



***Society of Cable
Telecommunications
Engineers***

**ENGINEERING COMMITTEE
Interface Practices Subcommittee**

AMERICAN NATIONAL STANDARD

ANSI/SCTE 147 2013

Specification for 75 ohm Inline Attenuators

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140 Philips Road
Exton, PA 19341

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1.0 SCOPE

The purpose of this specification is to provide the mechanical, electrical and environmental requirements for 75-ohm “F” type inline attenuators generally used for indoor applications. This specification in no way should limit or restrict any manufacturers from innovative designs and product improvements.

2.0 NORMATIVE REFERENCES

The following documents contain provisions, which, through reference in this text, constitute provisions of the standard. At the time of Subcommittee approval, the editions indicated were valid. All standards are subject to revision; and while parties to any agreement based on this standard 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 may not be compatible with the referenced version.

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

ANSI/SCTE 48-1 2007 – Test Method for Measuring Shielding Effectiveness of Passive and Active Devices Using a GTEM Cell.

ANSI/SCTE 48-2 2008 – Test Procedure for Measuring Relative Shielding Properties of Active and Passive Coaxial Cable Devices Using Agilent Magnetic Close Field Probe

ANSI/SCTE 81 2012 – Surge Withstand Test Procedure

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

ANSI/SCTE 124 2011 – Specification for “F” Connector, Male, Pin Type

ANSI/SCTE 149 2008 – Test Method for Withstand Tightening Torque - “F” Female

ANSI/SCTE 143 2007 – Test Method for Salt Spray

ANSI/SCTE 144 2012 – Test Procedure for Measuring Transmission and Reflection

IEEE C62.41-1991 – Recommended Practice for Surge Voltages in low voltage AC Power Circuits

3.0 ELECTRICAL REQUIREMENTS

3.1 Bandwidth

Shall be a minimum of 5 MHz to 1,002 MHz, unless otherwise specified. All performance parameters listed shall be tested in this frequency range.

3.2 Return Loss

Shall be ≥ 20 dB, when tested in accordance to ANSI/SCTE 144 2012 Test Procedure for Measuring Transmission and Reflection.

3.3 Shielding Effectiveness

Shall be a minimum of 100dB, when measured in accordance to ANSI/SCTE 48-2 2007, Test Procedure for Measuring Relative Shielding Properties of Active and Passive Coaxial Cable Devices Using Agilent Magnetic Close Field Probe or ANSI/SCTE 48-1 2007, Test Method for Measuring Shielding Effectiveness of Active and Passive Devices Using a GTEM Cell.

3.4 Surge Withstand

Shall be a minimum of IEEE C62.41-1991 Category A3 Ring Wave, 6kV, 200 Amps at the “F” port, when tested in accordance with ANSI/SCTE 81 2012, Surge Withstand Test Procedure.

3.5 Insertion Loss

Shall not exceed the values listed in Table 1, when tested in accordance to ANSI/SCTE 144 2012 Test Procedure for Measuring Transmission and Reflection.

Table 1

Attenuation Value	Insertion Loss
1	1.0 dB \pm 0.25 dB
2	2.0 dB \pm 0.25 dB
3	3.0 dB \pm 0.25 dB
4	4.0 dB \pm 0.25 dB
5	5.0 dB \pm 0.25 dB
6	6.0 dB \pm 0.25 dB
7	7.0 dB \pm 0.25 dB
8	8.0 dB \pm 0.25 dB
9	9.0 dB \pm 0.25 dB
10	10.0 dB \pm 0.25 dB
11	11.0 dB \pm 0.25 dB
12	12.0 dB \pm 0.25 dB
13	13.0 dB \pm 0.25 dB
14	14.0 dB \pm 0.25 dB
15	15.0 dB \pm 0.40 dB
16	16.0 dB \pm 0.40 dB
17	17.0 dB \pm 0.40 dB
18	18.0 dB \pm 0.50 dB
19	19.0 dB \pm 0.50 dB
20	20.0 dB \pm 0.50 dB

4.0 MECHANICAL REQUIREMENTS

4.1 Physical dimensions – “F” Male

The physical dimensions for the Male “F” connector shall conform to ANSI/SCTE 124 2011, Specification for “F” Connector, Male Pin Type.

4.2 Physical dimensions – “F” Female

The physical dimensions for the “F” Female connector shall conform to ANSI/SCTE 01 2006, Specification for “F” Port, Female, Outdoor

4.3 Withstand Tightening Torque – Male “F”

The Male F connector interface shall withstand a minimum tightening torque of 40 in-lbs. without damage when measured per ANSI/SCTE 98 2004, Test Method For Withstand Tightening Torque – ‘F’ Male.

4.4 Withstand Tightening Torque – “F” Female

The Female “F” connector interface shall withstand a minimum tightening torque of 40 in-lbs. without damage and there shall be no relative movement of the outer housings to the “F” Female interface when tested per ANSI/SCTE 149 2008, Test Method For Withstand Tightening Torque – ‘F’ Female.

There shall be no relative movement of the outer housings to the “F” Female interface.

4.5 Labeling

Each device shall be marked with nominal attenuation value and manufacturer.

4.6 Envelope Dimensions

The recommended envelope dimensions are shown in Table 2 and figures 1 and 2.

5.0 ENVIRONMENTAL REQUIRMENTS

5.1 Temperature

The devices shall meet all performance requirements after exposure to temperatures ranging from -40°F (-40°C) to +140°F (+60°C) inclusive.

5.2 Salt Spray

Devices shall be exposed to 500 hours of continuous salt spray per ANSI/SCTE 143 2007, Test Method For Salt Spray with no degradation in electrical or mechanical performance.

6.0 PHYSICAL DIMENSIONS

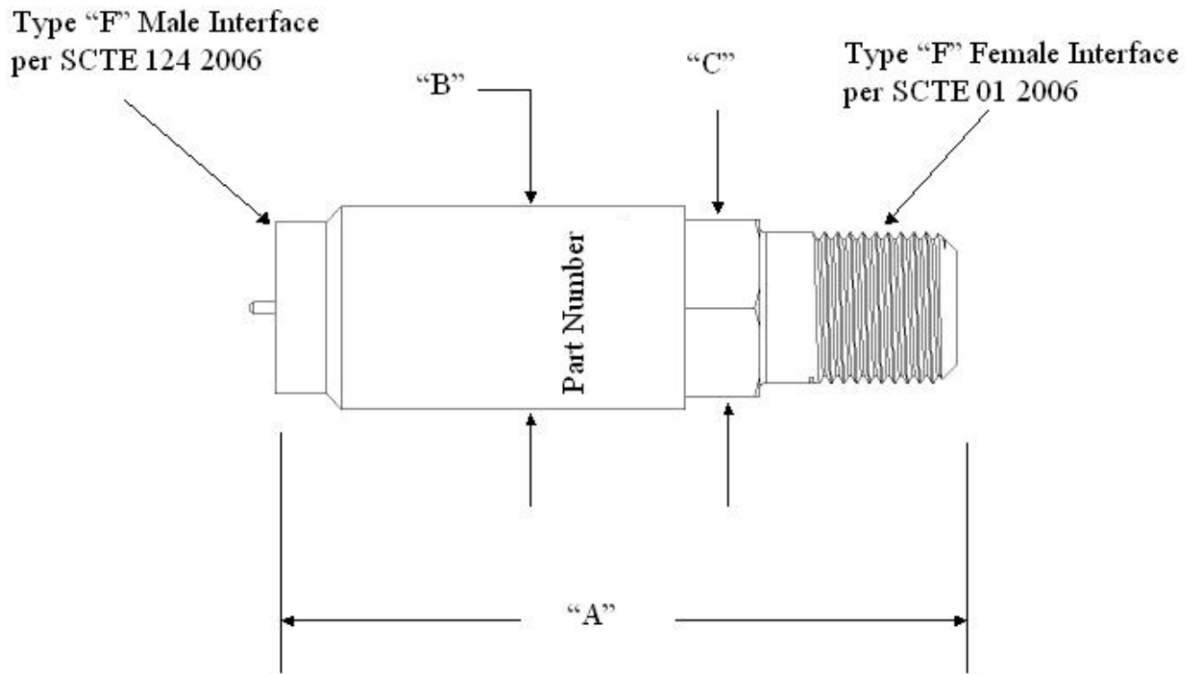


Figure 1: Inline Attenuator with fixed nut Envelope Requirements.

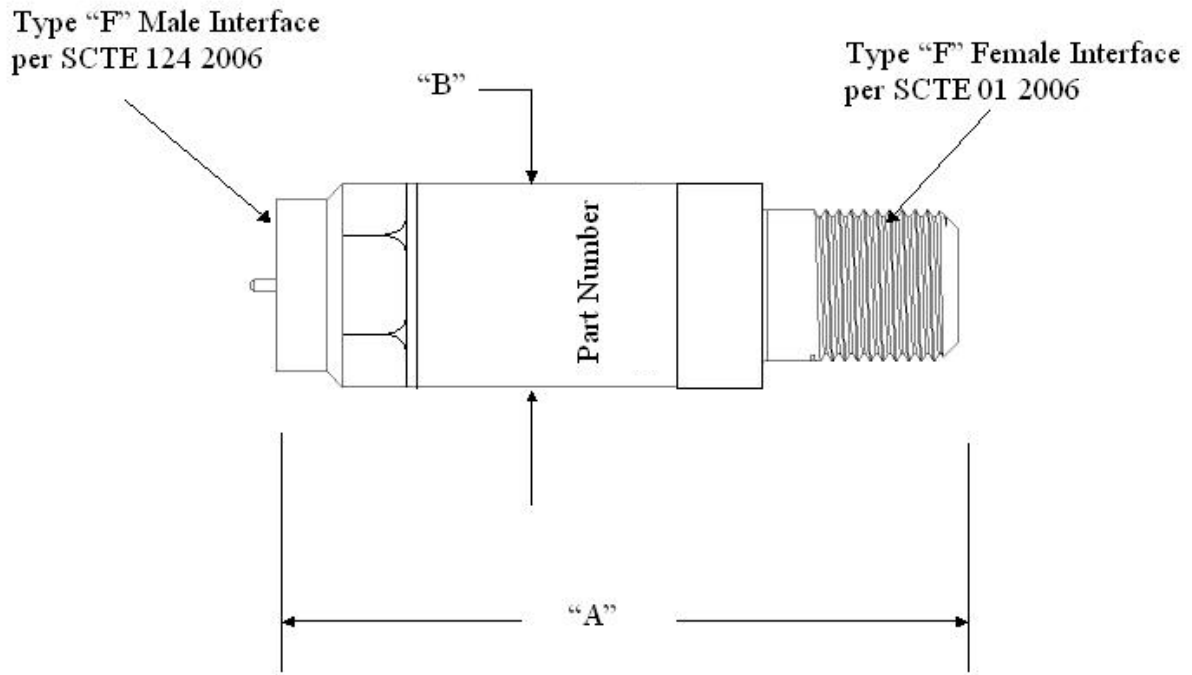


Figure 2: Inline Attenuator with movable nut Envelope Requirements.

Table 2

DESCRIPTION	DIM.	mm		inches		Notes
		min.	max.	min.	max.	
Over All Length	A	-	44.42	-	1.75	
Envelope Dimension	B	-	22.85	-	0.90	
Hex Size	C	-	11.10	-	0.437	Ref.