

# **SCTE** | **STANDARDS**

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**Interface Practices Subcommittee**

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**AMERICAN NATIONAL STANDARD**

**ANSI/SCTE 92 2022**

**Specification for 5/8-24 Plug, (Male),  
Trunk & Distribution Connectors**

## NOTICE

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## Document Types and Tags

Document Type: Specification

Document Tags:

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|---|------------------------------------|--|
| <input type="checkbox"/> Test or Measurement          | <input type="checkbox"/> Checklist | <input type="checkbox"/> Facility                  |
| <input type="checkbox"/> Architecture or Framework    | <input type="checkbox"/> Metric    | <input checked="" type="checkbox"/> Access Network |
| <input type="checkbox"/> Procedure, Process or Method | <input type="checkbox"/> Cloud     | <input type="checkbox"/> Customer Premises         |

<b>Release</b>	<b>Date</b>
SCTE 92 2003	<i>06/27/2003</i>
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SCTE 92 2012	<i>12/31/2012</i>
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Note: Standards that are released multiple times in the same year use: a, b, c, etc. to indicate normative balloted updates and/or r1, r2, r3, etc. to indicate editorial changes to a released document after the year.

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## 1. Introduction

### 1.1. Executive Summary

This specification applies to the 5/8-24 Plug, (Male) Trunk & Distribution Connector interface used to connect to broadband devices, such as mainline taps / passives, power inserters and active devices used in the 75 ohm RF broadband communications industry.

### 1.2. Scope

The purpose of this document is to specify the mechanical, environmental and base line electrical performance for the male 5/8 – 24 plug (male) trunk and distribution connector interface when connected to SCTE 91, Specification for 5/8-24 RF & AC Equipment Port, Female.

Unless otherwise noted, all requirements of this document are measured after installation per manufacturer's instructions.

DOCSIS 4.0 specifications include operation at frequencies up to 1794 MHz and many service providers would like to futureproof their networks for eventual operation up to 3000 MHz. The interface is compatible with current, legacy and extended bandwidth devices. The bandwidth performance is dependent on the type of device to which the connector is attached to. To meet 3000 MHz operation and conformance to SCTE 264, Broadband Radio Frequency Hardline Taps for Cable Systems and SCTE 265, Broadband Radio Frequency Hardline Passives for Cable Systems, a specific pin length is required as shown in Table 1 and Figure 1 dimension "D2".

### 1.3. Benefits

This specification is necessary to provide manufacturers and users of this product a basic set of standard mechanical, electrical, and environmental performance requirements to ensure proper mating with varied equipment designs. This specification provides confidence to end users that designs which meet these minimum criteria will perform properly in their systems.

### 1.4. Intended Audience

Manufacturers, test laboratories, and end-users.

### 1.5. Areas for Further Investigation or to be Added in Future Versions

None

## 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**

- [SCTE 48-1] ANSI/SCTE 48-1 2021, Test Method for Measuring Shielding Effectiveness of Passive and Active Devices Using a GTEM Cell
- [SCTE 91] ANSI/SCTE 91 2015, Specification for 5/8-24 RF & AC Equipment Port, Female
- [SCTE 109] ANSI/SCTE 109 2019, Test Procedure for Common Path Distortion (CPD)
- [SCTE 125] SCTE 125 2020, “Mainline” Pin (Plug) Connector Return Loss
- [SCTE 144] ANSI/SCTE 144 2017, Test Procedure for Measuring Transmission and Reflection
- [SCTE 264] ANSI/SCTE 264 2021, Broadband Radio Frequency Hardline Taps for Cable Systems
- [SCTE 265] SCTE 265 2021, Broadband Radio Frequency Hardline Passives for Cable Systems

## **2.2. Standards from Other Organizations**

- [ASME Y14.5] ASME Y14.5 – 2018, Dimensioning and Tolerancing

## **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.

### **3.1. SCTE References**

No informative references are applicable.

### **3.2. Standards from Other Organizations**

No informative references are applicable.

### **3.3. Published Materials**

No informative references are applicable.

## 4. Compliance Notation

<i>shall</i>	This word or the adjective “ <i>required</i> ” means that the item is an absolute requirement of this document.
<i>shall not</i>	This phrase means that the item is an absolute prohibition of this document.
<i>forbidden</i>	This word means the value specified shall never be used.
<i>should</i>	This word or the adjective “ <i>recommended</i> ” 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.
<i>should not</i>	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.
<i>may</i>	This word or the adjective “ <i>optional</i> ” 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.
<i>deprecated</i>	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. Abbreviations and Definitions

### 5.1. Abbreviations

ft	foot
GHz	gigahertz
lb	pound
lb-ft	pound foot
MHz	megahertz
mm	millimeter
SCTE	Society of Cable Telecommunications Engineers

### 5.2. Definitions

Reference Plane	The reference plane on the male 5/8-24 plug is the mating surface that seats with the female 5/8-24 equipment port.
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## 6. General Requirements

Samples of the finished products shall be measured, tested and inspected to ensure that they conform to the dimensions of this document.

## 7. Physical Dimensions

The recommended physical dimensions for 5/8-24 male plugs shall be as specified in Figure 1.

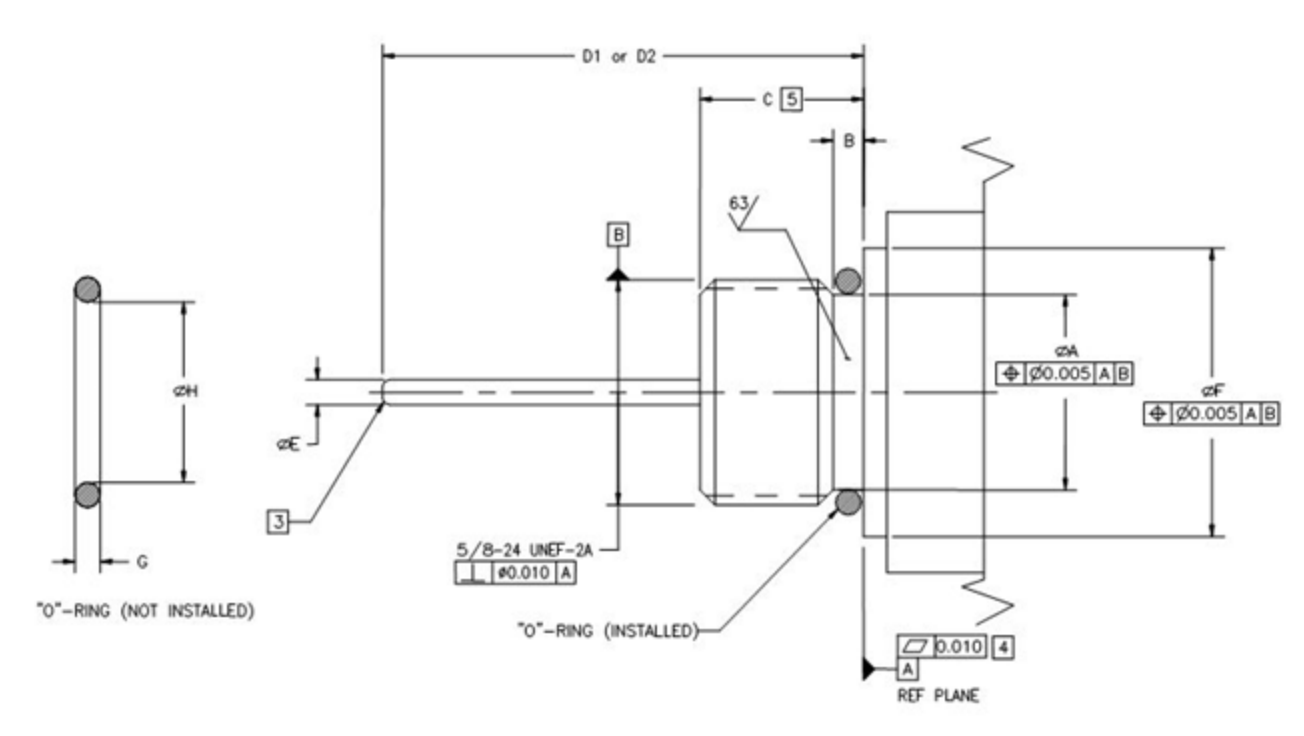


Figure 1 - Physical Dimensions for 5/8-24 Plug, (Male), Trunk & Distribution Connectors

Table 1 – Physical Dimensions

DESCRIPTION	DIM	mm		inches		NOTES
		MIN	MAX	MIN	MAX	
O-RING LAND DIAMETER	A	13.69	13.84	0.539	0.545	
O-RING LAND WIDTH	B	1.80	2.54	0.071	0.100	
INSERTION DEPTH	C	7.37	9.40	0.290	0.370	5
PIN LENGTH	D1	53.72	61.98	2.115	2.440	
PIN LENGTH – 3 GHz	D2	31.75	33.53	1.250	1.320	6
PIN DIAMETER	E	1.65	1.85	0.065	0.073	3
SHOULDER DIAMETER	F	18.80	25.40	0.740	1.000	
O-RING CROSS SECTION DIAMETER	G	1.70	1.85	0.067	0.073	
O-RING INSIDE DIAMETER	H	12.29	12.55	0.484	0.494	

### NOTES:

1. DRAWING NOT TO SCALE.
2. INTERPRET DRAWING IN ACCORDANCE WITH [ASME Y14.5].
3. RADIUS OR CHAMFER OPTIONAL.
4. AFTER FINISH APPLIED.
5. INCLUDES ALL PROTRUDING FEATURES, SUCH AS ROLL-OVERS AND DIELECTRIC.
6. Pin Length required to meet the requirements of [SCTE 264], Broadband Radio Frequency Hardline Taps for Cable Systems and [SCTE 265], Broadband Radio Frequency Hardline Passives for Cable Systems.



## 8. Electrical Requirements

The 5/8 – 24 male plug *shall* maintain minimum of 25 dB return loss from 5 MHz to 3000 MHz, when connected to [SCTE 91] and tested per [SCTE 125], “Mainline” Pin (Plug) Connector Return Loss.

The 5/8 – 24 male plug *shall* provide low signal loss of no more than 0.15 dB from 5 MHz to 3000 MHz when connected to [SCTE 91] and tested in accordance to [SCTE 144], Test Procedure for Measuring Transmission and Reflection.

The 5/8 – 24 male plug RFI shielding integrity *shall* be no less than 120 dB from 5 MHz to 3000 MHz when connected to [SCTE 91] and tested per [SCTE 48-1], Test Method for Measuring Shielding Effectiveness of Passive and Active Devices Using a GTEM Cell.

The 5/8 – 24 male plug *shall not* exhibit any common path signals greater than -100 dBc when connected to [SCTE 91] and tested in accordance to [SCTE 109], Test Procedure for Common Path Distortion (CPD).

## 9. Mechanical Requirements

The 5/8 – 24 male plug shall withstand a minimum of 25 lb-ft tightening torque when installed to the mating equipment and installed according to manufacturer’s installation instructions.

## 10. Environmental requirements

The 5/8 – 24 plug shall meet the environmental requirements of the devices to which it is attached to.