ICEA STANDARD
FOR
INDOOR OPTICAL FIBER CABLE

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TABLE of CONTENTS

SECTION **PAGE**

SECTION **PAGE**

TABLES

FIGURES

ANNEXES

ICEA STANDARD
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PART 1

INTRODUCTION

1.1 SCOPE

This Standard covers fiber optic communications cables intended for use in the buildings of communications users. Materials, constructions and performance requirements are included in the Standard, together with applicable test procedures. Refer to ICEA S-104-696 for optical fiber communications cables intended for indoor-outdoor use. ICEA 696 contains specific requirements for weatherized indoor cables in Annex B.

Refer to other ICEA optical cable product Standards which may have relevance to cables of this Standard:

- ICEA S-87-640 for optical fiber cables intended for general outside plant use
- ICEA S-104-696 for optical fiber cables intended for indoor/outdoor use.
- ICEA S-110-717 for optical fiber cables intended for aerial, duct, and buried outdoor and indoor/outdoor drop applications
- ICEA S-115-730 for optical fiber cables intended for Multiple Dwelling Unit (MDU) applications
  Note that the MDU cable application space may overlap that of drop cables, including applications providing drops to single-family homes or businesses.
- ICEA S-120-742 for hybrid optical fiber cables intended for use in limited power circuits.

Products covered by this standard are intended only for operation under conditions normally found in communication systems. Typically, these products are installed both in exposed areas (surface mounted to walls or building baseboards or in non-stationary configurations) and in concealed areas (within walls, attics, etc.), with or without external protection (such as conduit), depending upon product type and specific use. These products normally convey communications signals (voice, video, data, etc.) from place to place within a building. Products covered by this Standard may be factory terminated with connectors or splicing modules.

When a hybrid cable (a cable with both optical fibers and metallic conductors) is required, the applicable metallic conductor requirements shall be defined by other standards. See Annex C for a list of applicable ICEA Standards. For power-limited hybrid cables, ICEA 742 defines the optical fiber and metallic conductor cable requirements. For other hybrid cables, the requirements shall be as established by agreement between the end user and the cable manufacturer.

In some cases, an indoor cable may be weatherized for indoor-outdoor use. These cables are covered in more detail in Annex B of ICEA 696 (Weatherized Indoor Cable Requirements), above.

MDU cabling is an emerging system topology for FTTX applications. Cables covered in this standard may be applicable for significant parts of the MDU topology. Please note ICEA 730, above.

The normal temperature ranges for cables covered by this Standard are listed in Table 1-1:

Table 1-1

Temperature Ranges

	All Interconnect (Riser, Plenum, and General Purpose)		Horizontal and Backbone			
			Riser and General Purpose Fire Rated		Plenum Fire Rated	
	℃	(℉)	℃	(℉)	℃	(℉)
Operation	0 to +70	(32 to 158)	-20 to +70	(-4 to 158)	0 to +70	(32 to 158)
Storage and Shipping	-40 to +70	(-40 to 158)	-40 to +70	(-40 to 158)	-40 to +70	(-40 to 158)
Installation	0 to +60	(32 to 140)	-10 to +60	(14 to 140)	0 to +60	(32 to 140)

The standard installation tensile rating for cables is specified in section 7.22.

Standard Minimum Bend Diameter	Interconnect	All Other Cables
Unloaded Condition (Installed):	50 mm	20 x Cable OD
Loaded Condition (During Installation):	100 mm	40 x Cable OD

For cables utilizing bend insensitive fibers, as defined in Part 2, the minimum bend diameters may be reduced by agreement between manufacturer and user.

ICEA 730, the MDU cable Standard, addresses performance in FTTx applications where uncontrolled cable bends are allowed. Only single-mode fibers are included in that Standard; use of multimode fibers in such cables is referenced to ICEA 596. For rugged drop cables per ICEA 730 using multimode fiber, either a 10 mm or 15 mm minimum bend diameter specification should be used. It is understood that the cable may act as a self-bend-limiter to provide mechanical protection for the fiber.

For very small cables, manufacturers may specify a fixed cable minimum bend diameter (e.g., 300 mm) that is independent of the cable outer diameter (OD).

For cables not having a circular cross-section, bend diameter requirements are to be determined using the thickness (minor axis) as the cable diameter and bending in the direction of the preferential bend.

Products covered by this Standard shall comply with the pertinent Fire Resistance Code(s) described in Section 1.9.