

MIL-DTL-17/210A
w/AMENDMENT 2
30 July 2024
SUPERSEDING
MIL-DTL-17/210A
w/AMENDMENT 1
28 June 2019

DETAIL SPECIFICATION SHEET

CABLE, RADIO FREQUENCY, FLEXIBLE, COAXIAL,
50 OHMS, M17/210-00001

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.

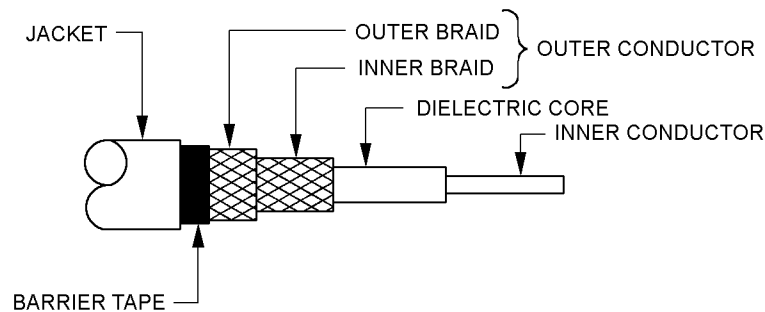


FIGURE 1. General configuration.

TABLE I. Description.

Components	Construction details
Inner conductor	Solid, bare, copper wire. Overall diameter: .195 inch $\pm$.002.
Dielectric core	Type A-1: Solid polyethylene. Overall diameter: .680 inch $\pm$.010.
Outer conductor	Double braid of AWG#34, silver-coated copper wire. Diameter: .760 inch maximum. Coverage: 93.5% Carriers: 48 Ends: 10 Picks/inch: 5.2 $\pm$ 10% Coverage: 90.4%, nominal Carriers: 48 Ends: 10 Picks/inch: 4.1 $\pm$ 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, minimum. Aluminum face toward the outer conductor. Diameter: .770 inch, maximum.
Jacket	Type XIV, Cross-linked polyolefin. Diameter: .895 inch $\pm$.015.



ENGINEERING INFORMATION:

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

Operating frequency: 5.6 GHz, maximum.

Velocity of propagation: 65.9 percent, nominal.

Power ratings: See figure 2.

Operating temperature range: -40°C to +80°C, maximum.

Inner conductor properties:

DC resistance (maximum at +20°C): .0278 ohms 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: Not 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 ohms $\pm$ 2.

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: Not applicable.
Time delay: Not applicable.

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

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

Cold bend: $-40^{\circ}\text{C} \pm 2^{\circ}\text{C}$.

Dimensional stability:

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: 57.2 pounds per 100 feet, maximum.

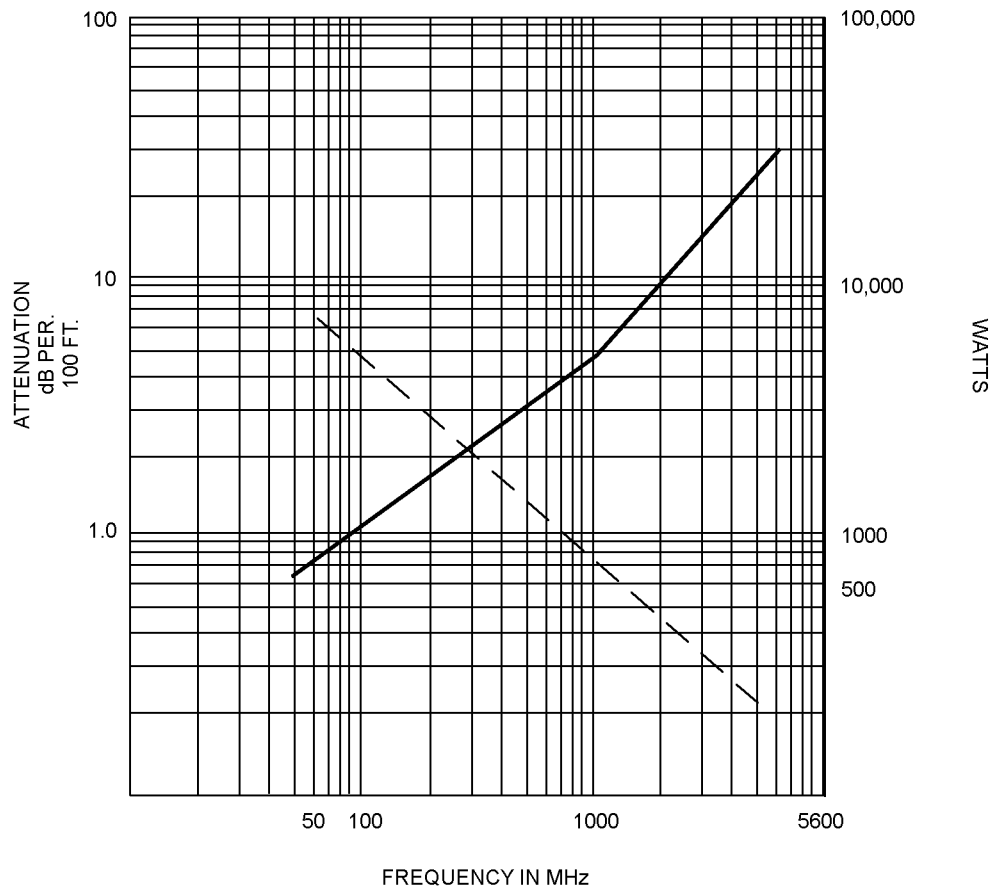
Marking: Applicable.

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

Workmanship: Applicable.

Part or Identifying Number (PIN): M17/210-00001.

MIL-DTL-17/210A
w/AMENDMENT 2



Frequency MHz	Attenuation dB	Power watts
50	.65	6500
100	1.00	5000
1000	5.00	750
5600	28.00	200

Maximum power - - - - - at 25°C sea level.
Maximum attenuation - - - - -

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

MIL-DTL-17/210A
w/AMENDMENT 2

SWR	Reflection Coefficient	Return loss dB	SWR	Reflection coefficient	Return loss dB
17.3910	.8913	1	1.3767	.1585	16
8.7242	.7943	2	1.3290	.1413	17
5.8480	.7079	3	1.2880	.1259	18
4.4194	.6310	4	1.2528	.1122	19
3.5698	.5623	5	1.2222	.1000	20
3.0095	.5012	6	1.1957	.0891	21
2.6146	.4467	7	1.1726	.0794	22
2.3229	.3981	8	1.1524	.0708	23
2.0999	.3548	9	1.1347	.0631	24
1.9250	.3162	10	1.1192	.0562	25
1.7849	.2818	11	1.1055	.0501	26
1.6709	.2512	12	1.0935	.0447	27
1.5769	.2239	13	1.0829	.0398	28
1.4985	.1995	14	1.0736	.0355	29
1.4326	.1778	15	1.0653	.0316	30

Frequency MHz	Min SRL
50	10
400	10
1000	10
2000	10
5600	10

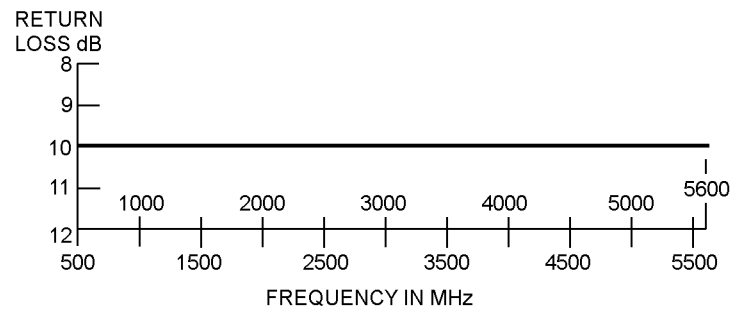


FIGURE 3. Structural return loss.

MIL-DTL-17/210A
w/AMENDMENT 2

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				

MIL-DTL-17/210A
w/AMENDMENT 2

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

MIL-DTL-17/210A
w/AMENDMENT 2

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 6145-2024-021)

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>.