INCH-POUND

MIL-DTL-17/186C
22 May 2014
SUPERSEDING
MIL-C-17/186B
20 February 1991

DETAIL SPECIFICATION SHEET

CABLE, RADIO FREQUENCY, FLEXIBLE, TWIN,
78 OHMS, M17/186-00001

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.

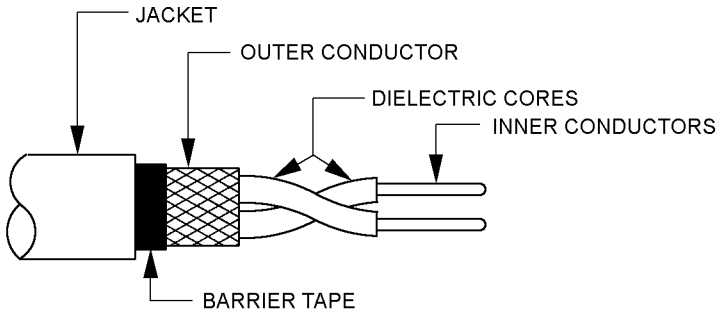

FIGURE 1. Configuration.

TABLE I. Description.

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Components	Construction details
Inner conductors	Two conductors. Seven strands of tinned copper wire, each strand .0126 inch diameter. One strand of one conductor shall be bare copper for identification. Overall diameter of each conductor: .0378 inch ± .0020.
Dielectric cores	Two cores, twisted together with a right-hand lay of 2 1/2 ± 1/2 inches. Type A-1: Solid polyethylene, each core. Fill-to-round not applicable. Diameter of each core: .079 inch ± .003.
Outer conductor	Single braid of AWG No. 36, tinned copper wire. Diameter .180 inch nominal. Coverage: 86.8% nominal Carriers: 16 Ends: 6 Picks/inch: 10.8 ± 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, aluminum face toward the outer conductor. Diameter: .190 inch maximum.
Jacket	Cross-linked polyolefin. Diameter of major axis: .235 inch ± .010. Jacket thickness: .018 inch minimum.`

REQUIREMENTS:

Continuous working voltage: 750 V rms, maximum.

Operating frequency: 10 MHz, maximum.

Velocity of propagation: 65.9 percent, nominal.

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

Inner conductor properties:

DC resistance (maximum at +20°C): 1.055 ohms per 100 feet (each conductor).

Elongation: 15 percent, minimum.

Engineering notes: This cable is useful in balance cables applications. These cables were redesigned to meet the vertical flame test.

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

Environmental and mechanical:

Visual and mechanical examination: Applicable.

Out-of-roundness: Not applicable.

Eccentricity: 10 percent maximum. 1/

Adhesion of conductors:

Inner conductor to core: 2 pounds, minimum; 20 pounds, maximum.

Aging stability: +98°C ± 2°C.

Cold bend: -30°C ± 2°C.

Dimensional stability: +85°C ± 2°C

Inner conductor from core: .062 inch, maximum.

Inner conductor from jacket: .125 inch, maximum.

Contamination: Not applicable.

Flame propagation: Applicable.

Acid gas generation: 2.0 percent, maximum.

1/ (T_{MAX}-T_{MIN}) shall be interpreted as the difference in total wall thickness measured (1) along a line through the centers of the conductors between the edge of each conductor and the nearest surface of the core and (2) between a line tangent to the two conductors and a parallel line tangent to the surface of the core on both sides of the conductors. The eccentricity corresponding to the larger measured value (T_{MAX}-T_{MIN}) shall be reported.

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 minimum.

Heat distortion: 30 percent maximum distortion.

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: 4.1 pounds per 100 feet maximum.

Electrical:

Spark test: 2,000 V rms, minimum.

Voltage withstanding: 2,000 V rms, minimum.

Corona extinction voltage: Not applicable.

Characteristic impedance: 78 ± 7 ohms. 2/
Attenuation: 2.8 dB per 100 feet maximum, at 10 MHz.

Structural return loss: Not applicable.

Capacitance: 24.5 pF per foot, maximum.

Capacitance unbalance: 5 percent maximum.

Part or Identifying Number (PIN): M17/186-00001.

NOTE: Marginal notations are not used in this revision to identify changes with respect to the previous issue due to the extent of the changes.

Referenced documents. This document references MIL-DTL-17.

2/ Measure inductance of a 10-foot ± 2 inch test cable at 1 MHz using a suitable test instrument. The shield shall be floated and the conductors shall be shorted at the far end. Calculate the impedance (Z) from the measured inductance (L) and the measured capacitance (C) using the formula:

$$Z = \sqrt{L/C} \text{ ohms}$$

CONCLUDING MATERIAL

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

Preparing activity:
DLA-CC

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

(Project 6145-2014-022)

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.