Society of Cable Telecommunications Engineers

ENGINEERING COMMITTEE
Interface Practices Subcommittee

AMERICAN NATIONAL STANDARD

ANSI/SCTE 01 2015

Specification for “F” Port, Female, Outdoor

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1. Scope

The purpose of this document is to specify requirements for female outdoor “F” ports that are used in the 75-ohm RF broadband communications industry and that interface with “F” Male connectors as defined by ANSI/SCTE 123 2011 and ANSI/SCTE 124 2011.

2. Normative References

The following documents contain provisions, which, through reference in this text, constitute provisions of this document. At the time of Subcommittee approval, the editions indicated were valid. All documents are subject to revision; and while parties to any agreement based on this document are encouraged to investigate the possibility of applying the most recent editions of the documents listed below, they are reminded that newer editions of those documents might not be compatible with the referenced version.

2.1. SCTE References

- ANSI/SCTE 103 2012, Test Method for DC Contact Resistance
- ANSI/SCTE 123 2011, Specification for “F” Connector Male Feed-Through
- ANSI/SCTE 124 2011, Specification for “F” Connector Male Pin Type
- ANSI/SCTE 149 2013, Test Method for Withstand Tightening Torque - 'F' Female
- ANSI/SCTE 191 2013, Test Method for Axial Pull Force, Female “F” Port
- IPS TP 417 R02, Test Method for F Connector Center Conductor Retention

2.2. Standards from other Organizations

- No normative references are applicable.

2.3. Published Materials

- No normative references are applicable.

3. Informative References

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

- No informative references are applicable.

4. Compliance Notation

shall	This word or the adjective "***required***" means that the item is an absolute requirement of this document.
shall not	This phrase means that the item is an absolute prohibition of this document.
forbidden	This word means the value specified shall never be used.
should	This word or the adjective "*recommended*" means that there may exist valid reasons in particular circumstances to ignore this item, but the full implications should be understood and the case carefully weighted before choosing a different course.
should not	This phrase means that there may exist valid reasons in particular circumstances when the listed behavior is acceptable or even useful, but the full implications should be understood and the case carefully weighed before implementing any behavior described with this label.
may	This word or the adjective "*optional*" means that this item is truly optional. One vendor may choose to include the item because a particular marketplace requires it or because it enhances the product, for example; another vendor may omit the same item.
deprecated	Use is permissible for legacy purposes only. Deprecated features may be removed from future versions of this document. Implementations should avoid use of deprecated features.

5. Definitions

thread relief	A reduced diameter section of the threaded surface to allow the tool to run out. This feature is optional.
center conductor	The inner conductor of a coaxial port, cable or pin of mating male connector.
mating male center conductor clearance	The distance from the reference plane of the female "F" port to which the center conductor of the mating male connector may penetrate without damaging the port or encountering a blockage.
positive contact point	The distance from the reference plane of the female "F" port to the first point of contact in the female center contact when the installed mating center conductor is centered.
reference plane	The reference plane on the female outdoor "F" port is the mating surface that seats against the male "F" port. It is also the plane from where all horizontal dimensions are taken.
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.

6. Electrical Requirements

6.1. Return Loss, Insertion Loss, Surge Withstand, and Shielding Effectiveness

Refer to the individual equipment specifications for these requirements.

6.2. Center Conductor Contact Resistance

The center conductor junction of the outdoor female "F" port to male F center conductor ***shall*** have a DC contact resistance of less than 25 milliohms after the testing performed in IPS TP 417 and then tested in accordance to ANSI/SCTE 103.

6.3. Outer Conductor Contact Resistance

The outer conductor junction of the outdoor female "F" port to male F connector ***shall*** have a DC contact resistance less than 10 milliohms when tightened to 40 lb.-in. and tested to ANSI/SCTE 103.

6.4. Center Conductor Continuous Current

The center conductor junction of the outdoor female "F" port to male F center conductor ***shall*** be capable of carrying a minimum of 1 ampere DC continuous current at an ambient temperature of 40°C without degradation.

7. Mechanical Requirements

7.1. Physical dimensions

The recommended physical dimensions for female outdoor "F" ports ***shall*** be as specified in Figure 1, Table 1, and per the notes below.

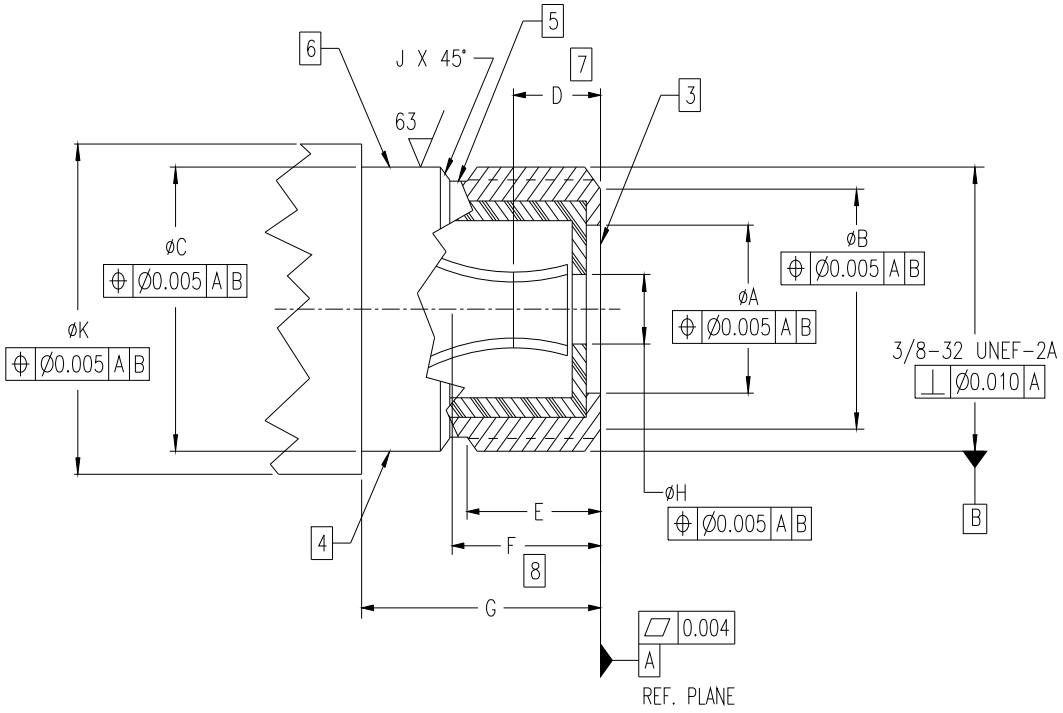

Figure 1 – Recommended Outdoor Female "F" Port

Table 1 – Recommended Outdoor Female "F" Port Dimensions

DESCRIPTION	DIM	mm		inches		NOTES
		MIN	MAX	MIN	MAX	
REF PLANE OPENING DIAMETER	A	4.32	6.10	0.170	0.240	
REF PLANE OUTER DIAMETER	B	7.11	8.00	0.280	0.315	
BASE OUTER DIAMETER	C	9.35	9.65	0.368	0.380	
POSITIVE CONTACT POINT DEPTH	D	-	5.08	-	0.200	7
FULL THREAD DEPTH	E	8.26	8.89	0.325	0.350	
MATING MALE CENTER CONDUCTOR CLEARANCE	F	9.65	-	0.380	-	8
PORT LENGTH	G	12.32	13.08	0.485	0.515	
CENTER CONDUCTOR GUIDE INNER DIAMETER	H	-	1.73	-	0.068	
CHAMFER	J	0.25	0.76	0.010	0.030	
BULKHEAD	K	10.80		0.425		10

Notes:

1	DRAWING NOT TO SCALE.
2	INTERPRET DRAWING IN ACCORDANCE WITH ASME Y14.5M-1994.
3	NO MATERIAL ***SHALL*** IMPEDE THE ENTRY OF THE MALE F CONNECTOR.
4	NO PARTING LINES PERMITTED.
5	THREAD RELIEF NOT TO EXCEED 2 FULL THREADS, OPTIONAL
6	FINISH REQUIRED FOR PORT SEAL RING.
7	DIMENSION TO POINT OF POSITIVE CONTACT OF MALE CENTER CONDUCTOR.
8	MINIMUM CLEARANCE REQUIRED FOR MAXIMUM LENGTH MALE CENTER CONDUCTOR.
9	RECOMMENDED MATING MALE CENTER CONDUCTOR DIAMETER RANGE IS 0.030 in. (0.76 mm) MIN. to 0.0422 in. (1.07 mm) MAX.
10	MINIMUM BULKHEAD STOP. GEOMETRY OPTIONAL (EXAMPLE: HEX, CYLINDRICAL, FLAT SURFACE AREA).

7.2. Mechanical Strength

7.2.1. Center Conductor Mating

The center conductor contact ***shall*** accept male "F" connector center conductors whose diameters are between 0.030" (0.76 mm) diameter and 0.0422" (1.07 mm) diameter. The junction ***shall*** have a minimum retention force of 150 grams with a 0.032" (0.81 mm) diameter conductor inserted after the contact is mated 25 times with a center conductor whose diameter is 0.0422" (1.07 mm) when tested in accordance to IPS TP 417, *Test Method for F Connector Center Conductor Retention*.

7.2.2. Withstand Tightening Torque

Outdoor female "F" ports ***shall*** be able to withstand a minimum tightening torque of 40 lb.-in. without damage when measured per ANSI/SCTE 149.

7.2.3. Axial Pull Strength

All female "F" ports ***shall*** withstand a minimum 60 lbs. of axial pull force without damage when measured per ANSI/SCTE 191.

7.2.4. Other

Refer to the equipment specs for mechanical requirements that affect any material beyond the outdoor female "F" ports.

8. Environmental Requirements

8.1. Salt Spray

Outdoor female "F" ports ***shall*** meet the corrosion requirements of the equipment to which they are attached.