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Engineers***

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**Specification for  
Trunk, Feeder and Distribution Coaxial Cable**

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# **SPECIFICATION FOR TRUNK, FEEDER AND DISTRIBUTION COAXIAL CABLE**

## **INTRODUCTION**

This specification applies to general purpose Trunk, Feeder and Distribution Coaxial Cables. Currently there are two distinctive designs of dielectric available, this document will cover both designs. These are 1 – Gas injected foam dielectric and 2 – Disc and air dielectric. Specialty cables will not be included in this document.

References to the National Electrical Code, National Electrical Safety Code, ASTM and other regulations or specifications should adhere to the latest document and should keep current with each document.

This specification in no way should limit or restrict any manufacture's innovations and improvement. Innovation and improvements are encouraged and this specification may be adjusted when beneficial.

## **1.0 SCOPE**

- 1.1 This specification applies to material, electrical and mechanical properties of seventy-five ohm coaxial cables as defined herein.
- 1.2 Seventy-five ohm coaxial cables are used to distribute radio frequency (R.F.) signals and power as applicable.

## **2.0 CENTER CONDUCTOR**

### **2.1 Material**

- 2.1.1 The center conductor shall be copper clad aluminum (CCA). The outer layer of copper shall be metallurgically bonded and continually cover the aluminum core prior to processing, the composite conductor shall meet the requirements of ASTM B 566- Class 10A or 10H.
- 2.1.2 Solid copper center conductor may also be available, if required by the user. Low DC resistance is the only advantage to using solid copper, therefore, this document will only cover the copper clad aluminum.

## 2.2 Joints

Factory joints in the finished product shall be allowed. The ultimate tensile strength in the joint area when tested per ASTM E-8 shall be 90% of the original unspliced wire.

## 2.3 Dimensions

2.3.1 Center conductor dimensions shall meet the requirements of Table 2.0.

2.3.2 All center conductor tolerances shall be  $\pm 0.001$  in. (0.03mm).

**Table 2.0, Center Conductor Dimensions [Inch (mm)]**

<b>Product Type</b>	<b>Diameter of Center Conductor</b>
412-F	0.088 (2.24)
440-D	0.105 (2.67)
500-F	0.109 (2.77)
500-D	0.123 (3.12)
540-F	0.124 (3.15)
565-F	0.129 (3.28)
625-F	0.136 (3.45)
650-D	0.156 (3.96)
700-F	0.163 (4.14)
715-F	0.166 (4.22)
750-F	0.166 (4.22)
750-D	0.185 (4.20)
840-F	0.194 (4.93)
860-F	0.203 (5.16)
875-F	0.194 (4.93)
1000-F	0.220 (5.59)
1000-D	0.248 (6.30)
1125-F	0.263 (6.68)
1160-F	0.269 (6.83)

F=FOAM, D=DISC and AIR

## 2.4 DC Resistance

DC resistance of the center conductor shall be measured per **IPS-TP-008** and meet the requirements of Table 11.0.

## 3.0 FOAM DIELECTRIC

### 3.1 Foam Dielectric Material

3.1.1 Dielectric material extruded over the center conductor shall be an insulating grade virgin polyethylene and shall not contain reground, reprocessed or recycled materials. The insulation shall consist of gas injected foamed polyethylene with a closed cell structure. It shall be applied concentrically and bonded to the center conductor. The dielectric shall also contain a stabilization package to meet the requirements of section 10.6 Thermal Oxidative Stability (TOS).

3.1.2 Unless otherwise specified, polyethylene materials for the dielectric shall meet all applicable requirements of ASTM D 1248 and requirements of this document.

### 3.2 Patching

Discontinuities in the conductor insulation due to process malfunction or damage shall not be patched.

## 4.0 DISC AND AIR DIELECTRIC

### 4.1 Disc and Air Dielectric Material

4.1.1 The dielectric core consists of polyethylene disc molded onto the center conductor. A polyethylene sleeve is then extruded over the disc to hermetically seal the compartments. The base resins for the disc and sleeve dielectric shall be virgin polyethylene and shall not contain reground, reprocessed or recycled materials. The disc and sleeve shall contain a stabilization package to meet the requirements of section 10.6 Thermal Oxidative Stability (TOS).

4.1.2 Unless otherwise specified, polyethylene materials for the dielectric shall meet all applicable requirements of ASTM D 1248 and requirements of this document.

### 4.2 Patching

Discontinuities in the conductor insulation due to process malfunction or damage shall not be patched.

## 5.0 OUTER CONDUCTOR (SHIELD)

### 5.1 Material

The outer conductor will consist of a continuous extruded or welded tube of aluminum. It shall be made from an aluminum alloy of the 1XXX series as described in ANSI H35.1. The alloy used by the manufacturer must produce a finished product that meets all the electrical and mechanical properties specified elsewhere in this document.

### 5.2 Outer Conductor Dimensions

The inside diameter, outside diameter and thickness of the outer conductor shall meet the requirements of Table 5.1.

**Table 5.1, Outer Conductor Dimensions [Inch (mm)]**

<b>Product Type</b>	<b>Diameter * Over Outer Conductor</b>	<b>Nominal Inside Diameter of Outer Conductor</b>	<b>Nominal Thickness of Outer Conductor</b>
412-F	0.412 (10.46)	0.362 (9.19)	0.025 (0.64)
440-D	0.450 (11.43)	0.410 (10.41)	0.020 (0.51)
500-F	0.500 (12.70)	0.450 (11.43)	0.025 (0.64)
500-D	0.510 (12.95)	0.470 (11.94)	0.020 (0.51)
540-F	0.540 (13.72)	0.513 (13.03)	0.014 (0.34)
565-F	0.565 (14.35)	0.519 (13.18)	0.023 (0.58)
625-F	0.625 (15.88)	0.563 (14.30)	0.031 (0.79)
650-D	0.640 (16.26)	0.600 (15.24)	0.020 (0.51)
700-F	0.703 (17.86)	0.653 (16.59)	0.025 (0.64)
715-F	0.715 (18.16)	0.686 (17.42)	0.015 (0.38)
750-F	0.750 (19.05)	0.678 (17.22)	0.036 (0.91)
750-D	0.760 (19.30)	0.712 (18.08)	0.024 (0.61)
840-F	0.840 (21.34)	0.780 (19.81)	0.030 (0.76)
860-F	0.860 (21.84)	0.828 (21.03)	0.016 (0.41)
875-F	0.875 (22.23)	0.797 (20.24)	0.039 (0.99)
1000-F	1.000 (25.40)	0.890 (22.61)	0.055 (1.40)
1000-D	1.015 (25.78)	0.961 (24.41)	0.027 (0.69)
1125-F	1.125 (28.58)	1.081 (27.46)	0.022 (0.56)
1160-F	1.160 (29.46)	1.062 (26.97)	0.049 (1.24)

F=FOAM, D=DISC and AIR

Note: \* = Tolerance on diameter over outer conductor is  $\pm 0.002$  in. ( $\pm 0.05$  mm).

### 5.3 Dielectric Adhesion to Outer Conductor

A polymer adhesive coating may be used to bond the dielectric to the outer conductor. The adhesive coating shall be compatible with all cable components in contact and shall not degrade either electrical or mechanical properties of the product.

## 6.0 OUTER CONDUCTOR FLOODING COMPOUND

### 6.1 Material

6.1.1 Cables intended for below grade use shall have a flooding compound applied over the outer conductor to block moisture ingress and help prevent corrosion. The finished product shall meet requirements of **IPS-TP-017** for corrosion resistance.

6.1.2 If a flooding compound is used for aerial cable, it shall meet the requirements of **IPS-TP-014** for a non-flowing compound.

## 7.0 CABLE JACKET

### 7.1 Material

The outer jacket shall be polyethylene (PE). The jacket shall be free of pinholes, cracks and blisters. The PE jacket shall contain carbon black to ensure ultraviolet light stability (UV). The cable jacket shall meet the requirements of Table 7.0.

**Table 7.0, Jacket Material Requirements**

<b>Property</b>	<b>Requirement</b>
Yield Strength (PSI), minimum ASTM D 638	1,200
Elongation (%), minimum ASTM D 638	400
Retention of Elongation (%), minimum after 48 hours at 100°C (212°F) ASTM D 573	75
Low Temperature Brittleness, °C (°F) ASTM D 746 Procedure A	-76 (-105)
Carbon Black Content (%), minimum ASTM D 1603	2.35
Density (g/cc) ASTM D 1505	0.900 – 0.955
UV Stability @ 375 nm/ASTM D 3349 PE minimum absorption coefficient	400



## 7.2 Diameter Over Jacket (DOJ)

The DOJ of the various types of cables shall meet the requirements of Table 7.1.

**Table 7.1, Nominal Diameter Over Jacket, [Inch (mm)]**

<b>Product Type</b>	<b>Non Flooded</b>	<b>Flooded</b>	<b>Armored Corrugated</b>	<b>Armored Helical</b>
412-F	0.472 (11.99)	0.482 (12.24)	0.640 (17.02)	0.600 (15.24)
440-D	0.530 (13.46)	0.545 (13.84)	0.760 (19.30)	N/A
500-F	0.560 (14.22)	0.570 (14.48)	0.715 (18.16)	0.690 (17.53)
500-D	0.590 (14.99)	0.605 (15.37)	0.820 (20.83)	N/A
540-F	0.610 (15.49)	0.610 (15.49)	0.765 (19.43)	N/A
565-F	0.625 (15.88)	0.635 (16.13)	N/A	0.755 (19.18)
625-F	0.685 (17.40)	0.695 (17.65)	0.835 (21.21)	0.815 (20.70)
650-D	0.720 (18.29)	0.735 (18.67)	0.950 (24.13)	N/A
700-F	0.765 (19.43)	0.775 (19.69)	N/A	0.885 (22.50)
715-F	0.785 (19.94)	0.785 (19.94)	0.935 (23.75)	N/A
750-F	0.820 (20.83)	0.830 (21.08)	1.000 (25.40)	0.950 (24.13)
750-D	0.840 (21.34)	0.855 (21.72)	1.080 (27.43)	N/A
840-F	0.910 (23.11)	0.920 (23.37)	N/A	1.040 (26.42)
860-F	0.960 (24.38)	0.960 (24.38)	1.110 (28.19)	N/A
875-F	0.945 (24.00)	0.955 (24.26)	1.097 (27.86)	1.075 (27.31)
1000-F	1.080 (27.43)	1.090 (27.69)	1.260 (32.00)	1.210 (30.73)
1000-D	1.095 (27.81)	1.110 (28.19)	1.340 (34.04)	N/A
1125-F	1.225 (31.12)	1.225 (31.12)	1.380 (35.05)	N/A
1160-F	1.250 (31.75)	1.260 (32.00)	N/A	1.380 (35.05)

F=FOAM, D=DISC and AIR

### 7.3 Jacket Thickness

7.3.1 The minimum thickness at any point of the overall jacket shall meet the requirements of Table 7.2.

**Table 7.2, Minimum Spot Thickness [Inch (mm)]**

<b>Product Type</b>	<b>Aerial</b>	<b>Underground</b>
412-F	0.020 (0.51)	0.020 (0.51)
440-D	0.021 (0.53)	0.028 (0.71)
500-F	0.021 (0.53)	0.021 (0.53)
500-D	0.021 (0.53)	0.028 (0.71)
540-F	0.021 (0.53)	0.021 (0.53)
565-F	0.021 (0.53)	0.021 (0.53)
625-F	0.021 (0.53)	0.021 (0.53)
650-D	0.021 (0.53)	0.021 (0.53)
700-F	0.024 (0.61)	0.026 (0.66)
715-F	0.025 (0.64)	0.025 (0.64)
750-F	0.025 (0.64)	0.025 (0.64)
750-D	0.028 (0.71)	0.028 (0.71)
840-F	0.025 (0.64)	0.030 (0.76)
860-F	0.035 (0.89)	0.035 (0.89)
875-F	0.025 (0.64)	0.025 (0.64)
1000-F	0.028 (0.71)	0.028 (0.71)
1000-D	0.028 (0.71)	0.028 (0.71)
1125-F	0.035 (0.89)	0.035 (0.89)
1160-F	0.040 (1.02)	0.040 (1.02)

F=FOAM, D=DISC and AIR

7.3.2 The minimum thickness at any point shall be determined by exploratory measurement.

### 7.4 Jacket Eccentricity

7.4.1 The eccentricity of the jacket shall not exceed 43 percent and shall be calculated as follows:

$$\frac{\text{Maximum thickness} - \text{minimum thickness}}{\text{Average thickness}} \times 100$$

7.4.2 The average thickness at any cross section shall be determined from four readings, including the minimum spot taken approximately 90° apart.

7.4.3 The maximum thickness at any cross section shall not be greater than 155 percent of the minimum spot thickness.

## **8.0 INTEGRAL MESSENGER**

### **8.1 Material**

An integral messenger (support) joined to the coaxial cable by an overall extruded PE jacket shall be galvanized steel. The steel wire shall meet requirements of ASTM A 641, Class 1, Hard Temper. The diameter of the wire is dependent upon the application and shall be agreed upon by the user.

### **8.2 Joints**

Factory joints in the messenger shall not be allowed in a shipping length of cable.

## **9.0 ARMOR**

### **9.1 Material**

9.1.1 The armor shall be any of the following materials:

1. A steel tape 0.010 in. (0.25 mm) thick, conforming to SAE/AISI 1010.
2. A steel tape 0.006 in. (0.15 mm) thick.
3. A copper clad stainless steel tape 0.006 in. (0.15 mm) thick per ASTM B 694.
4. A steel tape with an adhesive coating on one side and a corrosion protection plating on the other side, the tape thickness without platings or adhesives shall be 0.008 in. (0.20 mm).

9.1.2 The armor is applied to protect the finished product from mechanical and rodent damage.

### **9.2 Armor Construction**

The armor tape can be applied either as a smooth helical tape with no overlap or corrugated and longitudinally applied. If an adhesive coated tape is used the armor must bond at the overlap.

### 9.3 Outer Jacket

An outer PE jacket shall be extruded over the armor and meet requirements of section 7.1.1, Tape 7.0 (Jacket material requirements), Table 7.1 (Nominal Diameter Over Jacket for Armored) and section 7.5 Jacket Eccentricity.

## 10.0 FINISHED PRODUCT MECHANICAL TESTS

### 10.1 PE Jacket Longitudinal Shrinkage

There shall be no more than 0.375 in. (9.53 mm) shrinkage along a six-inch length of finished product. The test shall comply with **IPS-TP-003**.

### 10.2 Dielectric Shrinkback

Dielectric shrinkback on the conductor shall be no more than 0.250 inch (6.35 mm) from both ends. All change in length from the time the specimens are cut shall be included. Samples shall be placed in an air circulating oven for four hours at  $239 \pm 2^\circ\text{F}$  ( $115 \pm 1^\circ\text{C}$ ). Test shall be according to ASTM D 4565.

### 10.3 Dielectric Shear Adhesion

The force that is required to strip the dielectric from the center conductor in the finished product as specified in **IPS-TP-102** should meet the requirements of Table 10.0.

**Table 10.0, Foam Dielectric and Disc Adhesion to Center Conductor**

<b>Product Type</b>	<b>Bond Strength, Minimum Pound Force, lbf (N)</b>
412-F	31 (138)
440-D	31 (138)
500-F	60 (267)
500-D	60 (267)
540-F	68 (302)
565-F	71 (316)
625-F	80 (356)
650-D	80 (356)
700-F	85 (378)
715-F	90 (400)
750-F	90 (400)
750-D	100 (445)
840-F	86 (382)
860-F	96 (427)
875-F	86 (382)
1000-F	111 (494)
1000-D	113 (503)
1125-F	120 (534)
1160-F	120 (534)

F=FOAM, D=DISC and AIR

#### 10.4 Air Leakage Test

The foam dielectric shall prohibit the flow of 5 psi of air for a minimum of 15 seconds in a 12-inch (304.80 mm) sample. Solid PE discs shall prohibit the flow of 40 psi of air for 60 seconds in a 6-inch (152.40 mm) sample. The test shall be performed in accordance with **IPS-TP-103**.

#### 10.5 Thermal Oxidative Stability

To ensure the desired life expectancy of the dielectric insulation, determine its Oxidative Induction Time (OIT) before and after aging by the following test method. Insulation shall be tested by measuring OIT according to ASTM D 4565, Section 17. The test utilizes insulation removed from the completed cable. Requirements for OIT – Initial: 20 minutes minimum, After aging: 70 percent of initial value.

#### 10.6 Cable Static Minimum Bend

The minimum bend diameter shall be observed at all times as stated and specified by the manufacture. The test shall be performed in accordance with **IPS-TP-108**.

#### 10.7 Cable Static Pull Force

The maximum pulling force for coaxial cable shall be determined by a calculation based on the measurement of tensile yield strength of the finished cable or outer conductor only. The maximum pull force (pounds) for a coaxial cable was determined by reducing the measured tensile strength (pounds) by a percentage as a safety factor. This safety factor (percentage reduction from yield) was determined by the manufacturer. By implementing this safety factor, the cable and/or the outer conductor yield is at a point well below permanent deformation. Reference manufacturer catalog specifications for maximum pulling tension.

### 11.0 FINISHED PRODUCT ELECTRICAL TESTS

#### 11.1 Characteristic Impedance

The Impedance shall be  $75 \pm 2$  ohms. The measurement method shall be performed according to **IPS-TP-006** or equivalent.

#### 11.2 Conductor Resistance

The DC conductor resistance of the inner and outer conductor shall be measured per **IPS-TP-008** and the loop resistance calculated from the inner and outer conductor. The maximum resistance values shall comply with Table 11.0.

**Table 11.0, Maximum DC Resistance at 68°F (20°C), Ohms/kft (Ohms/km)**

<b>Product Type</b>	<b>Inner Conductor</b>	<b>Outer Conductor</b>	<b>Loop</b>
412-F	2.17 (7.12)	0.50 (1.77)	2.67 (8.89)
440-D	1.45 (5.28)	0.50 (1.77)	1.95 (7.05)
500-F	1.42 (4.66)	0.37 (1.21)	1.79 (5.87)
500-D	1.09 (4.10)	0.46 (1.31)	1.55 (5.41)
540-F	1.06 (3.48)	0.60 (1.97)	1.66 (5.45)
565-F	1.01 (3.31)	0.36 (1.18)	1.37 (4.49)
625-F	0.90 (2.95)	0.25 (0.82)	1.15 (3.77)
650-D	0.66 (2.56)	0.34 (0.92)	1.00 (3.48)
700-F	0.62 (2.03)	0.26 (0.85)	0.88 (2.89)
715-F	0.61 (2.00)	0.45 (1.48)	1.06 (3.48)
750-F	0.58 (1.90)	0.19 (0.62)	0.77 (2.52)
750-D	0.47 (1.84)	0.24 (0.69)	0.71 (2.53)
840-F	0.45 (1.48)	0.18 (0.59)	0.63 (2.07)
860-F	0.41 (1.34)	0.32 (1.05)	0.73 (2.39)
875-F	0.42 (1.38)	0.13 (0.43)	0.55 (1.81)
1000-F	0.35 (1.15)	0.08 (0.26)	0.43 (1.41)
1000-D	0.26 (0.95)	0.15 (0.46)	0.41 (1.41)
1125-F	0.24 (0.79)	0.18 (0.59)	0.42 (1.38)
1160-F	0.23 (0.75)	0.08 (0.26)	0.31 (1.02)

F=FOAM, D=DISC and AIR

### 11.3 Velocity of Propagation (VOP)

The VOP shall be : nominal 87 percent for gas injected foam dielectric and 93 percent for air and disc dielectric.

### 11.4 Structural Return Loss (SRL)

The SRL shall be –30 dB minimum in the frequency range 5–1000 MHz, as measured per **IPS-TP-007** or equivalent.

### 11.5 Attenuation

The attenuation shall be measured per **IPS-TP-009** or equivalent and the maximum values shall meet the requirements of Table 11.1.

**Table 11.1, Maximum Attenuation at 68°F (20°C), dB/100 ft. (dB/100m)**

Frequency MHz.	412-F	440-D	500-F	500-D	540-F	565-F
5	0.20 (0.66)	0.17 (0.56)	0.16 (0.52)	0.14 (0.46)	0.14 (0.46)	0.14 (0.46)
55	0.68 ( 2.23)	0.56 (1.84)	0.55 (1.80)	0.48 (1.57)	0.47 (1.54)	0.47 (1.54)
211	1.35 (4.43)	1.11 (3.64)	1.09 (3.58)	0.95 (3.12)	0.95 (3.12)	0.95 (3.12)
250	1.49 (4.89)	1.21 (3.97)	1.20 (3.94)	1.03 (3.38)	1.03 (3.38)	1.03 (3.38)
270	1.55 (5.09)	1.26 (4.13)	1.24 (4.06)	1.08 (3.54)	1.08 (3.54)	1.07 (3.51)
300	1.64 (5.38)	1.33 (4.36)	1.31 (4.30)	1.14 (3.74)	1.14 (3.74)	1.13 (3.71)
330	1.73 (5.67)	1.40 (4.58)	1.38 (4.53)	1.20 (3.93)	1.20 (3.93)	1.19 (3.91)
350	1.78 (5.84)	1.44 (4.72)	1.43 (4.69)	1.23 (4.04)	1.23 (4.04)	1.23 (4.03)
400	1.91 (6.27)	1.54 (5.05)	1.53 (5.02)	1.32 (4.33)	1.33 (4.36)	1.32 (4.33)
450	2.05 (6.72)	1.64 (5.38)	1.63 (5.35)	1.40 (4.60)	1.41 (4.63)	1.40 (4.59)
500	2.16 (7.08)	1.72 (5.64)	1.73 (5.67)	1.48 (4.86)	1.50 (4.92)	1.49 (4.89)
550	2.26 (7.41)	1.81 (5.94)	1.82 (5.97)	1.55 (5.09)	1.58 (5.18)	1.56 (5.12)
600	2.37 (7.76)	1.90 (6.23)	1.92 (6.30)	1.63 (5.36)	1.66 (5.44)	1.64 (5.38)
750	2.68 (8.79)	2.13 (6.99)	2.17 (7.12)	1.83 (6.00)	1.86 (6.10)	1.85 (6.07)
870	2.91 (9.54)	2.32 (7.61)	2.35 (7.69)	2.00 (6.56)	2.00 (6.56)	2.01 (6.59)
1000	3.13 (10.27)	2.49 (8.17)	2.53 (8.30)	2.15 (7.07)	2.17 (7.12)	2.17 (7.12)

**Maximum Attenuation at 68°F (20°C), dB/100 ft. (dB/100 m)**

Frequency MHz.	625-F	650-D	700-F	715-F	750-F	750-D
5	0.13 (0.43)	0.11 (0.36)	0.11 (0.36)	0.11 (0.36)	0.11 (0.36)	0.10 (0.33)
55	0.46 (1.51)	0.38 (1.25)	0.37 (1.21)	0.36 (1.18)	0.37 (1.21)	0.34 (1.12)
211	0.92 (3.02)	0.76 (2.49)	0.75 (2.46)	0.74 (2.43)	0.74 (2.43)	0.66 (2.17)
250	1.00 (3.28)	0.83 (2.72)	0.82 (2.69)	0.81 (2.66)	0.81 (2.66)	0.72 (2.36)
270	1.04 (3.41)	0.86 (2.82)	0.85 (2.79)	0.84 (2.76)	0.85 (2.79)	0.75 (2.46)
300	1.08 (3.54)	0.91 (2.99)	0.90 (2.95)	0.89 (2.92)	0.90 (2.95)	0.79 (2.59)
330	1.16 (3.80)	0.96 (3.15)	0.95 (3.12)	0.95 (3.12)	0.95 (3.12)	0.83 (2.72)
350	1.19 (3.90)	0.99 (3.25)	0.98 (3.21)	0.97 (3.18)	0.97 (3.18)	0.86 (2.82)
400	1.28 (4.20)	1.06 (3.48)	1.05 (3.44)	1.05 (3.44)	1.05 (3.44)	0.91 (2.99)
450	1.35 (4.43)	1.13 (3.71)	1.12 (3.67)	1.12 (3.67)	1.12 (3.67)	0.97 (3.18)
500	1.43 (4.69)	1.19 (3.90)	1.19 (3.90)	1.19 (3.90)	1.19 (3.90)	1.03 (3.38)
550	1.51 (4.95)	1.25 (4.10)	1.25 (4.10)	1.25 (4.10)	1.25 (4.10)	1.08 (3.54)
600	1.58 (5.18)	1.34 (4.41)	1.32 (4.33)	1.31 (4.30)	1.33 (4.36)	1.11 (3.65)
750	1.79 (5.87)	1.50 (4.92)	1.49 (4.89)	1.49 (4.89)	1.52 (5.02)	1.25 (4.10)
870	1.95 (6.40)	1.64 (5.38)	1.62 (5.31)	1.64 (5.38)	1.65 (5.41)	1.37 (4.49)
1000	2.11 (6.92)	1.77 (5.82)	1.75 (5.74)	1.78 (5.84)	1.78 (5.84)	1.47 (4.84)

F=FOAM, D=DISC and AIR

**Maximum Attenuation at 68°F (20°C), dB/100 ft. (dB/100 m)**

<b>Frequency MHz.</b>	<b>840-F</b>	<b>860-F</b>	<b>875-F</b>
5	0.09 (0.30)	0.09 (0.30)	0.09 (0.30)
55	0.32 (1.04)	0.32 (1.05)	0.33 (1.08)
211	0.64 (2.10)	0.64 (2.10)	0.66 (2.17)
250	0.70 (2.30)	0.70 (2.30)	0.72 (2.36)
270	0.73 (2.40)	0.72 (2.36)	0.75 (2.46)
300	0.77 (2.53)	0.76 (2.49)	0.79 (2.59)
330	0.82 (2.69)	0.80 (2.62)	0.83 (2.72)
350	0.84 (2.76)	0.83 (2.72)	0.85 (2.79)
400	0.91 (2.99)	0.88 (2.89)	0.91 (2.99)
450	0.97 (3.18)	0.95 (3.12)	0.98 (3.22)
500	1.03 (3.38)	1.00 (3.28)	1.03 (3.38)
550	1.09 (3.58)	1.06 (3.48)	1.09 (3.58)
600	1.15 (3.77)	1.10 (3.61)	1.15 (3.77)
750	1.30 (4.27)	1.24 (4.07)	1.29 (4.23)
870	1.41 (4.62)	1.33 (4.36)	1.41 (4.63)
1000	1.53 (5.02)	1.44 (4.72)	1.53 (5.02)

**Maximum Attenuation at 68°F (20°C), dB/100 ft. (dB/100 m)**

<b>Frequency MHz.</b>	<b>1000-F</b>	<b>1000-D</b>	<b>1125-F</b>	<b>1160-F</b>
5	0.08 (0.26)	0.07 (0.23)	0.07 (0.23)	0.07 (0.23)
55	0.31 (1.02)	0.24 (0.79)	0.23 (0.76)	0.24 (0.79)
211	0.59 (1.94)	0.49 (1.61)	0.49 (1.61)	0.48 (1.58)
250	0.65 (2.13)	0.54 (1.77)	0.54 (1.77)	0.53 (1.76)
270	0.67 (2.20)	0.57 (1.87)	0.57 (1.87)	0.56 (1.84)
300	0.72 (2.36)	0.60 (1.97)	0.60 (1.97)	0.59 (1.94)
330	0.79 (2.59)	0.63 (2.07)	0.63 (2.07)	0.63 (2.07)
350	0.78 (2.56)	0.65 (2.13)	0.65 (2.13)	0.65 (2.13)
400	0.84 (2.76)	0.70 (2.30)	0.70 (2.30)	0.70 (2.30)
450	0.90 (2.95)	0.74 (2.43)	0.75 (2.46)	0.75 (2.46)
500	0.96 (3.15)	0.78 (2.56)	0.80 (2.62)	0.80 (2.62)
550	1.01 (3.31)	0.82 (2.69)	0.84 (2.76)	0.84 (2.76)
600	1.06 (3.48)	0.87 (2.86)	0.90 (2.92)	0.89 (2.92)
750	1.21 (3.97)	0.97 (3.18)	1.01 (3.51)	1.01 (3.31)
870	1.35 (4.43)	1.05 (3.44)	1.15 (3.77)	1.11 (3.64)
1000	1.44 (4.72)	1.16 (3.82)	1.20 (3.94)	1.20 (3.94)

F=FOAM, D=DISC and AIR

**References Listed In This Specification**



<b>Specification And Issue</b>	<b>Title</b>
ASTM A 641-92	Specification for Zinc-Coated (Galvanized) Carbon Steel Wire
ASTM B 211-93	Specification for Aluminum and Aluminum-Alloy Bar, Rod and Wire
ASTM B 221-93	Specification for Aluminum-Alloy Extruded Bars, Rods, Wire, Shapes and Tubes
ASTM B 233-92	Specification for Aluminum 1350 Drawing Stock for Electrical Purposes
ANSI H35.1	American Aluminum Association Alloy and temper Designation Systems or Aluminum 1XXX
ASTM B 566-93	Specification for Copper-Clad Aluminum Wire
ASTM B 557-94	Test Methods of Tension Testing Wrought and Cast Aluminum- and Magnesium-Alloy Products
ASTM B 694-86	Specification for Copper, Copper Alloy, and Copper Clad Stainless Steel Sheet and Strip for Electrical Cable Shielding
ASTM D 573-88	Test Method for Rubber-Deterioration in an Air Oven
ASTM D 638-91	Test Method for Tensile Properties of Plastics
ASTM D 746-79	Test Method for Brittleness Temperature of Plastics and Elastomers by Impact
ASTM D 1248-84	Specification for Polyethylene Plastics Molding and Extrusion Materials
ASTM D 1505-90	Test Method for Density of Plastics by the Density-Gradient Technique
ASTM D 1603-76	Test Method for Carbon Black in Olefin Plastics
ASTM D 3349-93	Test Method for Absorption coefficient of Ethylene Polymer Material Pigmented with Carbon Black
ASTM D 4565-90a	Test Method of Physical Environmental Performance Properties of Insulation's and Jackets for Telecommunications Wire and Cable
ASTM E 8-94a	Test Methods for Tension Testing of Metallic Materials
SCTE-IPS-TP-003	Polyethylene Jacket Longitudinal Shrinkage

#### **References Listed In This Specification**

<b>Specification And Issue</b>	<b>Title</b>
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SCTE-IPS-TP-006	Impedance
SCTE-IPS-TP-007	Structural Return Loss
SCTE-IPS-TP-008	DC Loop Resistance
SCTE-IPS-TP-009	Coaxial Cable Attenuation
SCTE-IPS-TP-014	Aerial Cable Corrosion Protection Flow
SCTE-IPS-TP-017	Moisture Inhibitor Corrosion Resistance
SCTE-IPS-TP-102	Dielectric Bond to Center Conductor
SCTE-IPS-TP-103	Dielectric Air Leakage Test
SCTE-IPS-TP-107	Polyethylene Jacket Cold Bend Test
SCTE-IPS-TP-108	Static Minimum Bend Test
NEC-1996	National Electrical Code
NFPA 70	National Fire Protection Association
ANSI/ASQC Q9000-1 and Q9004-1	
SAE/AISI - 1010	