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46 kV Solid Dielectric Underground Power Cable

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Related/Referenced Documents

Include the applicable document, section, or reference "*add link here*".

Version History

Version	Date	Revision
00	8/08/2022	First Issue
01	10/28/2024	Consolidated specification 4802.249 and 4802.284 in this specification. Change owner department to Transmission Engineering. Updated cover page format to latest version. Sections numbers were updated to add information and/or change section name. Section 3 (Special Requirements) was updated to clarify requirements. Section 4 (Markings & Packaging) was updated to include additional information in material received. Section 5 (Quantity per Package) was updated to be able to order in a cost efficient and optimize material usage. Section 6 was renamed to Reference industry standards and was updated to include relevant standards to this specification. Section 7 (Description) was updated to include more details on expected cable to be received. Updated section 8 name to "qualification and testing" and organized requirements. Added new Section 9 (Routine & Sample Testing) to provide expectations and requirements of routine testing and sample testing. Updated Section 10 name from "equal or approved to" to "Compatible with" and added additional wording for equal evaluation of materials by LUMA. Added new Section 12 (Warranty) with details of expected warranty when receiving this product. Added new section 13 (Acceptance Criteria). Added new section 14 (Proposal Information) to specify minimum documentation required to evaluated bid of any vendor or manufacturer. Added appendix section with appendix 1 – table of compliance as a reference to be fill by vendor.
02	11/20/2024	Update name from tape shielded to concentric neutral.

1. SPECIFIC NAME

1.1. Copper conductor, 46 kV Solid Dielectric insulated, concentric neutral, linear low-density polyethylene (LLDPE) jacketed power cable.

2. BASIC USE

2.1. For use in a three-phase, 60Hz underground electric power transmission at 38 kV phase-to-phase nominal voltage.

3. SPECIAL REQUIREMENTS

3.1. Samples shall be furnished as requested by LUMA.

3.2. All documented testing required by applicable specifications and standards shall be submitted with product samples, including mechanical drawings, prior to approval.

3.3. Vendors that have supplied this material to LUMA on previous orders, will not have to furnish samples at bid opening, with the exception if any material or design changes were made to an approved product, vendor must re-submit sample to the material specification engineer for approval before shipping.

3.4. Product shall be manufactured, qualification tested & factory tested in accordance with the applicable standards mentioned in Section 6 of this specification.

3.5. For new Manufacturers LUMA requires a type test to be perform.

3.6. If any two standards differ in test methods and requirements the one with the more stringent method and requirement shall be used and approved by LUMA.

3.7. When conflicts arise between the standards described in Section 6 and these specifications, this specification shall prevail.

3.8. The product shall be furnished as described in this specification or as amended by the Purchase Order.

3.9. Upon inspection of incoming material, LUMA reserves the right to refuse product shipments and to determine the acceptability or rejection of product received if defective product has been found or observe.

3.10. Sample unit shall be properly labeled for testing and/or analysis.

3.11. Sample cuts of cable 2" long (Cross Section) of approved cable.

3.12. Vendors that have supplied this material to LUMA on previous orders will not have to furnish samples at bid opening.

3.13. Descriptive and technical literature shall be supplied to LUMA.

3.14. With respect to products described in this specification as requiring qualification, awards will be made only for such products that have, prior to the time act for opening bids, been tested and/or approved by LUMA.

3.15. Evidence of LUMA's approval of the equipment or material shall be supplied by vendor if requested by LUMA.

4. MARKINGS AND PACKAGING

4.1. All requirements including packing, sealing, shipping, reels, marking on reels and fittings, as stated in AEIC CS8-2020 shall apply to cable manufactured and delivered to LUMA in accordance with this specification.

4.2. For sample units they shall be properly labeled for LUMA internal testing and analysis after qualified and tested by MANUFACTURER.

4.3. As a minimum, Cable reels shall have the following markings:

4.3.1. Project Tittle

4.3.2. Specifications to which the cable was made

4.3.3. LUMA's Purchase order number

4.3.4. LUMA's Warehouse code number (see table 7.3.2)

4.3.5. Cable Conductor size, insulation Thickness, insulation type and design voltage.

4.3.6. Reel number for the group of reels sent with order and total number of reels to be supplied

4.3.7. Length of cable on reel

4.3.8. Gross and net weights

4.3.9. Shipping date

4.3.10. Shipping destination

4.4. Vendor shall prepare material and equipment for shipment in such a manner as to facilitate handling and protection for damage.

4.5. All material should be packaged and marked in such a way that the receiving warehouse can readily identify and send in in one (1) complete unit to a field location without opening crates or boxes to sort items or parts.

5. QUANTITY PER PACKAGE

5.1. For optimizing use of material, LUMA shall provide the quantity of linear feet per reel this will depend on the distance between manholes.

5.2. The vendor shall provide cost efficient option to provide the cable, quantity of reels and cables per reel based on the information provided by LUMA

5.3. The average span between manholes usually is between 1,100 linear feet and 2,000 linear feet.

5.4. For short term storage the cable can be shipped in long duration wood.

5.5. For long term storage the cable must be shipped in metallic reels.

5.6. Cables shall have end caps installed on both ends of cable for protection against water ingress during storage.

6. REFERENCE INDUSTRY STANDARDS

6.1. ICEA S-97-682-Latest edition, Standard for Utility Shielded Power Cables Rated 5 through 46 kV

6.2. AEIC CS8–Latest edition, Specification for Extruded Dielectric, Shielded Power Cables Rated 5 through 46 kV

6.3. AEIC CS9-Latest Edition, Specification for Extruded Insulation Power Cables and Their Accessories Rated Above 46 Kv Through 345 Kvac

6.4. AEIC CG13–Latest Edition, Guide for Testing Moisture Barriers Made of Laminated Foil Bonded to the Jacket of XLPE Transmission Cables

6.5. ASTM B3–Latest Edition, Soft or Annealed Copper Wire

6.6. ASTM B8–Latest Edition, Concentric-Lay-Stranded Copper Conductors, Hard, Medium-Hard or Soft"

6.7. ASTM D2765-Latest Edition, Test for Degree of Crosslinking in Crosslinked Ethylene Plastics as Determined by Solvent Extraction.

6.8. ICEA S-93-639- Latest Edition (NEMA WC 74), Shielded Power Cable 5 to 46 kV

6.9. ICEA Publication T-24-380- Latest Edition, Guide for partial-Discharge Test Procedure

6.10. ICEA Publication T-25-425-Latest Edition, Guide for Establishing Stability of Volume Resistivity for conducting Polymeric components of Power Cables

6.11. ICEA Publication T-45-482-Latest Edition, Short Circuit Performance of Metallic Shielding and Sheaths of Insulated Cable.

6.12. NEMA WC 26 - Latest Edition, Standards Publication for drum Diameters of reels for wires and cables.

6.13. IEEE Standard No. 82-Latest Edition, Test Procedure for Impulse Voltage Tests on insulated Conductors.

6.14. ICEA Publication T-26-465-Latest Edition, Frequency of Sampling

6.15. ICEA P-45-482- Latest Edition, Short Circuit Performance of Metallic Shields and Sheaths on Insulated Cables

6.16. Cable supplier shall demonstrate to LUMA compliance with the above standards and these specification requirements.

7. DESCRIPTION

7.1. The cable as a minimum requirement should be manufactured using clean room techniques, the conductor shield, insulation and insulation shield shall be applied using a "True Triple Extrusion" process with one pass through the extrusion line and using completely dry curing and cooling (CDCC) technology.

7.2. 46 kV, concentric neutral, solid dielectric insulated, linear low-density polyethylene (LLDPE) jacketed copper power cable with a maximum overall cable diameter per table in section 7.3.2.

7.3. **Conductor:**

7.3.1. Shall consist of a single compressed stranded, Class B, uncoated, soft drawn or annealed, copper wire.

7.3.2. Conductor size table:

Luma Warehouse Number	Conductor Size (kcmil)	No. of conductors	Conductor Shape	Maximum Cable O. D.
006-01567	800	1/C	Round	2.5"
006-80526	2000	1/C	5-Seg.	3.5"

Seg. = Segmental

7.3.3. There shall be no water in the conductor of the cable as shipped.

7.4. **Conductor Shield:**

7.4.1. Conductor shall be covered with an extruded super-smooth semiconducting shield, thickness as per AEIC CS8-20, with a maximum volume resistivity of 1000 ohm-mt.

7.4.2. The conductor shield shall be firmly bonded to the overlying insulation for all operating temperatures and shall be consistent with the requirements AEIC CS8-20.

7.4.3. The extruded conductor shield shall be easily removable from the conductor.

7.4.4. Conductor shield extrusion shall be free of voids larger than three (3) mils.

7.4.5. The number of voids larger than two (2) mils shall not exceed 30 per cubic inch.

7.4.6. It shall have an operating temperature equal to that of the insulation.

7.5. **Primary cable insulation:**

7.5.1. Thickness shall be 0.445 in (11.30 mm) ultra-clean, super smooth, tree retardant crosslinked polyethylene or Ethylene Propylene Rubber (EPR) in accordance with AEIC CS8- latest edition.

7.5.2. The assembled insulation shall have an eccentricity no greater than 8%.

7.5.3. Maximum moisture content shall not exceed 100 ppm.

7.6. **Insulation shielding:**

7.6.1. Shall be extruded and shall consist of black semiconducting smooth removable thermoset material applied directly over the insulation.

7.6.2. The mean tension necessary to remove the insulation shield at room temperature shall be approximately nine pounds (4.1 kg). It shall comply with the requirements of AEIC CS8 latest edition.

7.6.3. Dry curing and true triple head extrusion shall be employed for the three layers.

7.6.4. The eccentricity of the cable shall not exceed 8 % using the formula ($t_{max} - t_{min}$) x 100 / (t_{max}), where t_{max} is the maximum insulation thickness and t_{min} is the minimum insulation thickness.

7.7. **Helix Tape:**

7.7.1. Two (2) soft drawn or annealed bare copper tapes, 5 mils minimum thickness each, shall be applied with a minimum overlap of 20 percent as follows:

7.7.1.1. The first tape shall be helically applied in a clockwise direction with an overlap of 20 percent on itself.

7.7.1.2. The second tape shall be helically applied over the first tape in a counterclockwise direction, with an overlap of 20 percent on itself.

7.8. **Longitudinal Water Blocking:**

7.8.1. A longitudinal moisture barrier shall be applied over the insulation shield and consisting of a semiconducting water swellable moisture barrier tape.

7.8.2. The tape must ensure a good electrical connection between the shield wires and the extruded semi-conductive insulation shield and be sufficient to permit thermal expansion and contraction of the cable core between 0 °C and 105 °C.

7.8.3. The copper screen wires, and the counter helix tape shall be covered with sufficient layers of water swellable semiconducting moisture barrier tape.

7.8.4. The interstices between the wires shall be blocked with a moisture blocking compound.

7.8.5. The blocking compound shall be a high viscosity polymeric-based thermoplastic which adheres to metal and polymeric materials and is compatible with semiconducting and insulation materials.

7.9. **Concentric Wire Shield:**

7.9.1. A copper wire screen with sufficient capacity to carry a minimum fault current of 40,000 Amperes for 15 cycles and for the rated voltage per standards recommendations.

7.9.2. The length of lay for the copper drain wires shall be a minimum of 6.5 times the diameter of the cable.

7.9.3. The copper wire screen shall conform to the requirements of sizing and metal characteristics as specified in ICEA S-93-639-latest edition and ICEA P-45-482 latest edition.

7.9.4. For the purposes of determining the fault current capability, the SUPPLIER shall assume that the wire shield is at 10C° below rated conductor temperature at the onset of the fault and indicate the maximum allowable wire shield temperature permissible in MANUFACTURER cable design.

7.10. **Metallic Sheath:**

7.10.1. A nonmagnetic metallic sheath consisting of a copper foil laminate moisture barrier shall be longitudinally applied over the copper shield wires and longitudinal water blocking tapes.

7.10.2. The copper laminate moisture barrier shall have a minimum thickness of 6 mils and one-half inch overlap sealed with hot melt adhesive.

7.10.3. The surface of the copper foil laminate metallic sheath shall have a layer of hot-melt non-conductive copolymer bonded to the polyethylene jacket.

7.10.4. The heat of extrusion during application of the polyethylene jacket shall bond the outer coating of the copper laminate sheath to the cable jacket to form the bonded laminate sheath.

7.10.5. The overlap is sealed by inserting hot melt adhesive into the overlap to complete the moisture barrier.

7.10.6. The copper laminate sheath must allow for thermal expansion and contraction of the insulation for conductor temperatures between 0ºC and 105ºC and be free of any wrinkles at the overlap.

7.10.7. Qualification of copper laminate moisture barrier shall be in accordance with AEIC CG13-latest edition.

7.11. **Insulating Jacket:**

7.11.1. Cable shall be constructed with an overall encapsulating linear low-density polyethylene (LLDPE) jacket conforming to the requirements of ICEA S-97-682- latest edition and AEIC CS-8- latest edition.

7.11.2. The minimum average jacket thickness and cable markings shall be in accordance with ICEA S-97-682- latest edition.

7.11.3. A 10 mils thermoplastic semi-conducting outer layer shall be applied over the jacket, for performing a jacket integrity test after cable installation.

7.12. **Cable Identification:**

7.12.1. The outer jacket surface of the cable shall be suitably marked throughout its length by indent print or embossed print to a depth not greater than 15 percent of its thickness or by surface printing, at regular intervals with no more than 6 inches (152mm) of unmarked spaced between cable identification, with the following information:

7.12.1.1. Manufacturer's identification

7.12.1.2. Conductor Size

7.12.1.3. Conductor Material

7.12.1.4. Type of insulation

7.12.1.5. Voltage Rating

7.12.1.6. Nominal Insulation Thickness

7.12.1.7. Year of Manufacture

7.13. The complete cable shall be suitable for continuous operation in both wet and dry locations at a maximum conductor temperature of 90 °C. Under short circuit conditions, the conductor temperature shall not exceed 250 °C. Conductor temperature during emergency loading conditions (100 hours max duration) shall not exceed 130 °C.

7.14. The cable shall be de-gassed in accordance with AEIC CS9latest edition and section 9.12 of ICEA S-108-720 latest edition, or as agreed between LUMA and MANUFACTURER. The MANUFACTURER shall submit the proposed de-gassing period with their proposal. For review and approval by LUMA.

7.15. Each cable end shall be furnished with a watertight pulling eye. The pulling eyes shall be made in such a manner that they do not increase the outside diameter of the cable by more than 0.25in. Certified test reports of the pulling eye pullout tests shall be part of the proposal.

7.16. All materials including insulation, semi-conducting compounds, swellable tapes and copper laminate sheath shall be identified.

7.17. The cable shall be manufactured using a vertical extrusion line; other methods are acceptable if the maximum insulation eccentricity requirement of 8% is met. The formulation and method of fabrication of the approved insulation, conductor shield, insulation shield, swellable tapes, metallic shield wires, and the copper laminate sheath and jacket shall not change by the MANUFACTURER unless agreed to by LUMA, and in any case, shall not constitute a substantive change from the type test and qualifications tests. If any change is made in the material or manufacturing process of an approved cable design, requalification tests may be necessary for the product to regain its approved rating.

7.18. All dimensions and weight(s) shall be shown in English and Metric units.

7.19. Tolerances shall be provided for all dimensions.

8. QUALIFICATION & TESTING

8.1. Awarded supplier or manufacturer shall submit to LUMA the qualification tests results described in AEIC CS8-latest edition as a requirement for consideration of its bid proposal.

8.2. No bid proposal shall be considered without qualification test results.

8.3. Production testing shall be performed on the cable in accordance with the requirements called for in the standards mentioned in Section 6 of this specification.

8.4. The manufacturer shall clearly state that the cable has been manufactured and tested in accordance with these specifications and shall inform LUMA of any deviation from them.

8.5. LUMA reserves the right to witness production testing.

8.6. The Vendor shall notify LUMA with at least one month of anticipation the testing schedule.

8.7. LUMA may waive witnessing of the tests and, in substitution, request certified test results.

8.8. LUMA may request that random samples of each cable run be sent for testing to an independent laboratory cable chosen by LUMA, prior to approving final cable shipment.

9. ROUTINE & SAMPLE TESTING

9.1. Routine and sample testing of the cable shall be conducted in accordance with applicable standards mention in section 6 of this specification.

9.2. MANUFACTURER shall prepare a list of all routine and sample tests to be performed on the cable and submit the list with MANUFACTURER's proposal.

9.3. The MANUFACTURER shall notify LUMA of the cable production schedule and give notice (not less than 30 working days) of the start of manufacturing.

9.4. LUMA or its designated representative(s) will have reasonable access to the manufacturing process for the purchased cable to witness all the production steps and testing of the cable.

9.5. Certified test reports, including the results of all required tests, shall be supplied and must be approved by LUMA before the cable is shipped.

9.6. X-Y plots produced by the test equipment during the partial discharge test of each reel shall be part of the certified test report.

9.7. Test reports shall indicate the last calibration date for all test equipment used in performing routine and sample testing.

9.8. Test report shall include photos that document all phases of the testing.

10.COMPATIBLE WITH

10.1. As approved by LUMA.

10.2. LUMA will evaluate equally any model in compliance with this specification during any acquisition event.

11.INSPECTION

11.1. The acceptance of any material or equipment shall in no way relieve the vendor from his responsibility to meet all the requirements of this specification, and it shall not prevent subsequent rejection if such material is found to be defective later.

12.WARRANTY

12.1. The MANUFACTURER shall guarantee that the cable furnished under this specification is high quality material and workmanship throughout, and it has been tested in accordance with these specifications.

12.2. The results of the tests must comply with all the requirements and conditions of these specifications.

12.3. The MANUFACTURER shall warranty the cable for a minimum of ten (10) years unless otherwise specified in contract documents.

12.4. If the MANUFACTURER requires that a factory representative be present to observe the installation of the cable, accessories and other equipment to honor the warranty, the MANUFACTURER shall include the cost for their field observer(s) in the bid.

13.ACCEPTANCE CRITERIA

13.1. Test required: certified by external qualified laboratories.

13.2. Latest Applicable codes, standards, and other regulations requirements.

13.3. Compliance with requirements of this specification.

14.PROPOSAL INFORMATION

14.1. **MANUFACTURER Submitted proposals must include:**

14.1.1. Detailed technical information requested in this specification.

14.1.2. A drawing of the completed cable that clearly shows the following:

14.1.2.1. Type and shape of conductor

14.1.2.2. Outer diameter of conductor

14.1.2.3. Material used for binder on segmental conductor

14.1.2.4. Type and thickness of conductor shielding

14.1.2.5. Type and thickness of insulation

14.1.2.6. Type and thickness of insulation shielding

14.1.2.7. Type and thickness of water swellable tapes

14.1.2.8. Type, number, wire diameter, layer thickness and lay of shield wires

14.1.2.9. Type and thickness of water barrier laminate

14.1.2.10. Thickness and material used for the outer jacket

14.1.2.11. Diameter of completed cable including tolerances

14.1.2.12. Weight of conductor metal per unit length

14.1.2.13. Weight of copper shield wires and radial moisture barrier (sheath)

14.1.2.14. Weight of completed cable

14.1.2.15. Minimum bending radius of cable for:

14.1.2.15.1. Cable pulling

14.1.2.15.2. Training in manholes or on risers

14.1.2.16. Maximum allowable pulling tension

14.1.2.17. Maximum allowable sidewall bearing pressure force

14.1.3. A drawing showing the construction, installation and principal dimensions of the pulling and trailing eyes.

14.1.4. Certified test reports of pulling eye pullout tests

14.1.5. Calculation to demonstrate the cable metallic wire shield can withstand the required fault current for the specified duration.

14.1.6. Calculated positive and zero sequence impedances per kilometer and per thousand feet.

14.1.7. A list of routine and sample tests to be performed on the cable.

14.1.8. A drawing showing the material, dimensions, weight and construction details of the reel.

14.1.9. A copy of the semi-conductive and moisture absorbing properties of the moisture swelling tape and test results of the water blocking effectiveness.

14.1.10. Certified test reports of qualification tests

14.1.11. Thermal resistivity of the insulation (C°-cm/w) at 20°C, 90°C and 105°C.

14.1.12. AC and DC resistance of the conductor and the drain wires at 20°C and 75°C.

14.1.13. Dielectric constant (Specific Inductive Capacitance) of the insulation.

14.1.14. Power factor of the insulation at 90°C and 105°C.

14.1.15. Maximum clamping pressure allowed on the cable.

14.1.16. The date of standards & specification used for manufacture of the cable.

14.1.17. Identification of all insulation and semi-conducting compounds

14.1.18. Weather restrictions for installation of the cable.

14.1.19. Storage requirements, special handling and protection to maintain reels in storage for replacement for the expected life of the cable system.

14.1.20. Recommended bull wheel diameter for pulling the cable.

14.1.21. Field test recommendations for testing the completed cable system after installation.

14.1.22. All relevant certified qualification and type test reports.

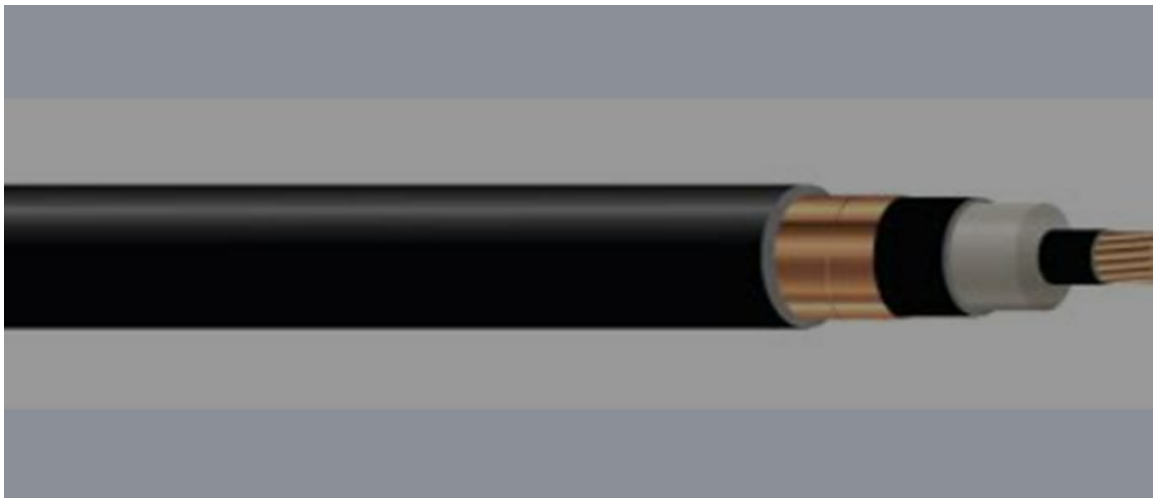
14.1.23. A list of all supply references for similar cable showing voltage level, conductor, quantity, year installed and location of installations.

14.1.24. Any pertinent supporting documentation that certifies compliance with requirements.

14.1.25. Any exceptions to this specification shall be clearly stated including factory acceptance tests (routine and sample tests).

14.1.26. Table of compliance completed by the bidder with reference. (See Appendix 1)

15.TYPICAL DRAWING:



– End of Specification –

Appendix

Appendix 1. Table of Compliance

Line	Criteria	Description	Pass/Fail (P / F)	Comments
1	**Specification**	The Proponent complies with the corresponding specification document (4752.342)		
2	**Industry Standards**	The Proponent complies with the industry standards established in the specification document (ICEA, AEIC, ASTM, NEMA, IEEE).		
3	**Material**	Copper conductor, 46 kV Solid Dielectric insulated, concentric neutral, linear low-density polyethylene (LLDPE) jacketed power cable.		
4	**Dimensions**	Complies with all require dimensions of the cable.		
5	**Conductor Requirement**	Consist of a single compressed stranded, Class B, uncoated, soft drawn or annealed.		
6	**Conductor Shield Requirements**	Thickness of the extruded super-smooth semiconducting shield shall be as per AEIC CS8-20. Maximum volume resistivity: 1000 ohm-mt Be firmly bonded to the overlying insulation for all operating temperatures and shall be consistent with the requirements AEIC CS8-20. Easily removable from the conductor. Extrusion shall be free of voids larger than three (3) mils. Voids larger than two (2) mils shall not exceed 30 per cubic inch. Operating temperature equal to that of the insulation.		
7	**Primary cable insulation Requirements**	Thickness shall be 0.445 in (11.30 mm) ultra-clean, super smooth, tree retardant crosslinked polyethylene in accordance with AEIC CS8-20. Have an eccentricity no greater than 8%.		

		Maximum moisture content: 100 ppm.		
8	**Insulation shielding Requirements**	Extruded and consist of black semiconducting smooth removable thermoset material applied directly over the insulation. Mean tension to remove the insulation shield at room temperature: 9 lb (4.1 kg). It shall comply with the requirements of AEIC CS8-2020. Dry curing and true triple head extrusion shall be employed for the three layers. The eccentricity of the cable shall not exceed 8 %		
9	**Helix Tape Requirements**	Two (2) soft drawn or annealed bare copper tapes, 5 mils minimum thickness each, shall be applied with a minimum overlap of 20 percent as follows: The first tape: helically applied in a clockwise direction. The second tape: helically applied over the first tape in a counterclockwise direction.		
10	**Longitudinal Water Blocking Requirements**	A longitudinal moisture barrier shall be applied over the insulation shield and consisting of a semiconducting water swellable moisture barrier tape. The tape must permit thermal expansion and contraction of the cable core between 0 °C and 105 °C. The copper screen wires, and the counter helix tape shall be covered with sufficient layers of tape. The interstices between the wires shall be blocked with a moisture blocking compound. The blocking compound shall be a high viscosity polymeric-based thermoplastic which adheres to metal and polymeric materials and is compatible with semiconducting and insulation materials.		
11	**Concentric Wire Shield Requirements**	A copper wire screen with sufficient capacity to carry a fault current of 40,000 amperes for fifteen (15) cycles at 60 Hz using annealed copper wires applied over the moisture barrier tape.		

		Minimum length of lay for the copper drain wires: 6.5 times the diameter of the cable. Conform to the requirements of sizing and metal characteristics as specified in ICEA S-93-639-2022 and ICEA P-45-482-2023. For the purposes of determining the fault current capability, assume that the wire shield is at 10C° below rated conductor temperature at the onset of the fault and indicate the maximum allowable wire shield temperature permissible in SUPPLIER's cable design.		
12	**Metallic Shead**	A nonmagnetic metallic sheath consisting of a copper foil laminate moisture barrier shall be longitudinally applied over the copper shield wires and longitudinal water blocking tapes. Minimum thickness of copper laminate moisture barrier: 6 mils and one-half inch overlap sealed with hot melt adhesive. The surface of the copper foil laminate metallic sheath shall have a layer of hot-melt non-conductive copolymer bonded to the polyethylene jacket. The heat of extrusion during application of the polyethylene jacket shall bond the outer coating of the copper laminate sheath to the cable jacket to form the bonded laminate sheath. The overlap is sealed by inserting hot melt adhesive into the overlap to complete the moisture barrier. The copper laminate sheath must allow for thermal expansion and contraction of the insulation for conductor temperatures between 0ºC and 105ºC and be free of any wrinkles at the overlap. Qualification of copper laminate moisture barrier shall be in accordance with AEIC CG13-11.		

13	**Insulating Jacket Requirements**	Cable shall be constructed with an overall encapsulating linear low-density polyethylene (LLDPE) jacket conforming to the requirements of ICEA S-97-682-2023 and AEIC CS-8-2020. The minimum average jacket thickness and cable markings shall be in accordance with ICEA S-97-682-2023. A 10 mils thermoplastic semi-conducting outer layer shall be applied over the jacket, for performing a jacket integrity test after cable installation.		
15	**Special Requirements**	Compliance with special requirements section		
16	**Proposal information**	Complies with requirements of proposal information.		
17	**Warranty**	Complies with warranty requirements		
18	**Qualification & Testing**	Complies with all requirements for qualification & testing per this specification and industry standards.		
19	**Routine & Sample Testing**	Complies with all requirements for Routine & Sample Testing per this specification and industry standards.		

NOTE: This table is only a check list for reference. The compliance shall be with the complete document. Marking a PASS in the table won't be accepted as a compliance without the technical information required to certify it.

4752.342 V02 46 kV Solid Dielectric Underground Power cable

Final Audit Report 2024-11-20

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