



***Society of Cable  
Telecommunications  
Engineers***

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**ENGINEERING COMMITTEE  
Interface Practices Subcommittee**

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**AMERICAN NATIONAL STANDARD**

**ANSI/SCTE 123 2011**

**Specification for “F” Connector, Male, Feed-Through**

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## **1.0 SCOPE**

The purpose of this document is to specify requirements for male “F” feed-through connectors that are used in the 75 ohm RF broadband communications industry. This specification applies to SCTE drop cable specifications ANSI/SCTE 74 2003, ANSI/SCTE 71 2008, and ANSI/SCTE 100 2010.

All requirements of this document are measured after installation per manufactures instructions of the cable into the connector.

## **2.0 DEFINITIONS AND ACRONYMS**

- 2.1 Dielectric: The material that is used to insulate the center conductor from contacting the outer housing.
- 2.2 Thread Relief: A reduced diameter section of the threaded surface to allow the tool to run out. This feature is optional.
- 2.3 Center Conductor: The inner conductor of a coaxial cable that is fed through the male “F” feed-through connector.
- 2.4 Reference Plane: The reference plane on the male “F” feed-through connector is the mating surface that seats against the female “F” port. It is also the plane from where all horizontal dimensions are taken.
- 2.5 Parting Line (relevant to casting process only): A raised mark left on the surface of a part as a result of the gap between two halves of a die.

### 3.0 NORMATIVE REFERENCES

The following documents contain provisions, which, through reference in this text, constitute provisions of this standard. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreement based on this standard are encouraged to investigate the possibility of applying the most recent editions of the documents listed below.

#### 3.1 SCTE References

ANSI/SCTE 60 2010, Test Method for Interface Moisture Migration

ANSI/SCTE 74 2003, Specification for Braided 75 Ohm Flexible RF Coaxial Drop Cable

ANSI/SCTE 71 2008, Specification for Braided, 75 Ohm, Coaxial Multi-Purpose Cable

ANSI/SCTE 98 2009, Test Method for Withstand Tightening Torque - 'F' Male

ANSI/SCTE 99 2009, American National Standard Test Method for Axial Pull Connector/Cable

ANSI/SCTE 100 2010, Specification for 75 Ohm Smooth Aluminum Access Cables

ANSI/SCTE 103 2004, Test Method for DC Contact Resistance

ANSI/SCTE 01 2006, Specification for “F” Port, Female, Outdoor

ANSI/SCTE 02 2006, Specification for “F” Port, Female, Indoor

ANSI/SCTE 143 2007, Test Method for Salt Spray

#### 3.2 Standards from other Organizations—Not applicable.

## **4.0 INFORMATIVE REFERENCES**

The following documents may provide valuable information to the reader but are not required when complying with this standard.

- 4.1 SCTE References—Not applicable.
- 4.2 Standards from other Organizations—Not applicable.
- 4.3 Published Materials—Not applicable.

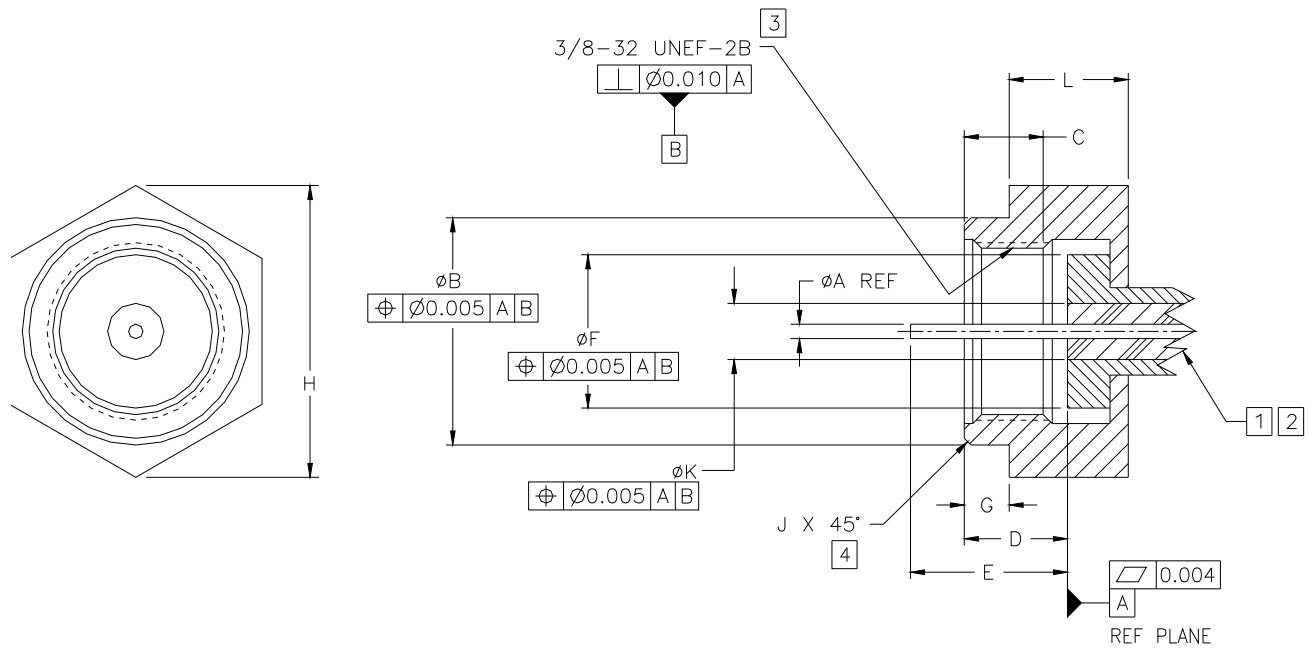
## **5.0 ELECTRICAL REQUIREMENTS**

- 5.1 Impedance: The male “F” feed-through connector shall perform with a nominal impedance of 75 ohms.
- 5.2 Return Loss: Please see equipment specifications that the male “F” feed-through connector is a part of for specific return loss requirements.
- 5.3 The outer conductor junction of the female F port to male “F” feed-through connector shall have a DC contact resistance less than 10 milliohms when tightened to 35 in.-lbs. and tested to ANSI/SCTE 103 2004.
- 5.4 Shielding Effectiveness: The shielding effectiveness for male “F” feed-through connectors, when attached to cables manufactured to SCTE approved standards, shall meet shielding performance levels of an unspliced section of the same cable when both are tested with the same method.

## **6.0 MECHANICAL REQUIREMENTS**

- 6.1 Physical dimensions

The recommended physical dimensions for the male “F” feed-through connector shall be as specified in Figure 1, Table 1, and per the notes below.



**Figure 1 – Recommended Male “F” Feed-Through Connector**

DESCRIPTION	DIM	Mm		inches		NOTES
		MIN	MAX	MIN	MAX	
REF. CABLE CENTER CONDUCTOR DIA.	A	0.64	1.07	0.025	0.042	
SEALING SLEEVE DIAMETER	B	10.41	11.05	0.410	0.435	
NUT THREADED LENGTH	C	3.97	-	0.156	-	3
MANDREL FACE DEPTH TO NUT LEADING EDGE	D	4.29	6.10	0.169	0.240	
CENTER CONDUCTOR TO MANDREL FACE LENGTH	E	6.35	9.53	0.250	0.375	
MANDREL FACE OUTER DIAMETER	F	7.11	-	0.280	-	
NUT TO SEALING SLEEVE INTERFACE LENGTH	G	1.78	4.45	0.070	0.175	
MAXIMUM ENVELOPE DIMENSION	H	-	12.95	-	0.510	
CHAMFER BREAK	J	0.25	0.76	0.010	0.030	4
MANDREL FACE INNER DIAMETER	K	-	5.84	-	0.230	
NUT HEX LENGTH	L	4.75	-	0.187	-	

**Table 1 – Recommended Male “F” Feed-Through Connector Dimensions**

## NOTES

- 1 DIELECTRIC MUST NOT PROTRUDE BEYOND REF. PLANE
- 2 THE MATING OF THE FEMALE 'F' TO THE REFERENCE PLANE SHOULD NOT BE IMPEDED.
- 3 MINIMUM ONE THREAD LEAD-IN.
- 4 RADIUS OPTIONAL.
- 5 DRAWING NOT TO SCALE.
- 6 INTERPRET DRAWING IN ACCORDANCE WITH ASME Y14.5M-1994.

### 6.2 Mechanical Strength

- 6.2.1 Withstand Tightening Torque: The male "F" feed-through connector shall withstand a minimum tightening torque of 60 in-lbs. without damage when measured per ANSI/SCTE 98 2009, Test Method For Withstand Tightening Torque – 'F' Male.
- 6.2.2 Axial Pull Force: The male "F" feed-through connector , when attached to cables manufactured to SCTE approved standards, shall withstand a minimum axial pull force of 40 lbs. for outdoor and 30 lbs. for indoor applications when tested per ANSI/SCTE 99 2009, Test Method For Axial Pull Connector/Drop Cable.

### 6.3 Outdoor Environmental Requirements

- 6.3.1 Male "F" feed-through connectors shall meet the environmental requirements of the equipment to which they are attached and the requirements specified in this document.
- 6.3.2 Interface Moisture Migration: Male "F" feed-through connectors, when attached to cables manufactured to SCTE approved standards, shall have no penetrant present or evident, when inspected visually, after undergoing testing per ANSI/SCTE 60 2010, Interface Moisture Migration Test.
- 6.3.3 Salt Spray: Male "F" feed-through connectors shall be exposed to 1000 hours min. continuous salt spray per ANSI/SCTE 143 2007, Test Method For Salt Spray.