

**ICEA STANDARD FOR  
COAXIAL AND COAXIAL/TWISTED PAIR  
COMPOSITE AERIAL SERVICE WIRES  
TECHNICAL REQUIREMENTS**

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**INSULATED CABLE ENGINEERS ASSOCIATION, INC.**

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15 Inverness Way East  
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Secretary  
 Insulated Cable Engineers Association, Inc.  
 Post Office Box 1568  
 Carrollton, GA 30112, U.S.A.  
 United States of America

This Standard was approved by ICEA on June 8, 2005. The members of the ICEA Communications Cable Division, Working Group 675, who participated in this project were:

D. K. Baker  
 J. Kincaid

L. Hazy  
 B. Pope

T. Zou  
 K. Chauvin

The following participated in an advisory capacity to Working Group 675:

G. Hessler            RUS

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**ACRONYMS, ABBREVIATIONS AND SYMBOLS**

A	apparent absorption coefficient
ac	alternating current
ANSI	American National Standards Institute
ASTM	American Society for Testing and Materials
AWG	American Wire Gauge
°C	degrees of temperature, Celsius scale
CAS	Chemical Abstract Services
dB	decibels
dc	direct current
EIA	Electronics Industry Alliance
°F	degrees of temperature, Fahrenheit scale
ft	foot or feet
g	gram(s)
Hz	Hertz
ICEA	Insulated Cable Engineers Association
ISDN	Integrated Services Digital Network
ISO	International Organization for Standardization
kft	kilofeet or kilofeet
kg	kilogram
kHz	kilohertz
km	kilometer
kPa	kilopascal
LAN	Local Area Network
lbf	pound of force
m	meter
Mb	megabits
mg	milligram
MHz	megahertz
min.	minimum
ml	milliliter
mm	millimeter
mm <sup>2</sup>	square millimeter
MPa	megapascal
N	Newton
NESC	National Electrical Safety Code
NFPA	National Fire Protection Association
nF	nanofarad
NID	Network Interface Device
NIU	Network Interface Unit
%	percent
pF	picofarad
POTS	Plain Old Telephone Service
psi	pounds per square inch
PVC	polyvinyl chloride
RF	radio frequency
rms	root-mean-square

**ACRONYMS, ABBREVIATIONS AND SYMBOLS - continued**

SCTE	Society of Cable Telecommunication Engineers
sec	second
T1	North American Digital Hierarchy Line Code – Equivalent to 1.544 Mb/sec
UL	Underwriters Laboratories
V	volt
WAN	Wide Area Network
~	approximation symbol
°	degrees symbol, temperature or angle
"	inches or inch symbol

## COAXIAL AND COAXIAL/TWISTED PAIR COMPOSITE AERIAL SERVICE WIRES TECHNICAL REQUIREMENTS

### SECTION 1 GENERAL

- 1.1 **PURPOSE:** The purpose of this Standard is to establish generic technical requirements that may be referenced by individual telecommunications wire specifications covering products intended for the aerial outside plant use. The parameters covered provide material, construction, and performance requirements.

Because this Standard does not cover all details of individual wire designs, it cannot be used as a single document for procurement of product. This Standard is intended to be used in conjunction with an individual product specification that provides complete design details for the specific wire type and designates the applicable performance requirements. Such individual wire specifications may be prepared either by the user or the manufacturer. The specification designated for procurement is at the option of the user.

- 1.2 **SCOPE:** This Standard covers mechanical and electrical requirements of service wires containing at least one coaxial core and optionally up to six twisted pairs, used for service applications to extend the telephone/multimedia circuit from the distribution terminal to the subscriber's station protector NID (Network Interface Device) or protected NIU (Network Interface Unit).

Furthermore, a distinction between **Type I** and **Type II** is made with regard to transmission characteristics and shielding materials of the coaxial unit.

Aerial Service Wire is intended to be self supporting and shall contain strength members to accommodate the appropriate requirements of this Standard. The self supporting properties may be accomplished by utilizing a zinc coated steel strength member or synthetic fibers as strength members embedded in a suitably shaped jacket.

The coaxial unit is intended to be used for either RF or compressed digital video and radio transmissions. This unit shall also allow bi-directional traffic. The coaxial unit should also be capable of carrying high speed digital signals for LAN/WAN applications (such as T1, ISDN, etc.) as well as POTS (Plain Old Telephone Services). The network supporting these protocols will be based upon physical lines having a characteristic impedance of 75 Ohms. The coaxial units are specified in three and four common sizes for **Type I** and **Type II** respectively, to accommodate different drop lengths.

The twisted pair wires are intended for voice and data transmission and their characteristics are based upon existing system requirements and projected application needs.