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Aluminum-Clad Messenger Wire

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Distribution

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Related/Referenced Documents

N/A

Version History

Version	Date	Revision Comments
1	Nov. 18, 2021	PREPA to LUMA Format for Item 042-00903.
2	Feb. 23, 2022	Item 046-00235 included, and document name changed.
3	Nov. 20, 2023	General format modifications. Table of Compliance (TOC) added. Item 046-00235 removed, and document name changed.
4	Jan. 18, 2024	Section 8 and TOC modified.



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Item Version History

Warehouse Catalog #	Asset Suite #	Version	Date
042-00903	37634	10	1/18/2024



1. Introduction

This is a general specification that covers the minimum requirements for an aluminum clad messenger wire to be used in the distribution system in Puerto Rico. Further information will be provided by LUMA Energy at the time of order placement and will provide information on site specific conditions, quantity, and other requirements. This document includes the general electrical and mechanical characteristics of the equipment/material.

2. Special Requirements

- 2.1. Samples shall be furnished as requested by LUMA Energy. All documented testing required by applicable specifications and standards shall be submitted with product samples, including mechanical drawings, prior to approval. Vendors that have supplied this equipment/material to PREPA/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, the vendor must re-submit sample to the material specification engineer for approval before shipping. The equipment/material will be received at the LUMA's general warehouse (011) at Palo Seco, Puerto Rico. Shipping will include transportation and unloading at the indicated warehouse.
- 2.2. Product shall be manufactured in accordance with the latest issue ASTM, NEMA, IEEE and ANSI specification. When conflicts occur between purchaser's specifications and the ASTM, NEMA, IEEE, or ANSI specifications, the purchaser's specification shall prevail. The product shall be furnished as described here in this specification or as amended by the purchase order. If there are any changes or updates to the supplier's procedures, quality routines, and/or inspection layout, the supplier shall be liable for all costs incurred for products that are refused/rejected.
- 2.3. Upon inspection of incoming equipment/material, the purchaser reserves the right to refuse product shipments and to determine the acceptability or rejection of product received. The supplier shall be liable for all costs incurred for products that are refused/rejected.
- 2.4. Vendor shall submit two (2) quotes: one for conductor on steel reel and another for conductor on wood reel. See detail of reels in section 6.

3. Literature

Descriptive and technical literature must be supplied by the vendor at time of bidding. This literature may include, but is not limited to details of material, drawings, documented testing, and instructions for use and installation. Failure to submit documents on time will cause bidder disqualification. Evidence of PREPA's and/or LUMA Energy's approval of the equipment/material shall be supplied by the vendor if requested by LUMA Energy.

4. Markings

- 4.1. Cable reels shall be marked outside with LUMA Energy's purchase order, item number, description of wire & specification date, code name, net length & size, gross & tare weights, and manufacturer's name & lot/production number.
- 4.2. Packaging labels and tags shall be waterproof.

5. Compatible with

- 5.1. For compatible suppliers/manufacturers and models see Table 1.
- 5.2. These models are examples of the equipment/material described in this document and do not represent a preference. LUMA will evaluate equally any model not listed here during any acquisition event.

6. Packaging

- 6.1. All equipment/material shall be packaged and marked in such a way as to facilitate handling and protection from damage and that the receiving warehouse can readily identify it and send it, in one complete unit, to a field location without opening crates or boxes to sort items and/or parts.
- 6.2. Shall be shipped in a non-returnable new reel containing 5,000 ft (1,524 m) of continuous conductor. Conductor won't be accepted by sections less than 5,000 ft in the same reel.
- 6.3. Treated wood reels shall be made conforming with AWPA (U1 & T1-17), with a retention of 0.3 lbs/cu ft (4.81 kg/cu m) of pentachlorophenol or chromated-copper-arsenate (CCA).
- 6.4. Treatment material shall comply with AWPA P9.
- 6.5. Steel reels shall consist of a high-pressure hot phosphate wash and bonding agent finish, zinc chromate-iron oxide primer, and a final enamel coat to provide the necessary extra durability.
- 6.6. Reels shall have a minimum arbor hole diameter of 2.5" (6.35 cm).
- 6.7. The upper layers shall be protected with pieces of wood along the transverse section of the reel for cable protection with NEMA level 2 wrapping of protective material and the cable ends shall be protected from water entrance or any damage by means of an adequate seal.
- 6.8. Cable ends shall be firmly and properly secured.

7. Number Per Package (Logistics)

Standard package: 5,000 ft (1,524 m) per reel or as requested by LUMA.

8. Acceptance Criteria

- 8.1. Test required: certified by external laboratories.
- 8.2. Latest applicable codes, standards, and other regulations: ANSI/ASTM B416, AWPA (P9, U1 & T1).
- 8.3. NEMA Standard Publication No. WC 26: Binational Wire and Cable Packaging Standard.

9. Description

- 9.1. This wire is used in construction and maintenance for overhead ground and as a supporting element for a suspended aerial cable.
- 9.2. Shall be suitable for corrosive environments.
- 9.3. Shall consist of concentric lay stranded hard-drawn aluminum-clad steel wires as per ASTM B416.
- 9.4. The minimum cladding thickness of the aluminum clad steel wire shall be 10% of the wire radius and the cladding shall have a continuous strong metallic bond to the steel core to avoid cracking or flaking.
- 9.5. For strands, diameter, weight, and strength see table 1.

10. Inspection

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

11. Warranty

The cable shall be designed and manufactured to provide a minimum life expectancy of 40 years. The supplier/manufacturer shall guarantee that each part of the finished cable has been manufactured in accordance with the requirements of the referenced specifications and standards. The supplier/manufacturer shall agree to replace any length of conductor for two years after the date of delivery if defective material or workmanship is found during installation or if the cable fails from normal use during its first year of service free of cost for the purchaser. In either case, the supplier/manufacture shall be given a reasonable opportunity to inspect such defect or failure. A technical report detailing the cause(s) of the defect and the corrective measures implemented to prevent recurrence shall be provided upon request of the purchaser.



12. Table 1: Warehouse and Asset Suite Identification Number

Item	Warehouse Catalog #	Asset Suite #	Minimum Ultimate Strength	Strands & Diameters	Approximate Overall Diameter	Weight/ 1000 ft (km)	Compatible Model
Cable 7/16" (7 - #7)	042-00903	37634	19,060 lbf (84.8 kN)	7 0.1327" ea. (3.37 mm) ea.	7/16" (11.1 mm)	330 lbs (491 kg)	AWG (ALUM-15)

— End of Specification —



Document Title: Aluminum-Clad Messenger

Wire

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Appendix



Appendix 1: Table of Compliance

Line	Criteria	Description	Pass/Fail (P / F)	Comments
1	Specification	The Proponent complies with the corresponding specification document 4350.064.		
2	Industry Standards	The Proponent complies with the industry standards established in this document. (ANSI/ASTM, AWWA, NEMA).		
3	Material	Hard-Drawn Aluminum-Clad Steel Wire		
4	Product Requirement	Suitable for corrosive environments.		
		Concentric Lay Stranded		
		Minimum Cladding Thickness: 10% of the wire radius.		
6	Size	#7		
7	Strands	7		
8	Approx. OD	7/16"		
9	Ultimate Strength	19,060 lbf		
10	Weight	330 lb/kft		











4350.064 Aluminum Clad Messenger Wire (1-18-24)

Final Audit Report

2024-01-18

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