



STANDARD FOR  
UTILITY SHIELDED POWER CABLES  
RATED 5 THROUGH 46 KV

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INSULATED CABLE ENGINEERS ASSOCIATION, Inc.



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**ICEA S-97-682-2013**

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## FOREWORD

This Standards Publication for Utility Shielded Power Cables Rated 5 to 46 kV (ICEA S-97-682) was developed by the Insulated Cable Engineers Association Inc. (ICEA).

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Requests for interpretation of this Standard must be submitted in writing to the Insulated Cable Engineers Association, Inc., P. O. Box 1568, Carrollton, Georgia 30112. An official written interpretation will be provided. Suggestions for improvements gained in the use of this Standard will be welcomed by the Association.

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## Part 1 GENERAL

### 1.1 SCOPE

These standards apply to materials, constructions, and testing of crosslinked polyethylene, tree retardant crosslinked polyethylene and ethylene propylene rubber insulated single conductor or multiplexed shielded power 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, metallic shield type, jackets, etc.) as required for specific installation and service conditions.

Parts 2 to 7 cover the major components of cables:

Part 2 - Conductor

Part 3 - Conductor Shield

Part 4 - Insulation

Part 5 - Extruded Insulation Shield

Part 6 - Metallic Shielding (See ANSI/ICEA S-94-649 for Concentric Neutral Cable)

Part 7 - Jacket

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

Part 8 covers the assembly and identification of cables.

Part 9 covers production test procedures applicable to cable component materials and to completed cables.

Part 10 covers qualification test procedures.

Part 11 contains appendices of pertinent information.

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

- 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.
- g. Minimum temperature at which cable will be installed.