



**STANDARD FOR
WEATHER-RESISTANT
POLYETHYLENE COVERED
CONDUCTORS**

Approved by

AMERICAN NATIONAL STANDARDS INSTITUTE

July 7, 2001

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INSULATED CABLE ENGINEERS ASSOCIATION, Inc.

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FOREWORD

ICEA standards and guides are adopted in the public interest and are designed to eliminate misunderstanding between the manufacturer and user and to assist the user in selecting and obtaining proper products for his particular need. Existence of an ICEA standard or guide does not in any respect preclude the manufacture or use of products not conforming to the standard or guide.

The user of this Standard is cautioned to observe any applicable health or safety regulations and rules relative to the manufacture and use of cable made in conformity with this Standard. This Standard hereafter assumes that manufacture, testing, installation and maintenance of cables defined by this publication will be performed only by properly trained personnel using suitable equipment.

Requests for interpretation of this Standard must be submitted in writing to the Insulated Cable Engineers Association at the address below. 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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TABLE OF CONTENTS

<u>Part</u>		<u>Page</u>
PART I	GENERAL	
	1.1 Scope	1
	1.2 Design Options	1
	1.3 Operating Conditions	2
	1.4 Testing and Test Frequency	2
	1.5 Test Methods	3
PART 2	CONDUCTORS	
	2.0 General	4
	2.1 Physical and Electrical Properties	4
	2.1.1 Copper Conductors	4
	2.1.2 Aluminum Conductors	4
	2.1.3 Aluminum Conductor, Coated-Steel Reinforced ..	5
	2.1.4 Aluminum Conductor, Aluminum-Clad Reinforced	5
	2.1.5 Composites of Copper and Copper-Clad Steel ...	5
	2.2 Conductor Size Units	5
	2.3 Conductor dc Resistance Per Unit Length	5
	2.3.1 Direct Measurement of dc Resistance Per Unit	
	Length	6
	2.3.2 Calculation of dc Resistance Per Unit Length	6
	2.4 Conductor Rated Strength	7
	2.5 Conductor Diameter	7
PART 3	COVERING	
	3.1 Material	8
	3.1.1 Requirements for 75° C Covering for Normal	
	Service Operation	8
	3.1.2 Requirements for 90° C Covering for Normal	
	Service Operation	8
	3.2 Covering Thickness Requirements	8
	3.3 Covering Physical Requirements	8
	3.4 Separator	8
PART 4	PERFORMANCE REQUIREMENTS FOR FINISHED	
	CONDUCTORS	
	4.1 General	17
	4.2 Strength of Covered Conductors	17
	4.2.1 Tests for Rated Strength of Conductors	17

<u>Part</u>		<u>Page</u>
PART 5	TEST METHODS FOR COVERINGS	
	5.1 Method for Measuring Covered Physical and Air Oven Aging Properties	18
	5.2 Method for Measuring Covering Heat Deformation (Distortion)	18
	5.3 Method for Measuring Covering Hot Creep	18
	5.4 Method for Measuring Absorption Coefficient	18
PART 6	QUALIFICATION TESTS	
	6.1 General	19
	6.2 Method for Determining Resistance to Environmental Stress Cracking	19
	6.3 Sunlight Resistance of Covering Materials with Less than 2 Percent Carbon Black	19
	6.3.1 Qualification	19
	6.3.2 Sunlight Resistance	19
	6.3.2.1 Carbon-Arc Weather-O-Meter	19
	6.3.2.2 Xenon-Arc Weather-O-Meter	20
	APPENDICES	
APPENDIX A	Titles and Dates of Industry Standards Referenced in this Document	21
APPENDIX B	Recommended Bending Radii for Covered Conductors	23
APPENDIX C	English/Metric Conversion	23

	<u>TABLES</u>	<u>Page</u>
3-1	Aluminum 1350 Conductor Constructions	9
3-1 (Metric)	Aluminum 1350 Conductor Constructions	10
3-2	Aluminum Conductors, Coated-Steel Reinforced (ACSR), and Aluminum-Clad Steel Reinforced (ACSR/AW) Constructions	11
3-2 (Metric)	Aluminum Conductors, Coated-Steel Reinforced (ACSR), and Aluminum-Clad Steel Reinforced (ACSR/AW) Constructions	12
3-3	Aluminum-Alloy 6201-T81 Conductor Constructions	13
3-3 (Metric)	Aluminum-Alloy 6201-T81 Conductor Constructions	13
3-4	Copper Conductor Constructions	14
3-4 (Metric)	Copper Conductor Constructions	15
3-5	Covering Physical Requirements	16
6-1	Qualification Test Requirements	20

Part 1 GENERAL

1.1 SCOPE

This standard applies to the materials, constructions, and testing of weather-resistant polyethylene covered conductors, rated for 75 °C or 90 °C normal service temperature. These conductors are intended primarily for the distribution of electrical energy under normal conditions of overhead (aerial) installations and service outdoors.

The coverings carry no voltage rating, and the conductors must be installed on insulators adequate for the service voltage. The user may want to give consideration to the dielectric compatibility of the covering, insulator, and conductor/insulator tie.

When reference is made in this publication to an industry standard, that reference is to the standard with the title and date of issue listed in Appendix A. Where a conflict exists between the requirements of this standard and those of a referenced standard, the requirements of this standard shall apply.

The recommended bending radii for conductors is given in Appendix B.

U.S. Customary units, except for temperature, are specified throughout this standard and are the controlling units. International System of Units (SI) equivalents are also included. The rounding-off method of ASTM E 29 shall be used for determining conformance with requirements. To convert from an English unit to the appropriate SI unit, multiply the value of the English unit by the appropriate number from Appendix C.

1.2 DESIGN OPTIONS

The user of this standard should recognize that it covers many options. The user should select the necessary options required for a complete description of the covered conductors.

This standard covers constructions with substantially different rated strengths. The user of this standard should determine that the rated breaking strength of each conductor used for each application is adequate for that application, as determined by paragraph 4.2 and the relevant ASTM standard for the bare version of that conductor, and the requirements of the latest edition of the National Electrical Safety Code.

The Aluminum Association Publication No. 50 "Code Words for Overhead Aluminum Electrical Conductors", lists the code words that have been registered for aluminum conductors. Code words in Tables 3-1 through 3-3 are for information only.

1.3 OPERATING CONDITIONS

The design and construction of the cable shall be such that the cable will operate satisfactorily under the normal conditions of overhead line (aerial) service maximum conductor temperatures as follows:

Conductor Operating Temperature, °C			
Covering Type	Normal Service	Emergency Overload	Short Circuit
Thermoplastic Polyethylene	75	95	150
Crosslinked Polyethylene	90	130	250

Exception: When adequate knowledge of the thermal characteristics of a cable environment is lacking, the permissible conductor temperature should be reduced by 10° C or in accordance with available data.

1.3.1 The 75° C or 90° C "Normal Service Operation" temperature is the highest allowable temperature attained by the hottest portion of a cable line during daily operating load cycles. It shall be used in ampacity calculations where adequate information is known about the overall thermal characteristics of the cable environment to assure that the normal service temperature will not be exceeded.

1.3.2 The 95° C or 130° C "Emergency Overload Operation" temperature is the highest allowable temperature attained by the hottest portion of a cable line during an emergency. Operation at that overload temperature shall not exceed 100 hours in any twelve consecutive months or 500 hours during the lifetime of the cable.

1.3.3 The 150° C or 250° C "Short Circuit Operation" temperature is the highest allowable temperature attained by a phase conductor along any part of the cable line during a short circuit of a specified magnitude and number of cycles. See the latest edition of ICEA Publication P-32-382.

1.4 TESTING AND TEST FREQUENCY

All cables shall comply with the requirements given in Parts 2 and 3.

This standard does not specify any frequency for sampling (for test) of cable products or components. One program of sampling frequencies is given in the latest edition of ICEA T-26-465/NEMA WC 54.

1.5 TEST METHODS

Except where test and measurement methods are specifically detailed or modified by this standard, the methods and procedures used to determine compliance with the requirements are those applicable in the latest edition of ICEA T-27-581/NEMA WC 53 and the other industry standards referenced in this standard.