INCH-POUND

MIL-DTL-17/233B
01 August 2013
SUPERSEDING
MIL-DTL-17/233A
7 March 2011

DETAIL SPECIFICATION SHEET

CABLES, RADIO FREQUENCY, FLEXIBLE, COAXIAL, 72 OHMS, LOW NOISE, LOW SMOKE, ENHANCED INSULATION RESISTANCE

This specification is approved for use by all Departments and Agencies of the Department of Defense.

The requirements for acquiring the product described herein shall consist of this specification sheet and MIL-DTL-17.

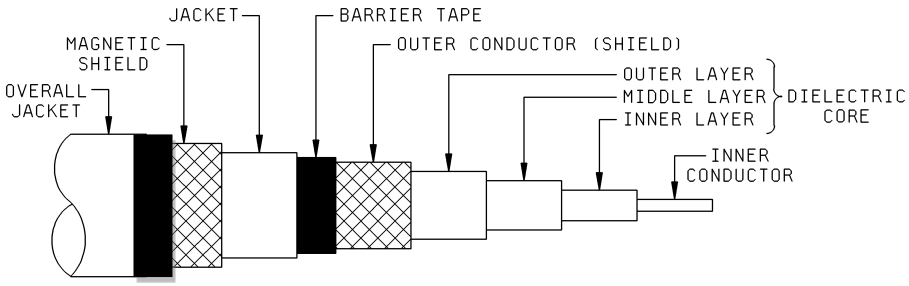

FIGURE 1. General configuration.

TABLE I. Description.

Components	Construction details
Inner conductor	Seven strands of tinned, copper wire. Each strand .0159 inch diameter. Overall diameter: .0477 inch ± .0020 concentric stranding centered within 10 percent of dielectric diameter.
Dielectric core Inner layer Middle layer Outer layer	Composite of three layers. Diameter: .295 inch ± .007. Type A-5: Semiconducting polyethylene; .003 inch nominal thickness. Type A-1: Solid polyethylene. Type A-5: Semiconducting polyethylene; .005 inch nominal thickness.

TABLE I. Description – Continued.

Components	Construction details
Outer conductor Outer conductor	Single braid of AWG size 34, tinned copper wire. Diameter: .340 inch, maximum. Coverage: 97.7% inch, maximum. Carriers: 24 Ends: 7 Picks/inch: 16.3 ±10%
Barrier tape	A .001 inch thick polyester tape faced with a .002 inch thick layer of aluminum. The tape will be applied with a 50% lap, nominal. Aluminum face toward the outer conductor. Diameter: .350 inch, maximum.
Jacket	Type XIV, cross linked optional. Diameter: .405 inch ±.010.
Magnetic shield	Single braid, 36 Gage, high permeability Nickel-Iron Alloy in accordance with MIL-N-14411, type 1. Diameter: .455 inch, maximum. Coverage: 85% inch, minimum. Carriers: 24 Ends: 8 Picks/Inch: 13.5
Barrier tape	A .001 inch thick polyester tape faced with a.002 inch thick layer of aluminum. The tape will be applied with a 50% lap, nominal. Aluminum face toward the magnetic shield. Diameter: .475 inch maximum.
Overall jacket	Type XIV, cross linked polyolefin. Thickness, .050 inch, minimum. Diameter: .560 inch, maximum.

ENGINEERING INFORMATION:

Continuous working voltage: 3,700 V rms, maximum.

Operating frequency: 1 GHz, maximum.

Velocity of propagation: 62 percent, nominal.

Operating temperature range: -30° to +85°C.

Inner conductor properties:

DC resistance, maximum, at 20°C: 0.65 ohms per 100 feet.

Elongation: 15 percent, minimum.

Tensile strength: 60 $klb_f/inch^2$, minimum.

Engineering notes: This cable useful in applications where electrical noise generated within the coaxial cable, due to flexure or vibration, must be limited.

REQUIREMENTS:

Dimensions, configuration and description: See figure 1 and table I.

Environmental and mechanical:

Visual and mechanical examination: Applicable.

Adhesion of conductors:

Inner conductor to core: 7 pounds, minimum; 50 pounds maximum.

Aging stability: +98° ±2°C.

Stress crack resistance: Not applicable.

Outer conductor integrity: Not applicable.

Cold bend: -40°C ±2°C.

Special requirements:

Magnetic shield continuity: One hundred percent of all finished cable shall be tested for shield continuity prior to shipment. To establish continuity, no more than 25V dc shall be applied across the shield through an appropriate indicator, such as an ohmmeter, light or buzzer.

Magnetic shield: To be applied to the maximum tension possible so as to prevent loosening or creeping but not cause broken ends. Braids shall have no irregularities or loose unwoven strands. There shall be no splices of the completed braid.

Dimensional stability: +85°C ±2C.

Inner conductor from core: 0.062 inch, maximum.

Inner conductor from jacket: .125 inch, maximum.

Contamination: Not applicable.

Flame propagation: Applicable.

Acid gas generation: 2.0 percent, maximum.

Halogen content: 0.2 percent, maximum.

Immersion test:

Tensile strength, percent of unaged minimum: 50.

Elongation, percent of unaged minimum: 50.

Smoke index: 25 maximum.

Toxicity index: 5 maximum.

Durometer hardness (type A) 80 minimum.

Weathering: Applicable.

Abrasion resistance: 75 cycles minimum (jacket only).

Tear strength: 35 pounds per inch.

Heat distortion: 30 percent maximum.

Physical tests on unaged jacket:

Tensile strength: 1,300 psi, minimum.

Elongation: 160 percent, minimum.

Physical tests on aged jacket:

Air oven:

Tensile strength, percent minimum: 60.

Elongation: percent minimum: 60.

Hot oil immersion:

Tensile strength, percent minimum: 50.

Elongation, percent minimum: 50.

Tensile strength and elongation: 1,300 psi, 160 percent minimum.

Weight: 0.235 Lbs/ft, maximum.

Electrical:

Spark test: 5,000 Vrms, +25 percent, -0 percent.

Voltage withstanding: 10,000 Vrms, minimum.

Insulation resistance:

300,000 megohms, minimum per 1,000 feet (center conductor to outer conductor) at 1,000 V dc.
1,500,000 megohms, minimum per 200 feet (center conductor to outer conductor) at 1,000 V dc.
10 megohms, minimum per 1,000 feet (outer conductor to magnetic shield) at 500 V dc.
50 megohms, minimum per 200 feet (outer conductor to magnetic shield) at 500 V dc.
15 megohms, minimum per 1,000 feet (magnetic shield to outer jacket surface) at 500 V dc.
75 megohms, minimum per 200 feet (magnetic shield to outer jacket surface) at 500V dc.

Corona extinction voltage: 5,000 V rms, minimum.

Characteristic impedance: 72 ±3 ohms.

Attenuation: 15 dB per 100 feet, maximum at 400 MHz.

Structural return loss: Not applicable.

Capacitance: 23 ±1 pF per foot, maximum.

Capacitance unbalance: Not applicable.

Transmission unbalance: Not applicable.

Mechanically induced noise voltage: 320 microvolts peak to peak, maximum.

Time delay: Not applicable.

Shielding effectiveness:

Frequency range: .00006 - .01 MHz.
Surface transfer impedance, 8.184 milliohms/meter, maximum.

Frequency range: .0101 – 100 MHz.
Surface transfer impedance, 11.296 milliohms/meter, maximum.

Surface transfer impedance measurements performed in accordance with SAE-AS85485. Testing performed with outer conductor shield and magnetic shield connected together on both ends and is considered the “Shield” in the test procedure.

Part or Identifying Number (PIN): M17/233-00001

Change notations. The margins of this standard are marked with vertical lines to indicate modifications generated by this change. This was done as a convenience only and the Government assumes no liability whatsoever for any inaccuracies in these notations. Bidders and contractors are cautioned to evaluate the requirements of this document based on the entire content irrespective of the marginal notations.

Referenced documents. In addition to MIL-DTL-17, this document references the following:
MIL-N-14411
SAE-AS85485

CONCLUDING MATERIAL

Custodians:
Army - CR
Navy - EC
Air Force – 85
DLA - CC

Review activities:
Army - AR, AT, CR4, MI
Navy - AS, MC, OS, SH
Air Force - 19, 99

Preparing activity:
DLA - CC

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NOTE: The activities listed above were interested in this document as of the date of this document. Since organizations and responsibilities can change, you should verify the currency of the information above using the ASSIST Online database at https://assist.dla.mil.