



***Society of Cable  
Telecommunications  
Engineers***

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**ENGINEERING COMMITTEE**  
**Interface Practices Subcommittee**

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**AMERICAN NATIONAL STANDARD**

**ANSI/SCTE 33 2016**

**Test Method for Diameter of Drop Cable**

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## 1. Scope

### 1.1. Determine characteristics

To determine one or more of the following characteristics relating to flexible coaxial drop cables. This method is intended to make use of relatively inexpensive equipment. For more precise methods using laser micrometers and the like see ANSI/SCTE 31 2007.

- Cable jacket outside diameter
- Average core diameter over foil
- Center conductor diameter
- Ovality

### 1.2. Measurement methods

Measurement methods for determining any subtle differences in cables, which *may* affect fitting installation or performance, cable performance or to be used as a starting point for fitting design.

## 2. 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 31 2007, Test Method for Measuring Diameter Over Core

## 3. Informative References

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

- None are applicable.

## 4. Compliance Notation

|                   |   |
|-------------------|---|
| <i>shall</i>      | This word or the adjective “ <b><i>required</i></b> ” means that the item is an absolute requirement of this specification.   |
| <i>shall not</i>  | This phrase means that the item is an absolute prohibition of this specification.   |
| <i>forbidden</i>  | This word means the value specified shall never be used.  |
| <i>should</i>     | This word or the adjective “ <b><i>recommended</i></b> ” 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 “ <b><i>optional</i></b> ” 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 the standard. Implementations should avoid use of deprecated features.  |

## 5. Equipment

### 5.1. Gage

Dial thickness gage Mitutoyo C125EB, Starrett 1015BZ, Spi 24-361-8 or equivalent having the dial calibrated to read in .0005 inch increments, with a 0-1.000 inch travel and a spring-loaded plunger.

### 5.2. Micrometer

Machinist’s outside micrometer having flat surfaces, both on the anvil and the end of the spindle and calibrated to read directly to at least .001 inches with each division of a width that facilitates estimation of each measurement to .0001 inch.

## 6. Test Samples

### 6.1. Sample cut

Cut the cable samples approximately two inches long for measurements using the dial thickness gage.

**Note:** If a longer sample is used, the weight of the sample *may* result in erroneous measurements.

### 6.2. Core diameter

For measurements of the core diameter refer to ANSI/SCTE 31 2007.



### **6.3. Center conductor**

Using a sharp utility knife cut approximately ½ inch of jacket, braid and dielectric from each end of the sample for measurement of the center conductor diameter.

## **7. Measurements**

### **7.1. Cable jacket**

Due to the softness of the cable jacket and the uneven foil tape, these methods are somewhat subjective and care must be taken when making measurements of this kind.

### **7.2. Sample**

Prepare samples per section 6.1.

### **7.3. Zero out gage**

Make sure the dial indicator on the dial thickness gage is at zero with the anvils completely closed. Perform the necessary adjustments to zero the gage. Hold the dial thickness gage in one hand and use the thumb lever to open the anvils. Place the center of the sample between the anvils and release the thumb lever. Without your hands being on the sample, find and record the minimum diameter reading. From the minimum reading, repeat the measurements five times around the circumference of the sample also recording the maximum. Average the six recorded readings to calculate the average diameter of the cable. Messenger cables *may* use only five total measurements.

### **7.4. Diameter**

The diameter over the dielectric and foil *may* be measured using the method described in ANSI/SCTE 31 2007.

**Note:** By definition, D is the diameter of the dielectric core before the application of any foil. Calculations of braid coverage are based on D and not the diameter over the core and foil. However, for this test procedure core diameter includes the bonded foil. This is because there is extreme difficulty in removing the foil (which is heavily bonded to the dielectric core) which makes the normal measurement impractical.

### **7.5. Outside micrometer**

Prepare the samples per 6.3; then using the outside micrometer, measure and record the diameter of the center conductor.

## **8. Ovality**

Ovality is defined, using the measurements of outside diameter (OD), as  $OD_{\max} - OD_{\min}$