ANSI/ICEA S-104-696-2019

Standard for Indoor-Outdoor Optical Fiber Cable

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Standard for Indoor-Outdoor Optical Fiber Cable

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FOREWORD

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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 only properly trained personnel using suitable equipment will perform manufacture, testing, installation and maintenance of cables defined by this Standard.

Requests for interpretation of this ICEA Standard must be submitted in writing (hard copy, email, or fax) to the Secretary of the Insulated Cable Engineers Association. The mailing address of ICEA Headquarters and a Contact link are shown on the ICEA web site:

www.icea.net

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This issue replaces the previous issue of ANSI/ICEA S-104-696-2013 *Standard for Indoor-Outdoor Optical Fiber Cable.* Major changes in this revision include the following:

- Addition of new fiber type
- Update to NEMA format, with amendments
- Fiber bend performance of G.657 fibers
- Addition of Partially-Bonded Ribbons
- Addition of 16 and 32 fiber Ribbon dimensions
- Addition of 1625nm single-mode cabled fiber performance requirements

TABLE of CONTENTS

SECTION **PAGE**

SECTION **PAGE**

TABLES

FIGURES

ANNEXES

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PART 1

INTRODUCTION

1.1 Scope

1.1.1 Products

Indoor-outdoor cables covered by this Standard are generally derived from outdoor cable designs having the thermal and mechanical robustness that makes them suitable for use in the Outside Plant. Material changes are made, as required, to allow the designs to meet their intended fire rating. These cables are expected to comply with all specification requirements stipulated in this Standard.

In cases where outside exposure is limited (less than 10 meters), a weatherized cable may be derived from an indoor cable design (backbone or interconnect). As required in Annex B, the indoor cable weatherized for outdoor complies with the requirements found in ICEA S-83-596. The requirements specified in Part 1 through 8 do not apply, except as invoked by Annex B.

Cable that is compliant with S-104-696 is considered compliant to S-83-596.

1.1.2. Application Space

All designs covered by this Standard are intended for operation under normal conditions found in the outside plant environment and in the communications user's premises. These products normally convey communications signals (voice, video, and data) from point to point or point to multi-point, within and outside buildings. Products covered by this Standard may be factory or field terminated with connectors or splicing modules.

Indoor-outdoor cables are generally used to make interconnections within and between adjacent buildings or to the first outdoor splice point. These cables are fully compatible in the typical outside plant environment, but their attenuation characteristics are not necessarily the same as Outside Plant Communications cables addressed in S-87-640. See Part 8 of this specification.

When a hybrid cable (a cable with both optical fibers and metallic conductors) is required, the applicable metallic conductor requirements shall be as established by agreement between the customer and the cable manufacturer. The requirements of ANSI/ICEA S-84-608 should be considered when determining appropriate requirements.

For 1625 nm fiber performance, see Annex C.

Use S-87-640 for general guidance in other special cases.

1.1.3 Temperature Ranges

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

Table 1-1
Temperature Ranges

Cable Fire Rating	Plenum		Riser and General Purpose	
	°C	(°F)	°C	(°F)
Operation	-40 to +70	(-40 to +158)	-40 to +70	(-40 to +158)
Storage and Shipping	-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)