

DETAIL SPECIFICATION SHEET

CABLES, RADIO FREQUENCY, FLEXIBLE COAXIAL,
75 OHMS, M17/180-00001

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.

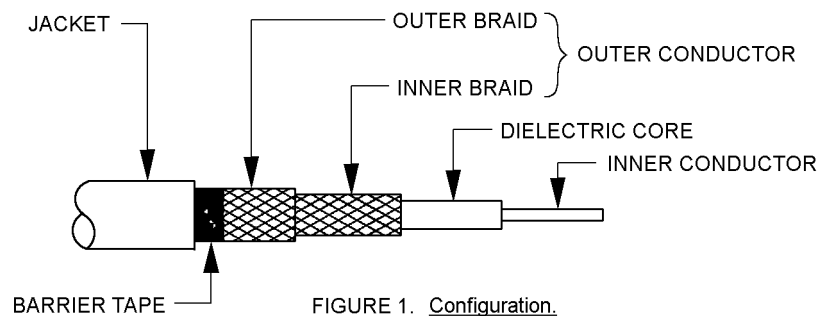


FIGURE 1. General configuration.

MIL-DTL-17/180C
w/AMENDMENT 1

TABLE I. Description.

Component	Construction												
Inner conductor	Solid, copper-covered, steel wire Diameter: .0285 inch $\pm$ 0.0010												
Dielectric core	Type A-1: Solid, polyethylene Diameter: .185 inch $\pm$ 0.004												
Outer conductor	Double braid of AWG No. 34, copper wire Diameter: .254 inch maximum												
Inner braid	<table> <tr> <td></td><td>Alternates</td></tr> <tr> <td>Wire coating: Silver-coated</td><td>Silver-coated</td></tr> <tr> <td>Coverage: 95% nominal</td><td>95% nominal</td></tr> <tr> <td>Carriers: 24</td><td>16</td></tr> <tr> <td>Ends: 6</td><td>9</td></tr> <tr> <td>Picks/inch: 8.8 $\pm$10%</td><td>5.9 $\pm$10%</td></tr> </table>		Alternates	Wire coating: Silver-coated	Silver-coated	Coverage: 95% nominal	95% nominal	Carriers: 24	16	Ends: 6	9	Picks/inch: 8.8 $\pm$ 10%	5.9 $\pm$ 10%
	Alternates												
Wire coating: Silver-coated	Silver-coated												
Coverage: 95% nominal	95% nominal												
Carriers: 24	16												
Ends: 6	9												
Picks/inch: 8.8 $\pm$ 10%	5.9 $\pm$ 10%												
Outer braid	<table> <tr> <td>Wire coating: Bare</td><td>Bare</td></tr> <tr> <td>Coverage: 95% nominal</td><td>95% nominal</td></tr> <tr> <td>Carriers: 24</td><td>16</td></tr> <tr> <td>Ends: 6</td><td>9</td></tr> <tr> <td>Picks/inch: 13.0 $\pm$10%</td><td>8.7 $\pm$10%</td></tr> </table>	Wire coating: Bare	Bare	Coverage: 95% nominal	95% nominal	Carriers: 24	16	Ends: 6	9	Picks/inch: 13.0 $\pm$ 10%	8.7 $\pm$ 10%		
Wire coating: Bare	Bare												
Coverage: 95% nominal	95% nominal												
Carriers: 24	16												
Ends: 6	9												
Picks/inch: 13.0 $\pm$ 10%	8.7 $\pm$ 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: .264 inch maximum												
Jacket	Type XIV, Cross-linked polyolefin Diameter: .332 inch $\pm$ 0.004												

ENGINEERING INFORMATION

Continuous working voltage: 2,000 V rms, maximum.

Operating frequency: 3 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): 4.4 ohms per 100 feet.

Elongation: 30 percent, minimum.

Tensile strength: 115klb/inch² minimum.

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

REQUIREMENTS (See table II)

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

Environmental and mechanical:

Visual and mechanical examination: Applicable.

Diameter: Applicable.

Out-of-roundness: Not applicable.

Eccentricity: 10 percent, maximum.

Adhesion of conductors:

Inner conductor to core: 4 pounds, minimum; 12 pounds, maximum.

Electrical and mechanical:

Continuity: Applicable.

Spark test: 5,000 V rms, minimum.

Voltage withstanding: 7,000 V rms, minimum.

Insulation resistance: Not applicable.

Corona extinction voltage: 2,700 V rms, minimum.

Characteristic impedance: 75 ± 3 ohms.

RF transmission loss (attenuation): 6.5 db per 100 feet, maximum at 0.4 Ghz.
23.0 db per 100 feet, maximum at 3 Ghz.

Standing wave ratio (return loss): Not applicable.

Capacitance: 22 pF per foot, maximum.

Capacitance stability:	Not applicable.
Capacitance unbalance:	Not applicable.
Transmission unbalance:	Not applicable.
Inductance:	Not applicable.
Mechanically induced noise voltage:	Not applicable.
Time delay:	Not applicable.

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

Stress crack resistance:	Not applicable.
Outer conductor integrity:	Not applicable.

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.

Bendability: Not applicable.

Flammability: 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, percent minimum: 1,300 psi, minimum.

Elongation, percent minimum: 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: 9.2 pounds per 100 feet, maximum.

Marking: Applicable.

Workmanship: Applicable.

Part or Identifying Number (PIN): M17/180-00001.

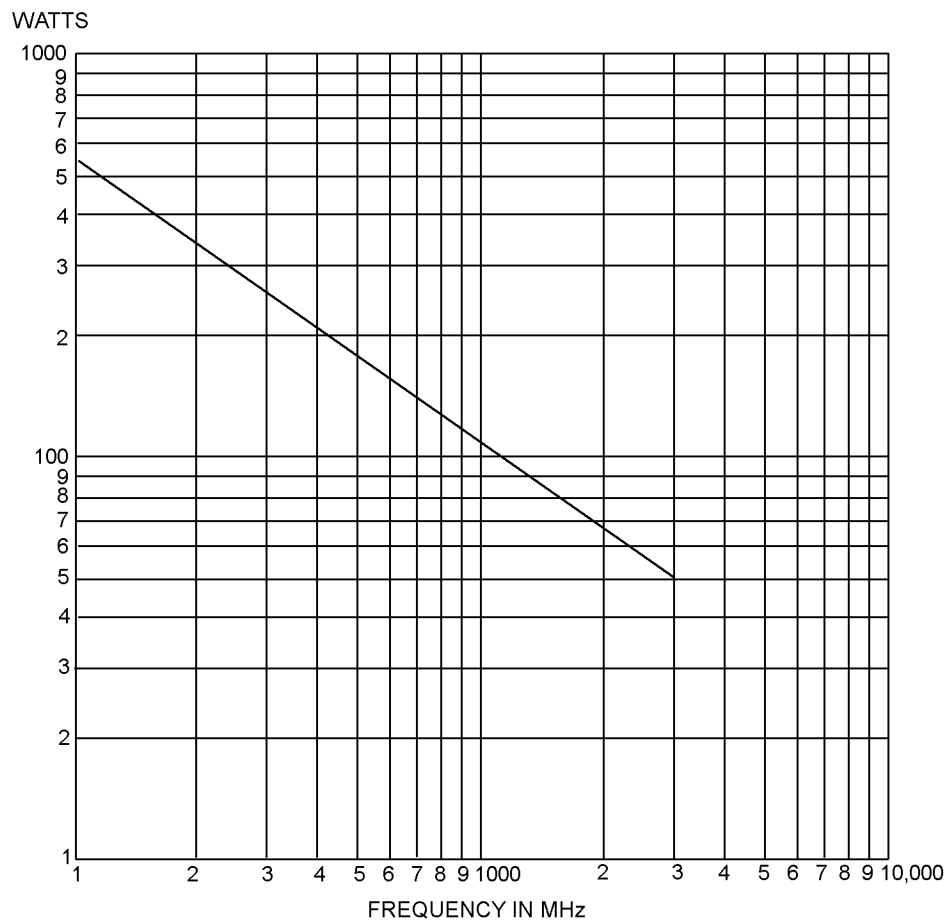


FIGURE 2. Power rating at sea level and 25°C.

MIL-DTL-17/180C
w/AMENDMENT 1

TABLE II. Qualification and Group A, B, and C Table.

Group	Qualification inspection	Requirement paragraph	Test paragraph	Qual- # of Specimens	Conf - # of Specimens	Conformance inspection
I	In-process inspection:		4.5	Entire sample		
	Continuity	3.7.1	4.8.2	Entire sample		
	Spark test	3.7.2	4.8.3	Entire sample		
	Voltage withstanding	3.7.3	4.8.4	Entire sample		
	Insulation resistance	N/A				
	Visual and mechanical inspection	3.6	4.8.1	Entire sample	Per Table VIII	A
	Diameter measurements.	3.6.1	4.8.1.1	Entire sample	Per Table VIII	A
	Out-of-roundness	N/A				
	Eccentricity of inner conductor	3.6.3	4.8.1.3	2	Per Table VIII	A
	Adhesion of conductors	3.6.4	4.8.1.4	4	Per Table VIII	A
	Marking	3.8	4.8.1	Entire sample	Per Table VIII	A
	Workmanship	3.10	4.8.1	Entire sample	Per Table VIII	A
II	Corona extinction voltage	3.7.5	4.8.6	1	Per Table VIII	B
	Characteristic impedance	3.7.6	4.8.7	1	Per Table VIII	A
	RF transmission loss (attenuation)	3.7.7	4.8.8	2	Per Table VIII	A
	Standing wave ratio (return loss)	N/A				
	Capacitance	3.7.9	4.8.10	1	Per Table VIII	B
	Capacitance stability	N/A				
	Capacitance unbalance	N/A				
	Transmission unbalance	N/A				
	Inductance	N/A				
	Mechanically induced noise voltage	N/A				

TABLE II. Qualification and Group A, B, and C Table - Continued.

Group	Qualification inspection	Requirement paragraph	Test paragraph	Qual- # of Specimens	Conf - # of Specimens	Conformance inspection
II	Time delay	N/A				
	Aging stability	3.7.15	4.8.16	4	Per Table VIII	C
	Stress crack resistance	N/A				
	Outer conductor integrity	N/A				
	Cold bend	3.7.18	4.8.19	3	Per Table VIII	B
	Dimensional stability	3.7.19	4.8.20	1	Per Table VIII	C
	Contamination	N/A				
	Bendability	N/A				
	Flammability	N/A				
	Flame propagation	3.7.23	4.8.25	1		
	Acid gas generation	3.7.24	4.8.26	1		
	Halogen content	3.7.25	4.8.27	1		
	Immersion tests	3.7.26	4.8.28	1		
	Smoke index	3.7.27	4.8.29	1		
	Toxicity Index	3.7.28	4.8.30	1		
	Durometer hardness	3.7.29	4.8.31	1		
	Weathering	3.7.30	4.8.32	1		
	Abrasion resistance	3.7.31	4.8.33	5		
	Tear strength	3.7.32	4.8.34	6	Per Table VIII	B
	Heat distortion	3.7.33	4.8.35	1	Per Table VIII	C
	Physicals (aged)	3.7.34	4.8.36	1	Per Table VIII	C
	Tensile strength and elongation	3.7.35	4.8.37	1	Per Table VIII	C
	Weight	3.9	4.8.24	1	Per Table VIII	B

Amendment notations: The margins of this specification are marked with vertical lines to indicate where modifications generated by this amendment. 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-PRF-39012

CONCLUDING MATERIAL

Custodians:

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

Preparing activity
DLA - CC

(Project 6145-2019-017)

Review activities:

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

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>.