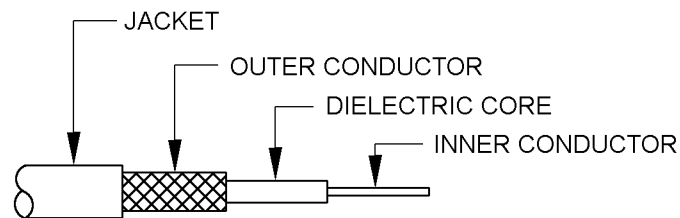


MILITARY SPECIFICATION SHEET

CABLE, RADIO FREQUENCY, FLEXIBLE, COAXIAL, 50 OHMS, M17/113-RG316

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	Seven strands of silver-coated, annealed-copper-covered, steel wire, each strand, .0067 inch diameter. Overall diameter: 0.0201 inch $\pm$ 0.0010.
Dielectric core	Type F-1: Solid, extruded PTFE. Diameter: 0.060 inch $\pm$ 0.003.
Outer conductor	Single braid of AWG No. 38 silver-coated copper wire. Diameter: 0.081 inch maximum. Coverage: 95.2% nominal Carriers: 16 Ends: 5 Picks/inch: 12.0 $\pm$ 10%
Jacket	Type IX: FEP. Diameter: 0.098 inch $\pm$ 0.004.



ENGINEERING INFORMATION:

Continuous working voltage: 900 V rms, maximum.
Operating frequency: 3 GHz, maximum.
Velocity of propagation: 69.5 percent, nominal.
Power rating: See figure 2.
Operating temperature range: -55°C to +200°C.
Inner conductor properties:
 DC resistance at 20°C: 8.41 ohms per 100 feet.
 Elongation: 10 percent, minimum.
 Tensile strength: 50 klbf/inch², minimum.

Engineering notes: This cable is useful in general purpose, high temperature applications. (See connector series "SMA", "SMB", and "SMC" per MIL-PRF-39012. NATO preferred type NWR-32).

REQUIREMENTS:

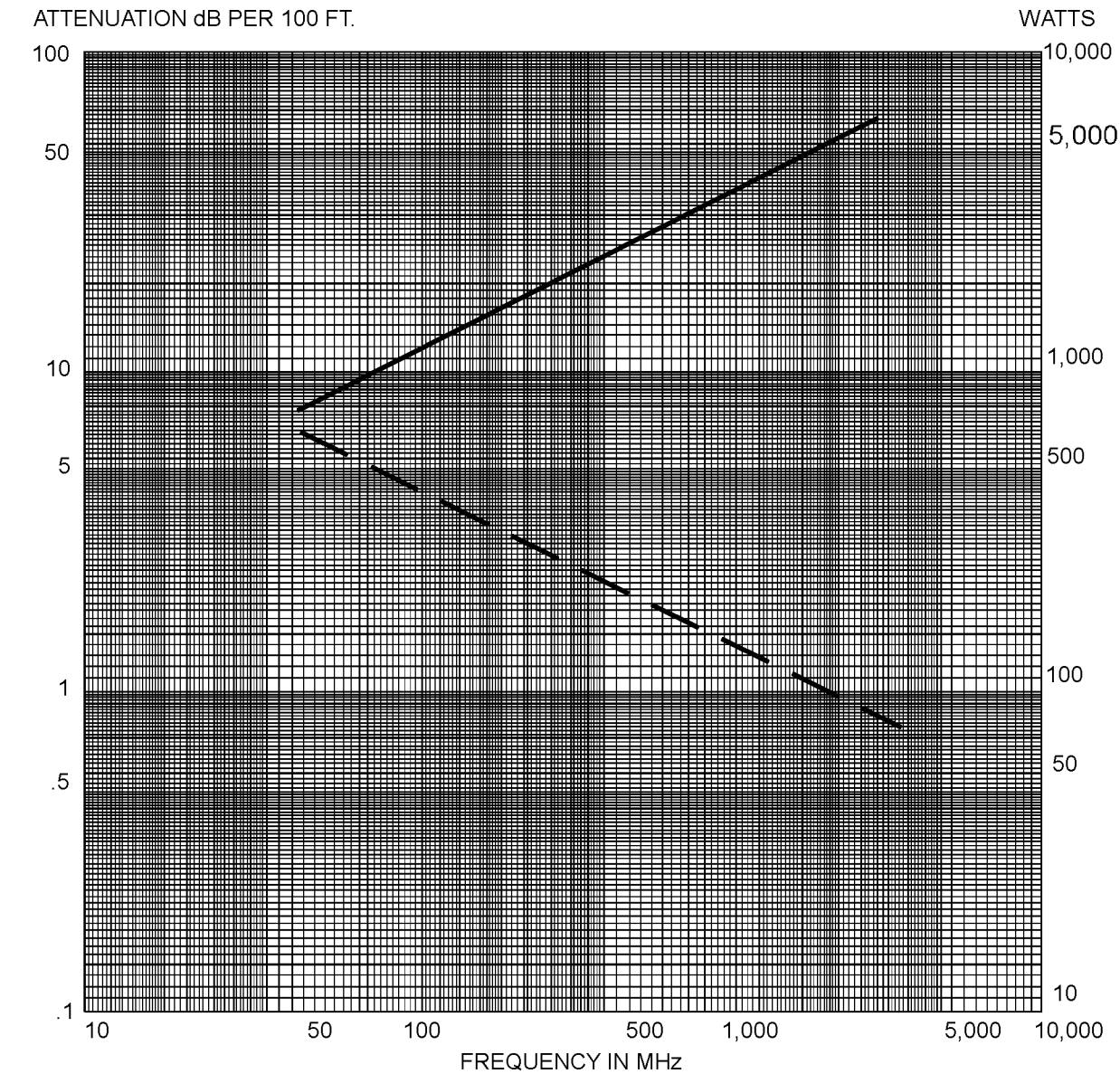
Design and construction:
 Dimensions, configuration, and description: See figure 1 and table I.
 Weight: 1.22 pounds per 100 feet, maximum.
Environmental and mechanical:
 Visual and mechanical examination:
 Eccentricity: 10 percent, maximum.
 Adhesion of conductors:
 Inner conductor to core: 2 pounds, minimum; 8 pounds, maximum.
 Stress crack resistance: +230° ± 5°C; mandrel size 7 1/2 times the jacket diameter.
 Cold Bend: -55° ± 2°C.
 Dimensional stability: +200° ± 5°C.
 Inner conductor from core: 0.187 inch, maximum.
 Inner conductor from jacket: 0.187 inch, maximum.
 Flammability: Applicable.

Electrical:

Capacitance: 32.0 pF per foot, maximum.
Test frequency: 50 MHz to 3 GHz.
Spark test: 2,000 Vrms, +25% -0%.
Voltage withstanding: 2,000 Vrms, minimum.
Insulation resistance: not applicable.
Corona extinction voltage: 1,200 Vrms, minimum.
Characteristic impedance: 50 ohms ± 2.
Attenuation: See figure 2.
Structural return loss: See figure 3.

Part or Identifying Number (PIN): M17/113-RG316.

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

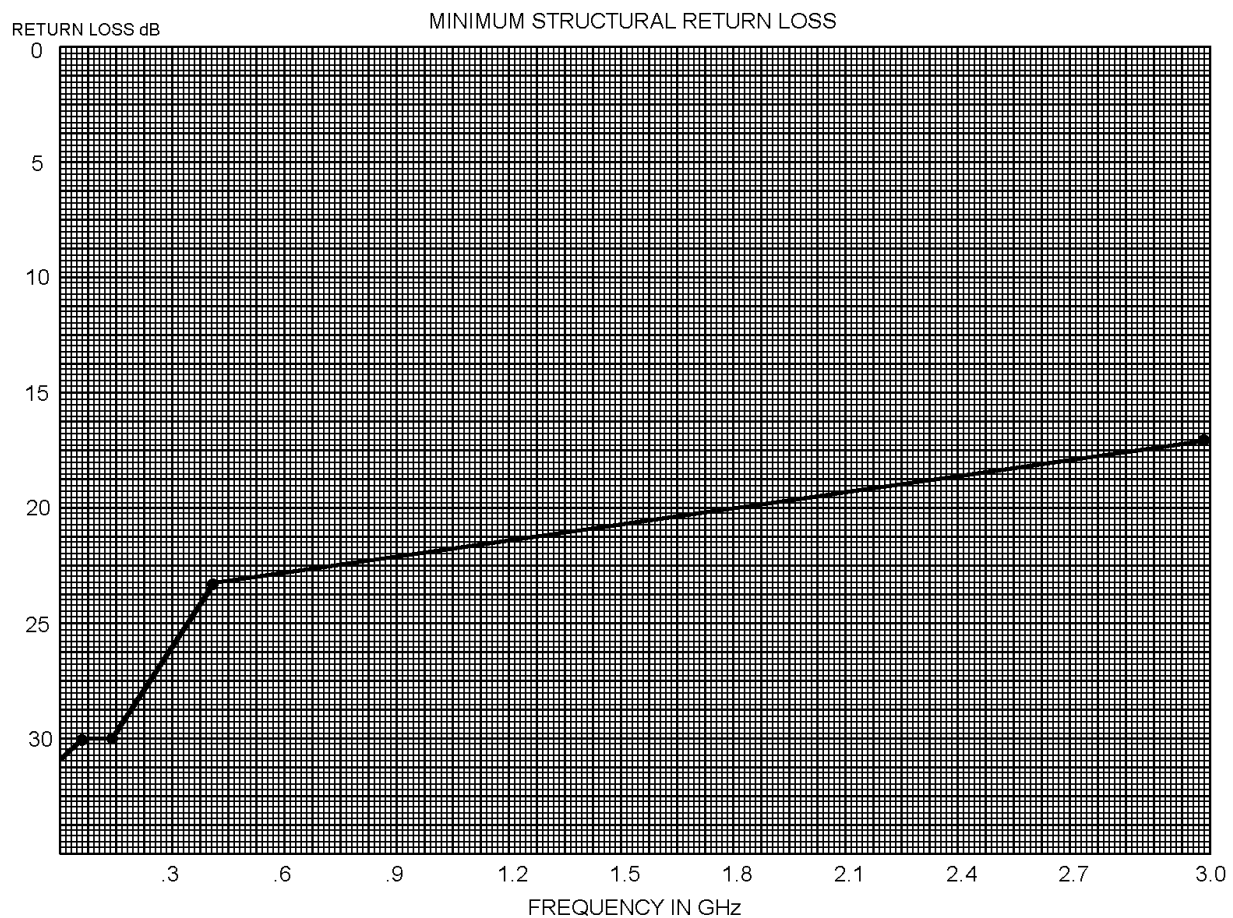


Maximum attenuation —————

Maximum power at 25°C, sea level - - - - -

Attenuation	
MHz	dB
50	7.5
100	11
400	21
1000	38
3000	58

FIGURE 2. Power rating and attenuation.



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

MHz	dB
50	30
100	30
400	23
1000	21
3000	17

FIGURE 3. Structural return loss.

Verification: See table II

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

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				
	Time delay	N/A				
	Aging stability	N/A				

TABLE II. Qualification and Group A, B, and C – Continued.

Group	Qualification inspection	Requirement paragraph	Test paragraph	Qual- # of Specimens	Conf - # of Specimens	Conformance inspection
II	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	3.7.22	4.8.23	1	Per Table VIII	C
	Flame propagation	N/A				
	Acid gas generation	N/A				
	Halogen content	N/A				
	Immersion	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	N/A				
	Tensile strength and elongation	N/A				
	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 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 6145-2025-020)

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>.