

MIL-DTL-17/193C
w/AMENDMENT 2
25 June 2024
SUPERSEDING
MIL-DTL-17/193C
w/AMENDMENT 1
26 June 2019

DETAIL SPECIFICATION SHEET

CABLE, RADIO FREQUENCY, FLEXIBLE, COAXIAL,
50 OHMS, M17/193-00001 UNARMORED, M17/193-00002 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.

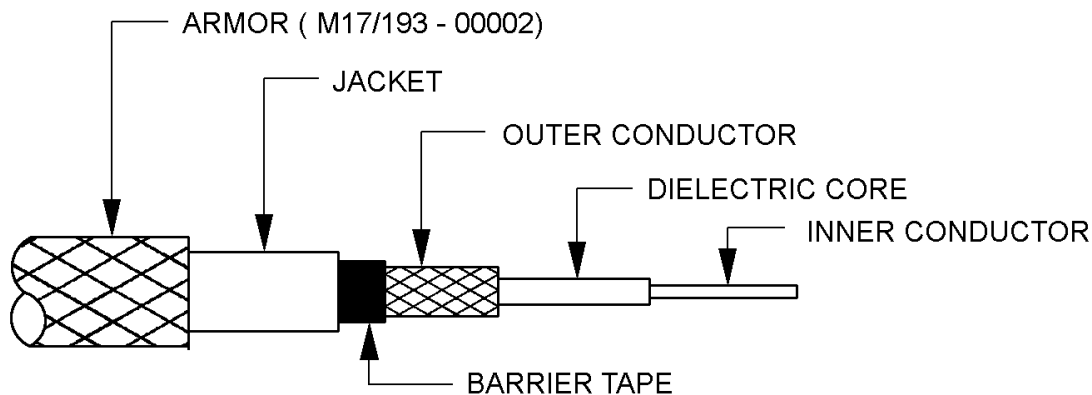


FIGURE 1. Configuration.

TABLE I. Description.

Components	Construction details		
Inner conductor	Solid bare copper wire. Diameter: .195 inch $\pm$.002.		
Dielectric core	Type A-1: Solid polyethylene. Diameter: .680 inch $\pm$.010.		
Outer conductor	Single braid of AWG No. 30, bare copper wire. Diameter: .740 inch maximum.		
	<u>Alternates</u>		
Inner	Coverage: 97.7% nominal	97.8% nominal	97.2% nominal
	Carriers: 24	36	48
	Ends: 14	9	7
	Picks/inch: 3.1 $\pm$ 10%	4.0 $\pm$ 10%	5.6 $\pm$ 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: .752 inch maximum.		
Jacket	Type XIV, Cross-linked polyolefin. Diameter: .870 inch $\pm$.010.		
Armor (M17/193-00002 only)	Single braid of aluminum –alloy wire. Diameter: .945 inch maximum.		

ENGINEERING INFORMATION

Continuous working voltage: 8,000 V rms, maximum.

Operating frequency: 1 GHz, maximum.

Velocity of propagation: 65.9 percent, nominal.

Power ratings: See figure 2.

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

Inner conductor properties:

DC resistance (maximum at +20°C): 0.0278 ohm per 100 feet.

Elongation: 30 percent, minimum.

Tensile strength: Not applicable.

REQUIREMENTS (See table II)

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

Environmental and mechanical:

Visual and mechanical examination: Applicable.

Diameter: Applicable.

Out-of-roundness: Applicable.

Eccentricity: 5 percent maximum.

Adhesion of conductors: Inner conductor to core: 60 pounds, minimum; 600 pounds, maximum.

Electrical and mechanical:

Continuity: Applicable.

Spark test: 8,000 V rms, minimum.

Voltage withstanding: 22,000 V rms, minimum.

Insulation resistance: Not applicable.

Corona extinction voltage: 11,000 V rms, minimum.

Characteristic impedance: 50 ± 2 ohms.

RF transmission loss (attenuation): See figure 2.

Standing wave ratio (return loss): See figure 3.

Capacitance: 32.2 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: .200 inch, maximum.
Inner conductor from jacket: .400 inch, maximum.

Contamination: Not applicable.
Bendability: Not applicable.
Flammability: 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 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:

52.1 pounds per 100 feet, maximum (M17/193-00001).

57.1 pounds per 100 feet, maximum (M17/193-00002).

Marking: Applicable.

Marking Durability: 125 cycles (250 strokes), 1 pound.

Workmanship: Applicable.

Part or Identifying Number (PIN):

M17/193-00001 unarmored.

M17/193-00002 armored.

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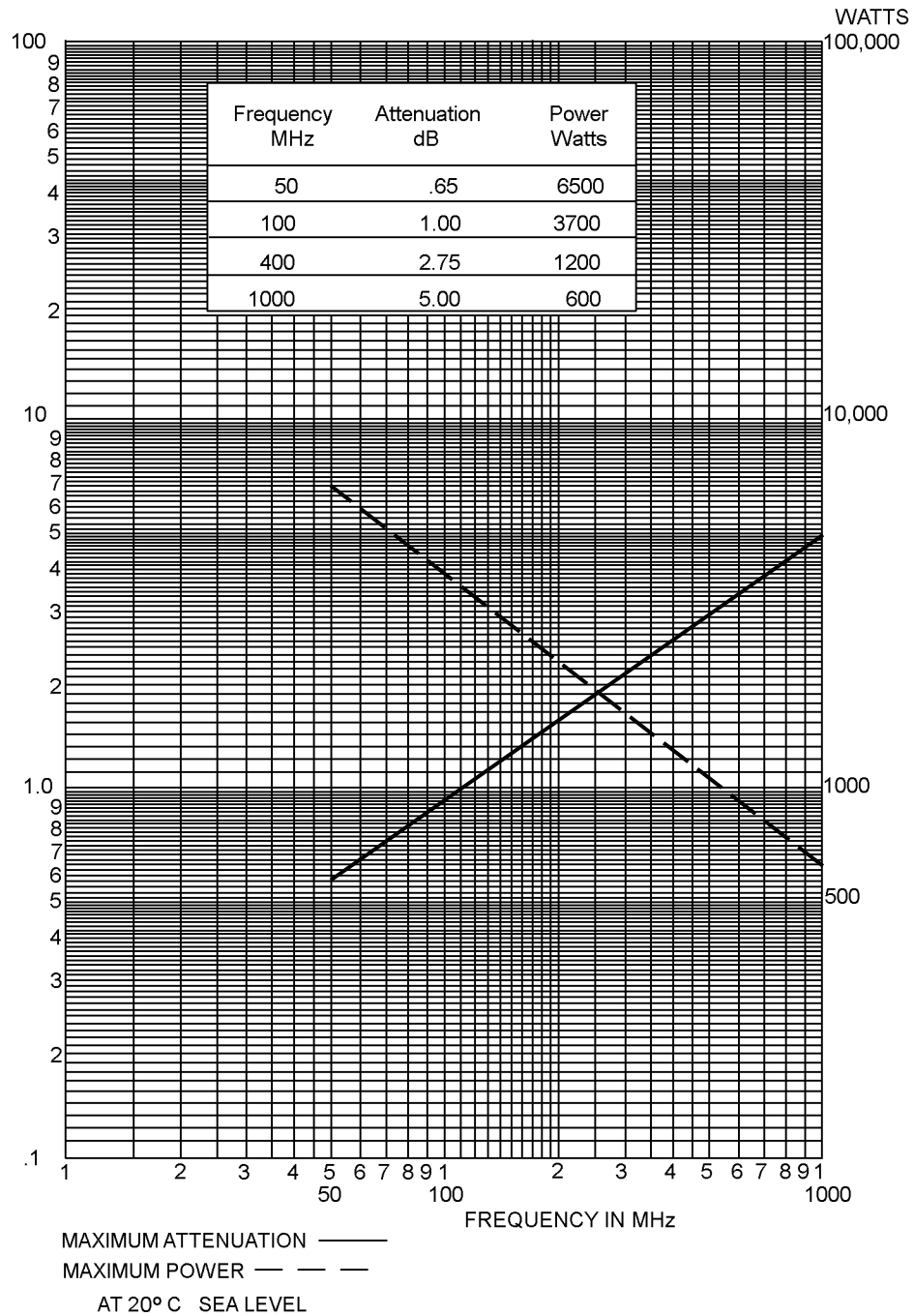


FIGURE 2. Power rating and attenuation.

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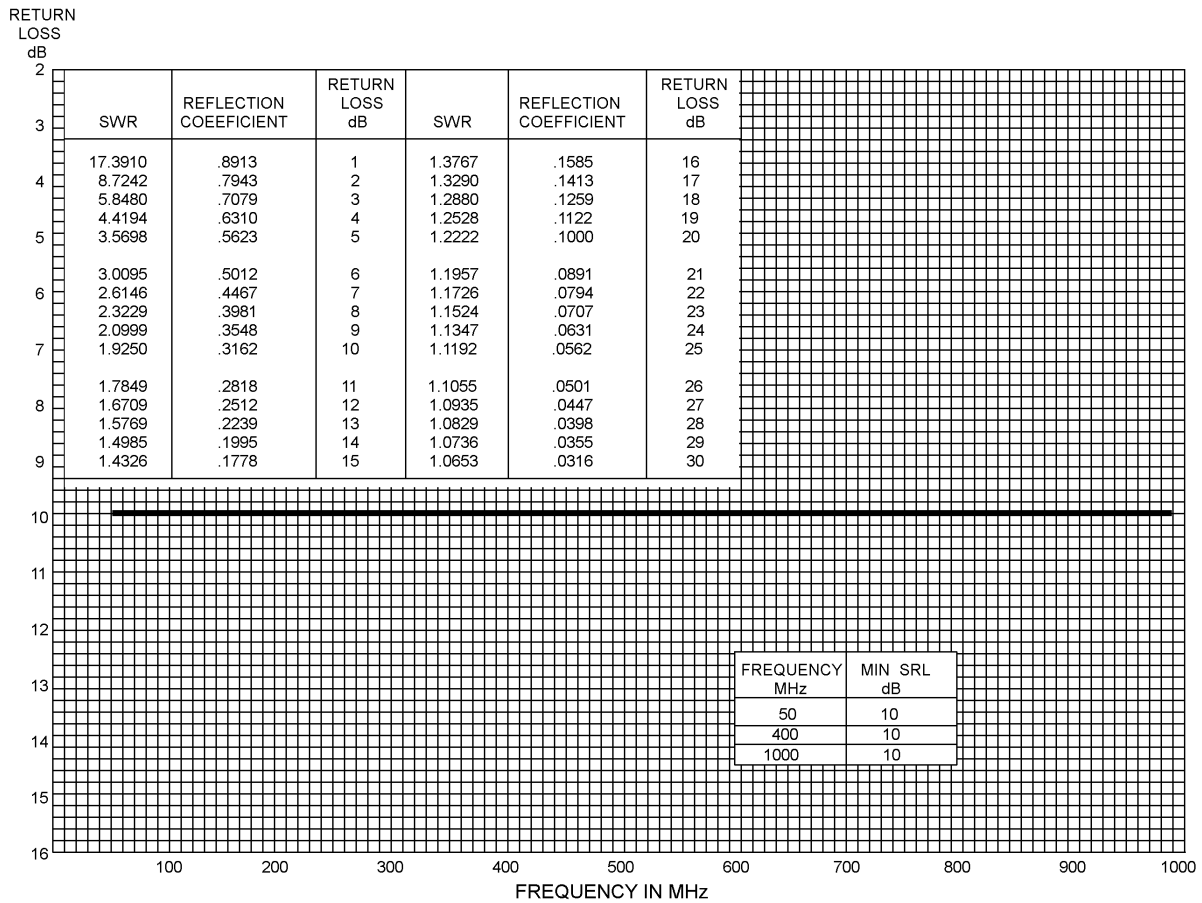


FIGURE 3. Structural return loss.

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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	3.6.2	4.8.1.2	Entire sample	Per Table VIII	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
	Marking Durability	3.8.2	4.8.39	3	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)	3.7.8	4.8.9	2	Per Table VIII	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				

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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	Mechanically induced noise voltage	N/A				
	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. This document references MIL-DTL-17.

CONCLUDING MATERIAL

Custodians:

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

Preparing activity:
DLA-CC

Review activities:

Army – AR, AT, CR4
Navy – AS, MC, OS
Air Force – 19

(Project 6145-2024-016)

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>.