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ADVISORY CIRCULAR

DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION

W. V. Vitale

SUBJECT: SPECIFICATION FOR L-824 UNDERGROUND ELECTRICAL CABLE FOR
AIRPORT LIGHTING CIRCUITS

1. **PURPOSE.** This advisory circular describes the requirements for L-824 electrical cable.
2. **CANCELLATION.** Advisory Circular 150/5345-7B, Specification for L-824 Underground Electrical Cables for Airport Lighting Circuits, dated March 18, 1971, is cancelled.
3. **REFERENCES.** Documents referenced in the specification are listed in paragraph 2 of the specification.
4. **EXPLANATION OF REVISIONS.** This specification has been rewritten to specify that electrical cables that conform to certain options of Insulated Power Cable Engineers Association (IPCEA) Publications Numbers S-19-81 and S-66-524 will satisfy the requirements for underground airport lighting circuits.
5. **HOW TO OBTAIN THIS CIRCULAR.** Additional copies of this circular, AC 150/5345-7C, Specification for L-824 Underground Electrical Cable for Airport Lighting Circuits, may be obtained "free of charge" from the Department of Transportation, Publications Section, TAD-443.1, Washington, D.C. 20590.

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Initiated by: AAS-550

SPECIFICATION FOR L-824 UNDERGROUND ELECTRICAL CABLE FOR AIRPORT
LIGHTING CIRCUITS

1. SCOPE AND CLASSIFICATION.

1.1 Scope. This specification sets out the requirements for commercial standard underground electrical cable to be used in airport lighting circuits.

1.2 Classification. This specification provides for three types of underground electrical cable.

1.2.1 Type A. Single and multiple conductor cable with 600 volt rubber insulation and an overall jacket.

1.2.2 Type B. Single and multiple conductor cable with 5,000 volt ozone resistant insulation and an overall jacket.

1.2.3 Type C. Single and multiple conductor cable with 600 volt or 5,000 volt, cross-linked polyethylene insulation. Multiple conductor cables will have a jacket applied overall.

2. APPLICABLE DOCUMENTS.

2.1 General. The following documents, of the issue in effect on the date of request for approval, form a part of this specification to the extent specified herein.

2.1.1 Insulated Power Cable Engineers Association (IPCEA) Publications.

S-19-81 Rubber-Insulated Wire and Cable for the Transmission and Distribution of Electrical Energy

S-66-524 Cross-Linked-Thermosetting-Polyethylene-Insulated Wire and Cable for the Transmission and Distribution of Electrical Energy

Copies of IPCEA publications may be obtained from National Electrical Manufacturers Association, 155 East 44th Street, New York, New York 10017.

3. REQUIREMENTS.

3.1 General. The cable shall be a first-grade commercial product, free from defects in material and workmanship that may affect either life or performance. Manufacture type A and type B cables in accordance with the requirements of IPCEA S-19-81 and type C cable in accordance with the requirements of IPCEA S-66-524. Table 1 lists the requirements where IPCEA S-19-81 and S-66-524 permit two or more options.

3.2 Marking. The cable shall be marked with the manufacturer's name or trademark, cable trade names or catalog number, conductor size, and voltage rating. The markings shall be spaced at least every two feet and should not affect the smoothness of the cable surface.

4. QUALITY ASSURANCE PROVISIONS.

4.1 Qualification Procedures. A manufacturer who wants his products listed in AC 150/5345-1, Approved Airport Lighting Equipment, as having met the requirements of this advisory circular shall submit his requests for approval, in writing, to Federal Aviation Administration (FAA), Airports Service, Airports Engineering Division, AAS-500, Washington, D.C. 20591, at least 2 weeks prior to start of qualification tests. All tests shall be conducted in facilities, at either the manufacturer's plant or an independent testing laboratory, that are acceptable to FAA. Tests may be witnessed by an authorized FAA representative, but approval will be granted only upon receipt by FAA of satisfactory certified test reports. All testing costs shall be borne by the manufacturer. Upon approval of a manufacturer's cable as conforming to the requirements of this specification, the manufacturer's name or trademark, the manufacturer's trade name or catalog number, etc., will be listed in AC 150/5345-1. Manufacturers need qualify for only such types, voltage ratings, and/or sizes of cables they propose to manufacture. Separate tests are required for single conductor and multiple conductor cable in each type and voltage rating. Qualification of shielded cable may be acceptable as qualification of unshielded cables of the same type and voltage rating. Qualification of one AWG size conductor may be acceptable as qualification for all other AWG sizes of the same type and voltage rating.

4.2 Production Testing. Production testing shall be as specified in Table 1.

4.3 Production Test Records. At any time after approval has been granted under this specification, the manufacturer shall furnish a certified copy of the production test report for any production run of approved cable that was manufactured within the 24 months immediately preceding the date of the request for the test report.

TABLE I

TYPE	A	B	C	
	600 V.	5000 V.	600 V.	5000 V.
CONDUCTOR Material, Copper, coated and uncoated IPCEA S-19-81, Par. 2.1.1 IPCEA S-66-524, Par. 2.1.1 Stranding, Class B (7 strand) IPCEA S-19-81, Table 2-2 IPCEA S-66-524, Table 2-2 Size, AWG Shielding IPCEA S-19-81, Par. 2.4 IPCEA S-66-524, Par. 2.4	X X #12-4	X X #8-4 Optional	X X #12-4	X X #8-4 Optional
INSULATION Material Synthetic rubber, heat and moisture resisting IPCEA S-19-81, Par. 3.11 IPCEA S-66-524, Par. 3.13 Ozone-resisting natural or synthetic rubber IPCEA S-19-81, Par. 3.14 Ozone-resisting Butyl rubber IPCEA S-19-81, Par. 3.15 Cross-linked Polyethylene IPCEA S-66-524, Thickness IPCEA S-19-81, Table 3-3 IPCEA S-66-524, Par. 3.3 IPCEA S-66-524, Table 7.6-1	X X X	X X X X	X X	X Non-shielded

TABLE I (CONTINUED)

TYPE	A	B	C	
	600 V.	5000 V.	600 V.	5000 V.
INSULATION (Concluded) Thickness IPCEA S-66-524, Table 7.6-2 Shielding Flat tinned copper tape IPCEA S-19-81, Par. 4.1.1.1 (Multiple Cond.) IPCEA S-66-524, Par. 4.1.1.1 (Multiple Cond.) Metal braid IPCEA S-19-81, Par. 4.1.1.2 (Single Cond.) IPCEA S-66-524, Par. 4.1.1.2 (Single Cond.)		Optional		Shielded Optional Optional
JACKET Material IPCEA S-19-81, Section 4.13 IPCEA S-66-524, Section 4.3 Thickness IPCEA S-19-81, Table 4-18 IPCEA S-66-524, Table 4-6	X X	X X	Mult. cond. X	Mult. cond. and Shielded only Shielded and Mult. cond only

TABLE I (CONCLUDED)

TYPE	A	B	C	
VOLTAGE RATING	600 V.	5000 V.	600 V.	5000 V.
CABLING Multiple-conductor cables shall be assembled in accordance with IPCEA S-19-81, Part 5 IPCEA S-66-524, Part 5	X	X	X	X
ELECTRICAL AND PHYSICAL TESTS In accordance with applicable methods of IPCEA S-19-81, Part 6 IPCEA S-66-524, Part 6	X	X	X	X