

MIL-DTL-17/206B
w/AMENDMENT 2
30 July 2024
SUPERSEDING
MIL-DTL-17/206B
w/AMENDMENT 1
28 June 2019

DETAIL SPECIFICATION SHEET

CABLE, RADIO FREQUENCY, FLEXIBLE, COAXIAL,
50 OHMS, M17/206-0018 and M17/206-0030

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.

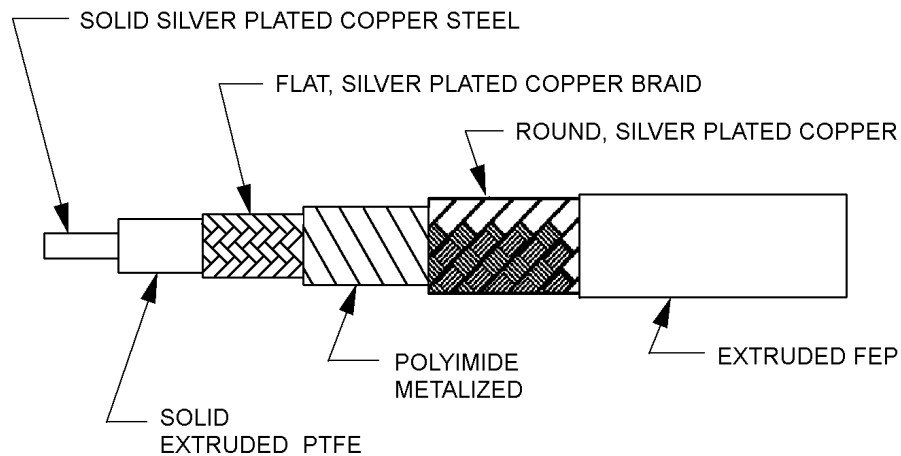


FIGURE 1. General configuration.

TABLE I. Description.

Components	Construction details
Inner conductor	Solid silver coated copper wire. Overall diameter: .0365 inch $\pm$.0003.
Dielectric core	Type F-1: Solid PTFE. Diameter: .117 inch $\pm$.003.
Inner shield helical wrap	Double braid with metalized polyimide interlayer. Diameter: .153 inch $\pm$.005. Carriers: 16 Ends: N/A Picks/inch: 18-19 Wire type: Flat, silver plated copper wire. .030 inch $\pm$.003 x .0020 inch $\pm$.0005.
Interlayer	45% overlap minimum, aluminum polyimide.
Outer braid	Carriers: 24 Ends: 4 Picks/inch: 23-25 Wire type: AWG 36, silver-plated copper wire. Diameter: .153 inch $\pm$.005.
Jacket	Type IX extruded FEP. Diameter: .169 inch $\pm$.005.



ENGINEERING INFORMATION

Continuous working voltage: 1,400 V rms, maximum.

Operating frequency: 30 GHz, maximum.

Velocity of propagation: 69.5 percent, nominal.

Power ratings: See figure 2.

Operating temperature range: -55°C to +200°C.

Inner conductor properties:

DC resistance (maximum at +20°C): 19.5 ohms per 1000 feet, maximum.

Elongation: 1 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: Not applicable.

Eccentricity: 10 percent maximum.

Adhesion of conductors:

Inner conductor to core: 4 pounds minimum, 30 pounds maximum.

Electrical and mechanical:

:

Test frequency:

M17/206-00018: 50 MHz to 18 GHz.

M17/206-00030: 50 MHz to 30 GHz.

Continuity: Applicable.

Spark test: 2,000 V rms, +25%, -0%.

Voltage withstanding: 3,000 V rms, minimum.

Insulation resistance: Not applicable.

Corona extinction voltage: 1,900 V rms minimum.

Characteristic impedance: 50 ± 2 ohms.

RF transmission loss (attenuation): See figure 2.

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Standing wave ratio (return loss): 1.15:1 at 12 GHz, 1.25:1 at 18 GHz, 1.30:1 at 30 GHz.

Capacitance: 32 pF per foot, maximum.

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

Stress crack resistance: $\pm 230^{\circ}\text{C}$.

Outer conductor integrity: Not applicable.

Cold bend: $-55^{\circ}\text{C} \pm 2^{\circ}\text{C}$.

Dimensional stability: $+200^{\circ}\text{C} \pm 5^{\circ}\text{C}$.

Inner conductor from core: .187 inch, maximum.
Inner conductor from jacket: .312 inch, maximum.

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

Flame propagation: Applicable.

Acid gas generation:	Not applicable.
Halogen content:	Not applicable.
Immersion test:	Not applicable.
Smoke index:	Not applicable.
Toxicity index:	Not applicable.
Durometer hardness:	Not applicable.
Weathering:	Not applicable.
Abrasion resistance:	Not applicable.
Tear strength:	Not applicable.
Heat distortion:	Not applicable.
Physical tests on unaged jacket:	Not applicable.
Physical tests on aged jacket:	Not applicable.
Tensile strength and elongation:	Not applicable.

Weight: 4 pounds per 100 feet maximum.

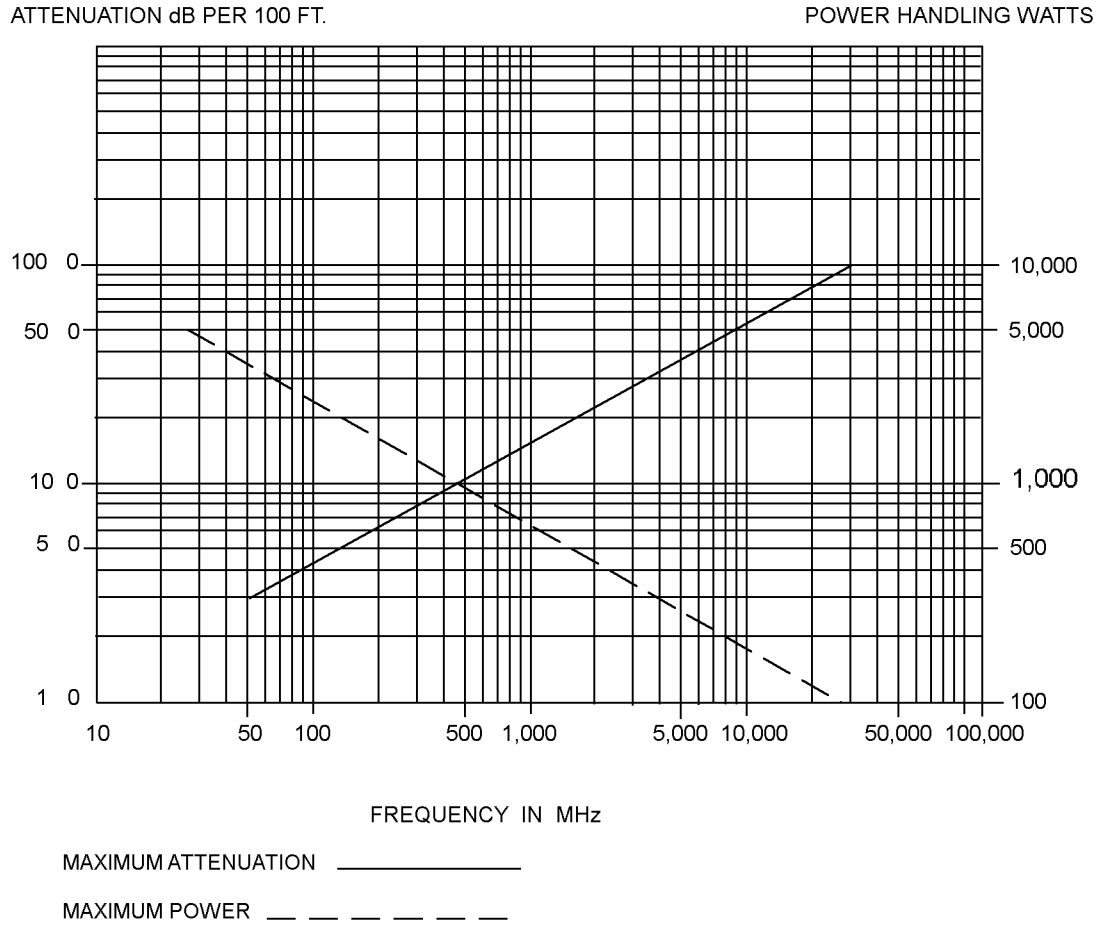
Marking: Applicable.

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

Workmanship: Applicable.

Part or Identifying Number (PIN): M17/206-00018 and M17/206-00030.

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ATTENUATION	
MHz	dB
50	3
400	9.0
3,000	27.0
11,000	59.0
18,000	75.0
30,000	100.0

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

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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	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
	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				
	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	N/A				
	Stress crack resistance	3.7.16	4.8.17	4	Per Table VIII	C
	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	N/A				
	Halogen content	N/A				
	Immersion tests	N/A				
	Smoke index	N/A				
	Toxicity Index	N/A				
	Durometer hardness	N/A				
	Weathering	N/A				
	Abrasion resistance	N/A				
	Tear strength	N/A				
	Heat distortion	N/A				
	Physicals (aged)	N/A				
	Tensile strength and elongation	N/A				
	Weight	3.9	4.8.24	1	Per Table VIII	B

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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 6145-2024-019)

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>.