

INCH-POUND

MIL-DTL-17/181C
25 July 2014
SUPERSEDING
MIL-C-17/181B
20 February 1991

DETAIL SPECIFICATION SHEET

CABLES, RADIO FREQUENCY, FLEXIBLE COAXIAL, 75 OHMS,
M17/181-00001 UNARMORED, M17/181-00002 ARMORED

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.

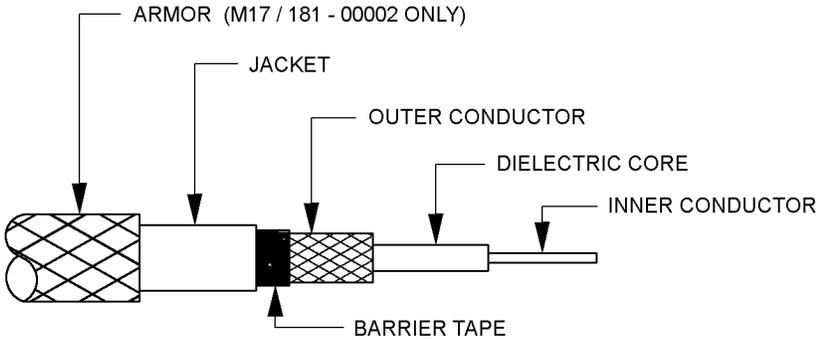


FIGURE 1. General configuration.

TABLE I. Description.

Component	Construction
Inner conductor	Seven strands of tinned, copper wire, .0159 inch each. Overall diameter: .0477 inch \pm 0.0020
Dielectric core	Type A-1: Solid, polyethylene Diameter: .285 inch \pm 0.007
Outer conductor	Single braid of AWG No. 33, bare copper wire Diameter: .330 inch maximum Coverage: 95.3% nominal Carriers: 24 Ends: 8 Picks/inch: 6.5 \pm 10%
Barrier tape	A .001 inch thick polyester tape faced with a .002 inch thick layer of aluminum. The tape shall be applied with a 50% lap, aluminum face toward the outer conductor. Diameter: .340 inch maximum
Jacket	Cross-linked polyolefin Diameter: .405 inch \pm 0.007
Armor (M17/181-00002 only)	Single braid of aluminum-alloy wire Diameter: .475 inch maximum

ENGINEERING INFORMATION

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

Operating frequency: 1 GHz, maximum.

Velocity of propagation: 65.9 percent, nominal.

Power rating: See figure 2.

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

Inner conductor properties:

DC resistance (maximum at +20°C): .66 ohms per 100 feet.

Elongation: 15 percent, minimum.

Engineering note: This cable is useful in low temperature applications.
(See connector series "N", "C" and "SC" in accordance with MIL-PRF-39012.)

REQUIREMENTS

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

Environmental and mechanical:

Visual and mechanical examination: Applicable.

Out-of-roundness: Not applicable.

Eccentricity: 10 percent, maximum.

Adhesion of conductors:

Inner conductor to core: 4 pounds, minimum; 20 pounds, maximum.

Aging stability: $+98^{\circ}\text{C} \pm 2^{\circ}\text{C}$.

Cold bend: $-30^{\circ}\text{C} \pm 2^{\circ}\text{C}$.

Dimensional stability: $+85^{\circ}\text{C} \pm 2^{\circ}\text{C}$.

Inner conductor from core: .062 inch, maximum.

Inner conductor from jacket: .125 inch, maximum.

Contamination: Not applicable.

Flame propagation: Applicable.

Acid gas generation: 2 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 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:

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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:

10.8 pounds per 100 feet, maximum. (M17/181-00001)

13.2 pounds per 100 feet, maximum. (M17/181-00002)

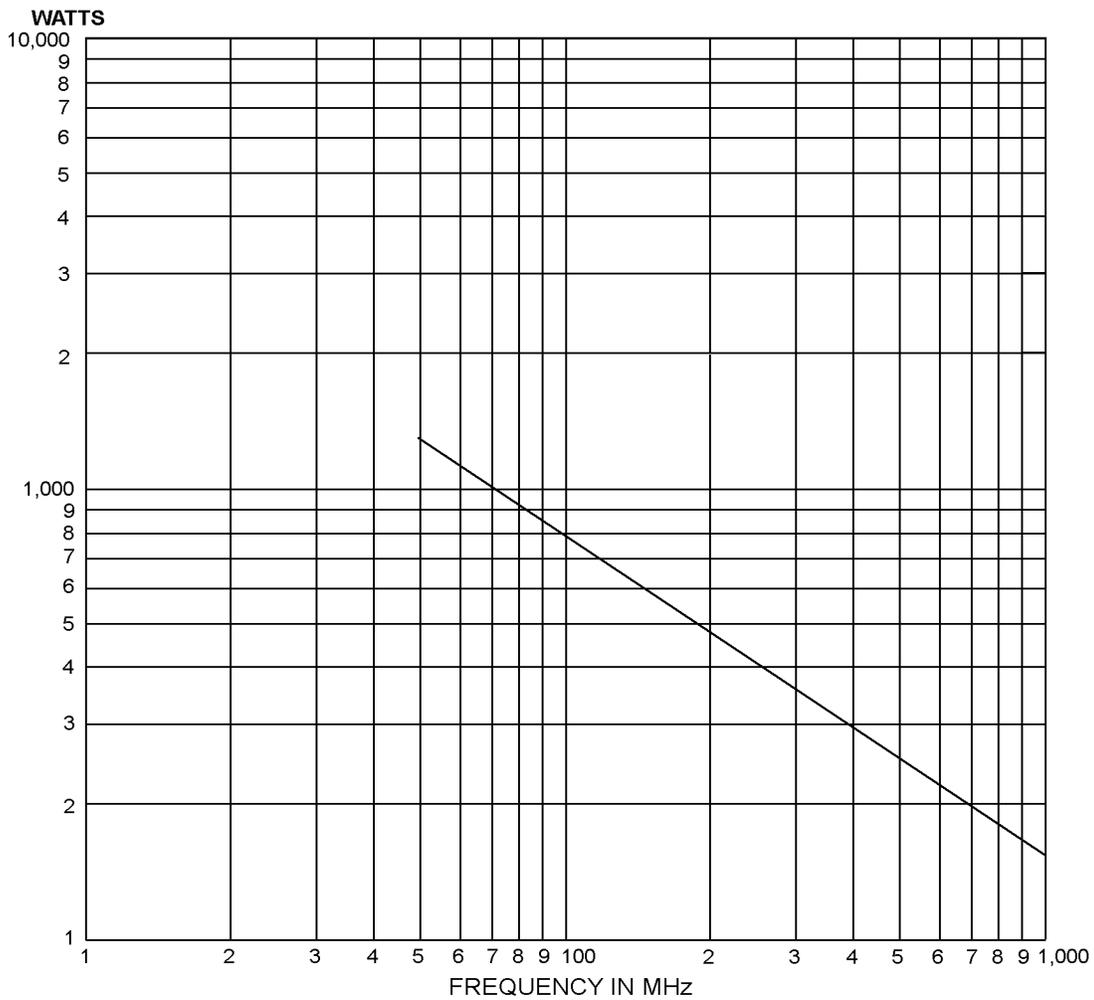


FIGURE 2. Power rating at sea level and 25°C.

Electrical:

Spark test: 5,000 V rms, minimum.

Voltage withstanding: 10,000 V rms, minimum.

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

Characteristic impedance: 75 ± 3 ohms.

Attenuation:

5.2 db per 100 feet, maximum at 0.4 Ghz.

9.4 db per 100 feet, maximum at 1 Ghz.

Structural return loss: Not applicable.

Capacitance: 22 pF per foot, maximum.

Part or Identifying Number (PIN): See table II.

TABLE II. Cross - reference of PIN.

PIN	
M17/181-00001	UNAMORED
M17/181-00002	ARMORED

Qualification: Not applicable.

Changes from previous issue. Marginal notations are not used in this revision to identify changes with respect to the previous issue due to the extensiveness of the changes.

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

MIL-PRF-39012

CONCLUDING MATERIAL

Custodians:

Army - CR
Navy - EC
Air Force - 85
DLA - CC

Preparing activity
DLA - CC

(Project 6145-2014-027)

Review activities:

Army - AT, CR4, MI
Navy - AS, MC, OS, SH
Air Force - 19, 99

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>.