	Electrical test methods for electric cables - Part 3: Test methods for partial discharge measurements on lengths of extruded power cables
IEC 60811-509 (referenced in IEC 60502-2; IEC 60840; IEC 62067)	Electric and optical fibre cables - Test methods for non-metallic materials - Part 509: Mechanical tests - Test for resistance of insulations and sheaths to cracking (heat shock test) CONSOLIDATED EDITION
IEC 60811-507 (referenced in IEC 60502-2; IEC 60840; IEC 62067)	Electric and optical fibre cables - Test methods for non-metallic materials - Part 507: Mechanical tests - Hot set test for cross-linked materials

IEC 60811-402 (referenced in IEC 60502-2)	Electric and optical fibre cables - Test methods for non-metallic materials - Part 402: Miscellaneous tests - Water absorption tests
ISO 48 (referenced in IEC 60502-2)	Rubber, vulcanized or thermoplastic - Determination of hardness - Part 4: Indentation hardness by durometer method (Shore hardness)
IEC 60811-503 (referenced in IEC 60502-2; IEC 60840)	Electric and optical fibre cables - Test methods for non-metallic materials - Part 503: Mechanical tests - Shrinkage test for sheaths CONSOLIDATED EDITION
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 Only for: Clause 12: Type Tests on Cable Systems, Clause 16.3: AC voltage test of the insulation (on-site testing) Except for: Clause 12.5.5: Ageing Tests on Pieces of Complete Cable to Check Compatibility of Materials Clause 12.5.7: Pressure Test at High Temperature on Oversheaths Clause 12.5.8: Test on PVC Oversheaths (ST_1, ST_2) and LSHF Oversheaths (ST_{12}) at Low Temperature Clause 12.5.15: Water Penetration Test Clause 12.5.16: Tests on Components of Cables with a Longitudinally Applied Metal Tape or Foil, Bonded to the Oversheath Clause 12.5.17: Shrinkage Test for PE, HDPE and XLPE Insulations Clause 12.5.19: Determination of Hardness and HEPR Insulation
IEC 62271-209 (referenced in IEC 60840; IEC 62067)	High-voltage switchgear and controlgear - Part 209: Cable connections for gas-insulated metal-enclosed switchgear for rated voltages above 52 kV - Fluid-filled and extruded insulation cables - Fluid-filled and dry-type cable-terminations CONSOLIDATED EDITION

IEC 62155 (referenced in IEC 60840; IEC 62067)	Hollow pressurized and unpressurized ceramic and glass insulators for use in electrical equipment with rated voltages greater than 1 000 V
IEC 61462 (referenced in IEC 60840; IEC 62067)	Composite hollow insulators - Pressurized and unpressurized insulators for use in electrical equipment with rated voltage greater than 1 000 V - Definitions, test methods, acceptance criteria and design recommendations
IEC 60228 (Referenced in IEC 60840; IEC 62067)	Conductors of Insulated Cables
IEC 60811-202 (Referenced in IEC 60840; IEC 62067)	Electric and Optical Fiber Cables – Test Methods for Non-Metallic Materials – Part 202: General Tests – Measurement of Thickness of Non-Metallic Sheath
IEC 60811-501 (Referenced in IEC 60840; IEC 62067)	Electric and Optical Fiber Cables – Test Methods for Non-Metallic Materials – Part 501: Mechanical Tests – Tests for Determining The Mechanical Properties of Insulating and Sheathing Compounds
IEC 60811-606 (Referenced in IEC 60840; IEC 62067)	Electric and Optical Fiber Cables – Test Methods for Non-Metallic Materials – Part 606: Physical Tests – Methods for Determining the Density

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 Only for: Clause 12: Type Tests on Cable Systems, Clause 16.3: AC Voltage Test of the Insulation (on-site testing) Except for: Clause 12.5.6: Loss of Mass Test on PVC Oversheaths of Type ST_2 Clause 12.5.8: Tests on PVC Oversheaths (ST_1 and ST_2) at Low Temperature Clause 12.5.9: Heat Shock Test for PVC Oversheaths (ST_1 and ST_2) Clause 12.5.16: Tests on Components of Cables with a Longitudinally Applied Metal Tape or Foil, Bonded to the Oversheath
IEC 60811-1-1 (Referenced in IEC 62067)	Common Test Methods for Insulating and Sheathing Materials of Electric and Optical Cables – Part 1-1: Methods for General Application – Measurement of Thickness and Overall Dimensions – Tests for Determining the Mechanical Properties
IEC 60811-1-2 (Referenced in IEC 62067)	Common Test Methods for Insulating and Sheathing Materials of Electric Cables – Part 1-2: Methods for General Application – Thermal Aging Methods
IEC 60811-2-1 (Referenced in IEC 62067)	Common Test Methods for Insulating and Sheathing Materials of Electric and Optical Cables – Part 2-1: Methods Specific to Elastomeric Compounds – Ozone Resistance, Hot Set and Mineral Oil Immersion Tests
IEC 60811-3-1 (Referenced in IEC 62067)	Common Test Methods for Insulating and Sheathing Materials of Electric Cables – Part 3: Methods Specific to PVC Compounds Section 1 – Pressure Test at High Temperature – Tests for Resistance to Cracking

IEC 60811-4-1 (Referenced in IEC 62067)	Common Test Methods for Insulating and Sheathing Materials of Electric and Optical Cables – Part 4-1: Methods Specific to Polyethylene and Polypropylene Compounds – Resistance to Environmental Stress Cracking – Measurement of the Melt Flow Index – Carbon Black and/or Mineral Filler Content Measurement in Polyethylene by Direct Combustion – Measurement of Carbon Black Content by Thermogravimetric Analysis (TGA) – Assessment of Carbon Black Dispersion in Polyethylene using a Microscope
IEEE Std. 48	IEEE Standard for Test Procedures and Requirements for Alternating Current Cable Terminations used on Shielded Cables having Laminated Insulation Rated 2.5 kV through 765 kV or Extruded Insulation Rated 2.5 kV through 500 kV Only for: Clause 8.4.2: Dielectric Tests Clause 8.4.2.1: Clause 8.4.2.2: Clause 8.4.2.2: Clause 8.4.2.5: Clause 8.4.2.6: Clause 8.4.2.7: Clause 8.4.2.8: Clause 8.4.3: Cyclic Aging Test
IEC 60270 (Referenced in IEEE Std. 48)	High-Voltage Test Techniques – Partial Discharge Measurements
IEEE Std. 4 (Referenced in IEEE Std. 48)	High-Voltage Testing Techniques
IEEE Std. 404 (Referenced in IEEE Std. 48)	Extruded and Laminated Dielectric Shielded Cable Joints Rated 2.5 kV to 500 kV

Insulators

ANSI C29.1	Tests Methods for Electrical Power Insulators Only for: Clause 4: Electrical Tests Clause 5: Mechanical Tests

ANSI C29.3 (Referenced in ANSI C29.1)	Wet Process Porcelain Insulators – Spool Type
IEEE Std. 4 (Referenced in ANSI C29.1)	High-Voltage Testing Techniques
NEMA Standards Publication No. 107 (Referenced in ANSI C29.1)	Methods of Measurement of Radio Influence Voltage (RIV) of High Voltage Apparatus
CAN/CSA C411.1	AC Suspension Insulators Only for: Clause 6: Type Tests
ANSI C29.1 (Referenced in CAN/CSA C411.1)	Tests Methods for Electrical Power Insulators
ANSI/NEMA CC 1 (Referenced in CAN/CSA C411.1)	Electric Power Connection for Substations
ANSI/NEMA C29.2B (Referenced in CAN/CSA C411.1)	Wet Process Porcelain and Toughened Glass – Transmission Suspension Type
IEC 60383-1 (Referenced in CAN/CSA C411.1)	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
IEC 60437 (Referenced in CAN/CSA C411.1)	Radio Interference Test on High-Voltage Insulators
IEC 60060-1 (Referenced in CAN/CSA C411.1)	High Voltage Test Techniques – Part 1: General Definitions and Test Requirements
IEC 60060-2 (Referenced in CAN/CSA C411.1)	High Voltage Test Techniques – Part 2: Measuring Systems
IEC 61211 (Referenced in CAN/CSA C411.1)	Insulators of Ceramic Materials of Glass for Overhead Lines with a Nominal Voltage Greater Than 1 000 V – Impulse Puncture Testing in Air
CAN/CSA-C411.4	Composite Suspension Insulators for Transmission Applications Only for: Clause 5: Design Tests Clause 6: Type Tests
ASTM D2240 (Referenced in CAN/CSA C411.4)	Standard Test Method for Rubber Properties – Durometer Hardness
ASTM D2565 (Referenced in CAN/CSA C411.4)	Standard Practice for Xenon-Arc Exposure of Plastics Intended for Outdoor Applications
ASTM G26 (Referenced in CAN/CSA C411.4)	Standard Practice for Operating Light-Exposure Apparatus (Xenon-Arc Type) with and without Water for Exposure of Nonmetallic Materials

ASTM G53 (Referenced in CAN/CSA C411.4)	Standard Practice for Operating Light-and Water-Exposure Apparatus (Fluorescent UV-Condensation Type) for Exposure of Nonmetallic Materials
CAN/CSA-C411.1 (Referenced in CAN/CSA C411.4)	AC Suspension Insulators
IEC 61109 (Referenced in CAN/CSA C411.4)	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
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 Only for: Type tests for suspension cap and pin insulators
IEC 60-1 (Referenced in IEC 60383-1)	High-Voltage Test Techniques – Part 1: General Definitions and Test Requirements
IEC 120 (Referenced in IEC 60383-1)	Dimensions of Ball and Socket Coupling of String Insulator Units
IEC 305 (Referenced in IEC 60383-1)	Characteristics of String Insulator Units of the Cap and Pin Type
IEC 383 (Referenced in IEC 60383-1)	Tests on Insulators of Ceramic Material of Glass for Overhead Lines with a Nominal Voltage Greater Than 1 000 V
IEC 61109 and amendment No.1	Composite insulators for a.c. overhead lines with a nominal voltage greater than 1000 V - Definitions, test methods and acceptance criteria Only for: Clause 10 Design Tests Clause 11 Type tests

Wiring and Related Products:

Overhead Lines - Connectors & Hardware

ANSI C119.4	Connectors for use between aluminum-to-aluminum or aluminum-to-copper bare overhead conductors Except for: Clause 4.3.1.2 Current Cycle Resistance Stability – CCST Clause 4.3.2.2 Current Cycle Temperature Stability – CCST Clause 4.3.3 Copper System Thermal Stability Clause 6.3.1.5.2 Current and Temperature Condition – CCST Clause 6.3.2 Static Heating Stability Test
IEC 61284	Overhead Lines – Requirements and Tests for Fittings Except for: Clause 13.5.3: Joints of class B Only for: Clause 13: Heat Cycle Tests, Clause 14: Corona and radio interference voltage (RIV) Tests
IEC 61854	Overhead Lines – Requirements and Tests for Spacers Only for: Clause 7.1 Visual Examination Clause 7.2 Verification of Dimensions, Materials and Mass Clause 7.5 Mechanical Tests Clause 7.7 Electrical Tests

Overhead Lines – Conductors & Fiber Optic Cables

BS EN 50182	Conductors for overhead lines - Round wire concentric lay stranded conductors: Only for: Clause 6.4: Properties of conductor [Except for Clause 6.4.9 Stringing Test] Clause 6.5: Properties of wires after stranding [Except for Clause 6.5.3 Welding of aluminum wires] Clause 6.6.1 Mass per unit length
ASTM B230	Standard Specification for Aluminum 1350–H19 Wire for Electrical Purposes Only for: Clause 7 Tensile Properties Clause 8 Bending Properties Clause 9 Resistivity Clause 10 Density Clause 11 Diameter Clause 12 Joints

ASTM B498	Standard Specification for Zinc-Coated (Galvanized) Steel Core Wire for Use in Overhead Electrical Conductors Only for: Clause 8 Tensile Test Clause 9 Wrap Test Clause 10 Coating Test Clause 11 Adherence of Coating Test Clause 14 Dimensions and Permissible Variations
ASTM B987	Standard Specification for Carbon Fiber Thermoset Polymer Matrix Composite Core (CFC) for use in Overhead Electrical Conductors Only for: Clause 9 Tensile Test Clause 10 Glass Transition Temperature (Tg) Clause 11 Density Clause 12 Dimensions and Permissible Variations Clause 13 Bending Test Clause 14 Dye Penetrant Testing after Bending Test Clause 15 Tensile Test after Bending Test Clause 16 Heat Exposure Test Clause 17 Heat/Stress Test Clause 18 Galvanic Protection Barrier Layer Thickness
IEC 60794-1-21	Optical fibre cables Part 1-21: Generic specification. Basic optical cable test procedures Mechanical test Methods Only for: Clause 3 Method E1: Tensile Performance Clause 5 Method E3: Crush Clause 6 Method E4: Impact Clause 10 Method E6: Repeated Bending Clause 11 Method E7: Torsion Clause 14 Method E10: Kink Clause 15 Method E11: Bend Clause 18 Method E14: Compound Flow (Drip Clause 23 Method E18B: Sheave Test Clause 24 Method E19: Aeolian Vibration
IEC 60794-1-22	Optical fibre cables Part 1-22: Generic specification Basic optical cable test procedures Environmental test methods Only for: Clause 3 Method F1: Temperature Cycling Clause 7 Method F5: Water Penetration [Except for Method F5A]

IEC 60794-1-401	Optical fibre cables - Part 1-401: Generic specification - Basic optical cable test procedures - Electrical test methods - Short-circuit test (for OPGW, OPPC and OPAC), Method H1
IEC 60794-1-402	Optical fibre cables - Part 1-402: Generic specification - Basic optical cable test procedures - Electrical test methods – Lightning test (for OPGW, OPPC and OPAC), Method H2
IEC 60794-4-10	Optical fibre cables Part 4-10: Family specification Optical ground wires (OPGW) along electrical power lines
IEC 61089	Round Wire Concentric Lay Overhead Electrical Stranded Conductors Only for: Clause 6.5: Type tests Clause 6.6: Sample tests
IEC 61395	Overhead Electrical Conductors - Creep Test Procedures for Stranded Conductors
IEEE 1138	IEEE Standard for Testing and Performance for Optical Ground Wire (OPGW) for use on Electrical Utility Power Lines

ENVIRONMENTAL AND OCCUPATIONAL HEALTH AND SAFETY

Occupational Health and Safety:

Personal Protection

(Arc-Flash Testing)

ASTM F1959/F 1959M	Standard Test Method for Determining the Arc Rating of Materials for Clothing
ASTM F2178	Standard Test Method for Determining the Arc Rated Eye or Face Protective Products
ASTM F2621	Standard Practice for Determining Response Characteristics and Design Integrity of Arc Rated Finished Products and Evaluating other Products in an Electric Arc Exposure
ASTM F2675	Standard Test Method for Determining Arc Ratings of Hand Protective Products Developed and Used for Electrical Arc Flash Protection

ASTM F887	Standard Specification for Personal Climbing Equipment, Only for: Section 22; After exposure to an Electrical Arc
IEC 61482-1-1	Live working - Protective clothing against the thermal hazards of an electric arc - Part 1-1: Test methods - Method 1: Determination of the arc rating (ATPV or EBT50) of flame resistant materials for clothing
IEC 61482-1-2	Live working - Protective clothing against the thermal hazards of an electric arc - Part 1-2: Test methods - Method 2: Determination of arc protection class of material and clothing by using a constrained and directed arc (box test)

(Safety Equipment)

ASTM D1048	Standard Specification for Rubber Insulating Blankets Only for: Clause 9: Electrical Requirements Clause 18: Electrical Tests
ASTM D120	Standard Specification for Rubber Insulating Gloves Only for: Clause 11: Electrical Requirements Clause 18: Electrical Tests
ASTM F496	Standard Specification for In Service Care of Insulating Gloves and Sleeves Only for: Clause 7: Electrical Tests [Except for: Clause 7.6 Sleeve tests]
CAN/ULC-60903 (IEC 60903)	Live Working - Gloves of Insulating Material Only for: Clause 8.4.1: Dielectric Tests - General Clause 8.4.2 Dielectric Tests - AC Test Procedure

DISTRIUBTED ENERGY RESOURCES

Interconnecting with Electric Power Systems:

IEEE 1547.1	IEEE Standard Conformance Test Procedures for Equipment Interconnecting Distributed Energy Resources with Electric Power Systems and Associated Interfaces Only for: Clause 5.4.2: Test for overvoltage trip Clause 5.4.3: Test for undervoltage trip Clause 5.4.4: Low-voltage ride-through tests Clause 5.4.5: Test for voltage disturbance within continuous operation region Clause 5.4.7: High-voltage ride-through tests Clause 5.5.1: Test for over frequency trip Clause 5.5.2: Test for underfrequency trip Clause 5.5.3: Test for low-frequency ride-through Clause 5.5.4: Test for high-frequency ride-through Clause 5.5.5: Test for rate of change of frequency (ROCOF) Clause 5.5.6: Test for voltage phase-angle change ride-through Clause 5.6: Enter Service Clause 5.7.4: Synchronization control function test for equipment with no synchronizing disable capability (variation 3) Clause 5.11: Open phase Clause 5.12.2: Current Distortion Clause 5.13: Limit active power Clause 5.14.3: Test for constant power factor (p.f) mode Clause 5.14.4: Test for voltage-reactive power (volt-var) mode Clause 5.14.6: Test for voltage-reactive power (volt-var) mode with an imbalanced grid Clause 5.14.8: 5.14.8 Test for constant reactive power (var) mode Clause 5.15.2: Test for frequency-droop (frequency-power or frequency-watt) capability—above nominal frequency Clause 5.15.3: Test for frequency-droop (frequency-power or frequency-watt) capability—below nominal frequency

	Clause 5.16: Test for prioritization of DER responses Clause 5.17.2: Load rejection overvoltage (LROV) test

Other (specify):

Number of Scope Listings: 166

Notes:

ISO/IEC 17025:2017: General Requirements for the Competence of Testing and Calibration Laboratories

* These test methods can be performed on-site as per RG-Lab.

This document forms part of the Certificate of Accreditation issued by the Standards Council of Canada (SCC). The original version is available in the Directory of Accredited Laboratories on the SCC website at www.scc-ccn.ca.

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