



***Society of Cable
Telecommunications
Engineers***

**ENGINEERING COMMITTEE
Interface Practices Subcommittee**

AMERICAN NATIONAL STANDARD

ANSI/SCTE 70 2007

Insulation Resistance Megohmmeter Method

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1.0 SCOPE AND DEFINITIONS

This method is intended for use in determining the Insulation Resistance of insulated dielectric for coaxial cables by the megohmmeter method.

2.0 EQUIPMENT

2.1 Megohmmeter, Quadtech 1865 or equivalent

2.2 Leads as required

3.0 SET-UP

Follow all calibration requirements recommended by the manufacturers of the Megohmmeter being used.

Caution: Leads are energized during Zero Calibration

4.0 PROCEDURE

4.1 Specimen Preparation:

4.1.1 Precondition specimen between 59°F (15° C) and 95°F (35°C) for 24 hours.

4.1.2 Coaxial cables with jackets should have 3 to 4 inches (75 to 100 mm) of jacket material removed from each end of cable specimen. One end of cable specimen should then have approximately 1 inch (25 mm) of shield and dielectric material removed exposing the center conductor. The center conductor should then be cleaned of any remaining dielectric material or precoat. The shield (and braid wires on braided cables) should then be peeled back to allow connection with the test lead alligator clip. The opposite end of the cable specimen should be examined for possible touching of shield to center conductor. Peeling back the shield on this end may be necessary to prevent arcing see figure 1.

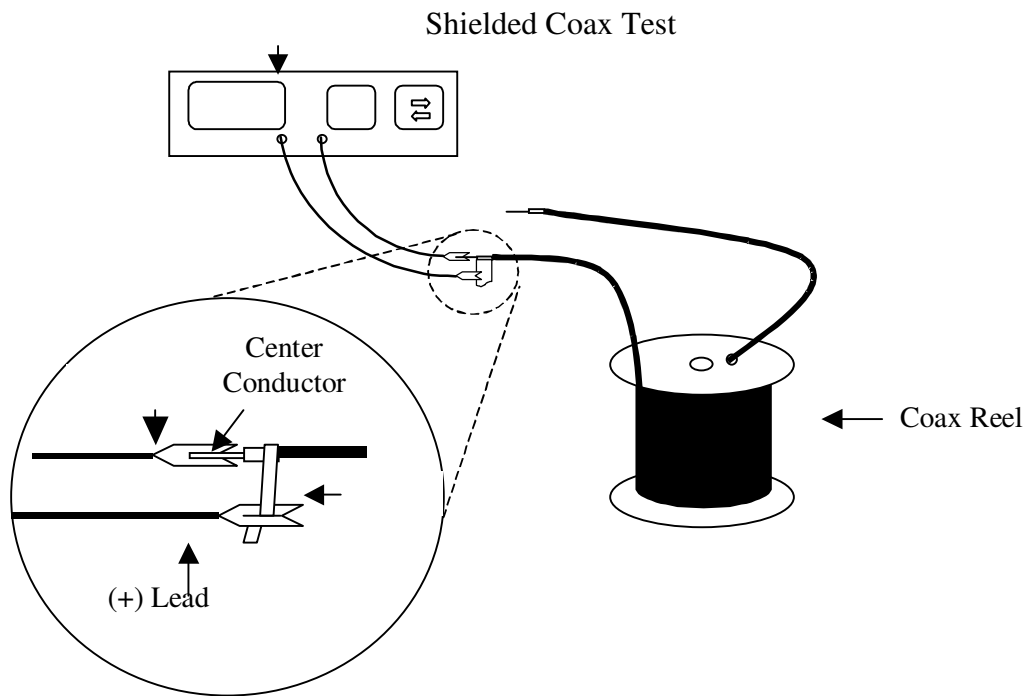


Figure 1

4.2 TEST

4.2.1 Turn on the Megohmmeter tester and allow 15 minutes for warm-up.

4.2.2 Follow 3.0 for calibration requirements.

4.2.3 Unless otherwise specified 500 Volts DC will be used for this test.

Note: *Caution should be observed during testing as the center conductor and outer conductor will be electrically charged.*

4.2.4 Shielded coaxial cables should be tested between conductor and shield.
(See Figure 1)

4.2.5 A charge time of 60 seconds shall be used during test unless otherwise specified.

4.2.6 After test is complete record resistance from display.

4.2.7 Make sure discharge has taken place before removing test leads.

5.0 CALCULATIONS

5.1 Insulation Resistance is inversely proportional to length and conversion to Megohm mile or Megohm 1000 feet is given:

$$R(\text{ megohm mile}) = \frac{R_m L}{5280}$$

or

$$R(\text{ megohm kft}) = \frac{R_m L}{1000}$$

where: R_m = Insulation Resistance measured (megohms)

L = Sample Length (feet)

6.0 REPORT THE FOLLOWING

- 6.1 Date
- 6.2 Specimen Identification (Type, Lot No., reel no., etc.)
- 6.3 Insulation Resistance per reel length
- 6.4 Insulation Resistance per specification length, per Megohm mile or
Megohm 1000 ft.
- 6.5 Temperature.

7.0 ACCURACY

- 7.1 Accuracy of this procedure is governed by several factors. Temperature, accuracy of footage measurement, time of electrification and the actual reading taken from the meter. Using the megohmmeter method described above, an accuracy of 10 % can be expected.