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Concentric Neutral Cables  
Rated 5 Through 46KV



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***Concentric Neutral Cables  
Rated 5 Through 46KV***

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## FOREWORD

This Standards Publication for Concentric Neutral Cables rated 5 to 46 kV (ICEA S-94-649) was developed by the Insulated Cable Engineers Association Inc. (ICEA).

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The ICEA expresses thanks to the Association of Edison Illuminating Companies, Cable Engineering Committee for providing the basis for some of the material included herein through their participation in the Utility Power Cable Standards Technical Advisory Committee (UPCSTAC), and to the Institute of Electrical and Electronics Engineers, Insulated Conductors Committee, Subcommittee A, Discussion Group A-14 for providing user input to this Standard.

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## **Section 1 GENERAL**

### **1.1 SCOPE**

This standard applies to materials, constructions, and testing of crosslinked polyethylene, tree retardant crosslinked polyethylene, ethylene alkene copolymer and ethylene propylene rubber insulated single conductor or multiplexed concentric neutral cables rated 5 to 46 kV which are used for the transmission and distribution of electrical energy.

### **1.2 GENERAL INFORMATION**

This publication is so arranged to allow selection from two design concepts, one known as "DISCHARGE-FREE" and the other as "DISCHARGE-RESISTANT", as well as allowing for selection of those individual components (such as conductors, insulation type and thickness, concentric neutral sizes, optional jackets, etc.) as required for specific installation and service conditions.

Sections 2 to 7 cover the major components of cables.

Section 2 - Conductor

Section 3 - Conductor Shield

Section 4 - Insulation

Section 5 - Extruded Insulation Shield

Section 6 - Concentric Neutral Conductor (reference ANSI/ICEA S-97-682 for Utility Shielded Power Cable designs)

Section 7 - Jackets

Each of these Sections designates the materials, material characteristics, dimensions, and tests applicable to the component and, as applicable, to the design concept.

Section 8 – Cable Assembly and Identification

Section 9 – Production Tests

Section 10 – Qualification Tests

Appendices

U.S. customary units, except for temperature, are specified throughout this standard. Approximate International System of Units (SI) equivalents are included for information only.

### **1.3 INFORMATION TO BE SUPPLIED BY PURCHASER**

When requesting proposals from cable manufacturers, the prospective purchaser should describe the cable desired by reference to pertinent provisions of these standards. To help avoid misunderstandings and possible misapplication of the cables, the purchaser should also furnish the following information.

#### **1.3.1 Characteristics of Systems on which Cable is to be Used**

The purchaser should describe the following system characteristics to the cable manufacturer.

- a. load current
- b. frequency (hertz)
- c. normal operating voltage between phases or phase to ground on single phase circuits
- d. number of phases and conductors
- e. fault current and duration
- f. cable insulation level