

INCH-POUND

MIL-DTL-17/93H  
19 June 2015  
SUPERSEDING  
MIL-C-17/93G  
17 August 1984

MILITARY SPECIFICATION SHEET

CABLE, RADIO FREQUENCY, FLEXIBLE, COAXIAL, 50 OHMS, M17/93-RG178 AND M17/93-00001

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.

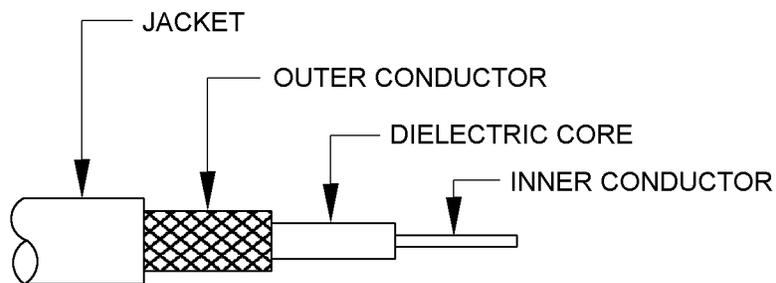


FIGURE 1. Configuration.

TABLE I. Description.

Components	Construction details
Inner conductor	Seven strands of silver-coated, annealed-copper-covered, steel wire, each strand, .004 inch diameter. Overall diameter: .012 inch $\pm$ .001
Dielectric core	Type F-1: Solid, extruded PTFE. Diameter: .033 inch $\pm$ .002.
Outer conductor	Single braid of AWG size 38 silver-coated copper wire. Diameter: .054 inch, maximum. Coverage: 95.9%, nominal Carriers: 16 Ends: 3 Picks/inch: 25.0 $\pm$ 10%
Jacket	Type IX: FEP for M17/93-RG178. Type XIII: PFA for M17/93-00001. Diameter: .071 inch $\pm$ .004.

AMSC N/A

FSC 6145



ENGINEERING INFORMATION:

Continuous working voltage: 750 V rms, maximum.

Operating frequency: 3 GHz, maximum.

Velocity of propagation: 69.5 percent, nominal.

Power rating: See figure 2.

Operating temperature range:

-55° to 200°C (M17/93-RG178)

-55° to 230°C (M17/93-00001)

Inner conductor properties:

DC resistance (maximum at 20°C): 24.45 ohms per 100 feet.

Elongation: 10 percent, minimum.

Tensile strength: 50 klb<sub>f</sub>/inch<sup>2</sup>, minimum.

Engineering notes: This cable useful in general purpose, high temperature applications (see connector series "SMA", "SMB", and "SMC" per MIL-PRF-39012).

REQUIREMENTS:

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

Environmental and mechanical:

Visual and mechanical examination:

Eccentricity: 10 percent, maximum.

Adhesion of conductors:

Inner conductor to core: 1.0 pound, minimum; 4 pounds, maximum.

Cold bend: -55°C ± 2°C.

Stress-crack resistance: +230°C ± 5°C (for M17/93-RG178) or +250°C ± 5°C (for M17/93-00001) for 96 hours; mandrel size 7 1/2 times the jacket diameter.

Dimensional stability: +200°C ± 5°C.

Inner conductor from core: .125 inch, maximum.

Inner conductor from jacket: .312 inch, maximum.

Flammability: Applicable.

Weight: .625 pound per 100 feet, maximum.

Electrical:

Test frequency: 50 MHz to 3 GHz.

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

Voltage withstanding: 2,000 V rms, minimum.

Corona extinction voltage: 1,000 V rms, minimum.

Characteristic impedance: 50 ± 2 ohms.

Attenuation: See figure 2.

Structural return loss: See figure 3.

Capacitance: 32 pF per foot, maximum.

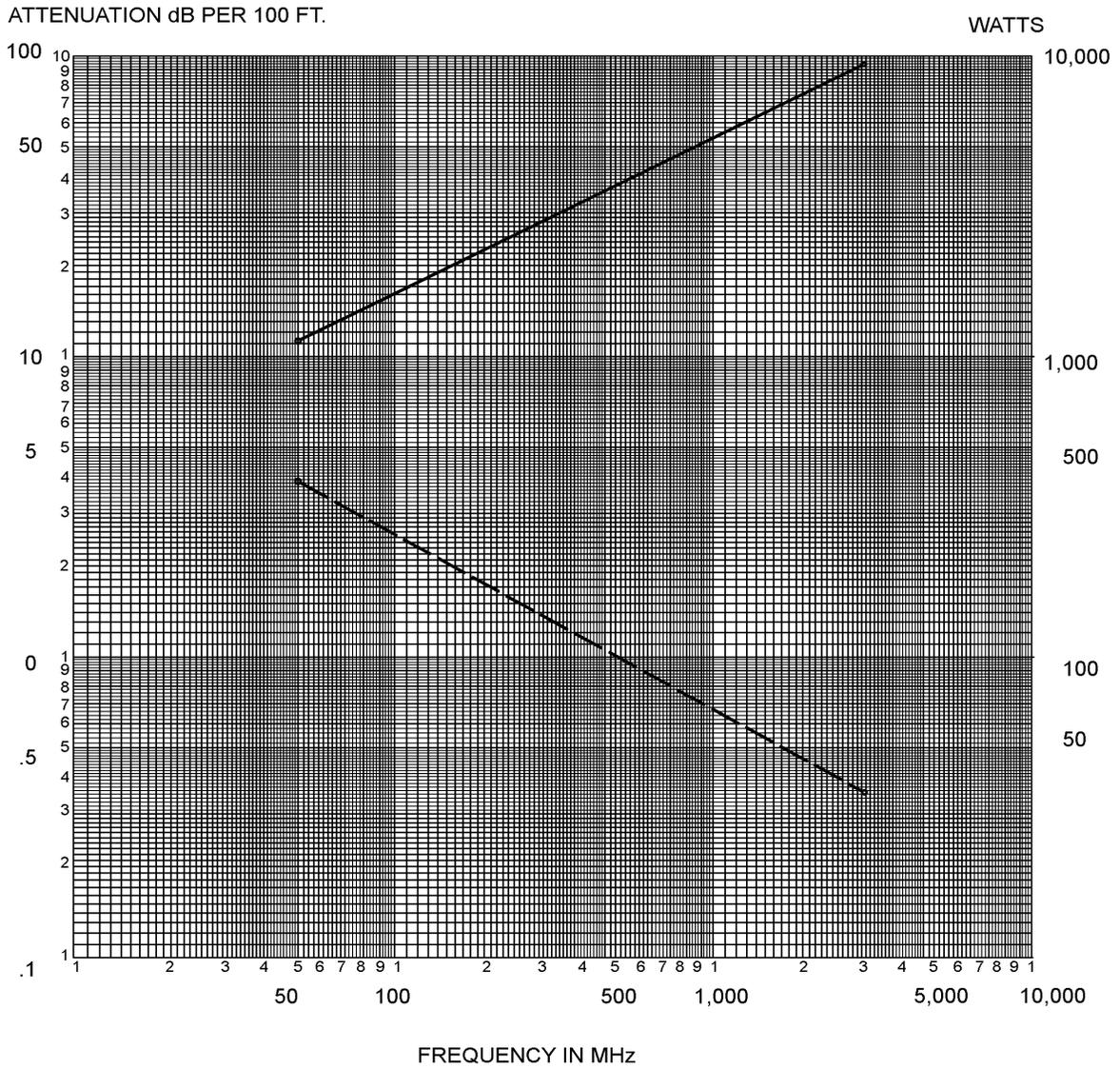
Capacitance unbalance: Not applicable.

Transmission unbalance: Not applicable.

Mechanically induced noise voltage: Not applicable.

Time delay: Not applicable.

Contamination: Not applicable.

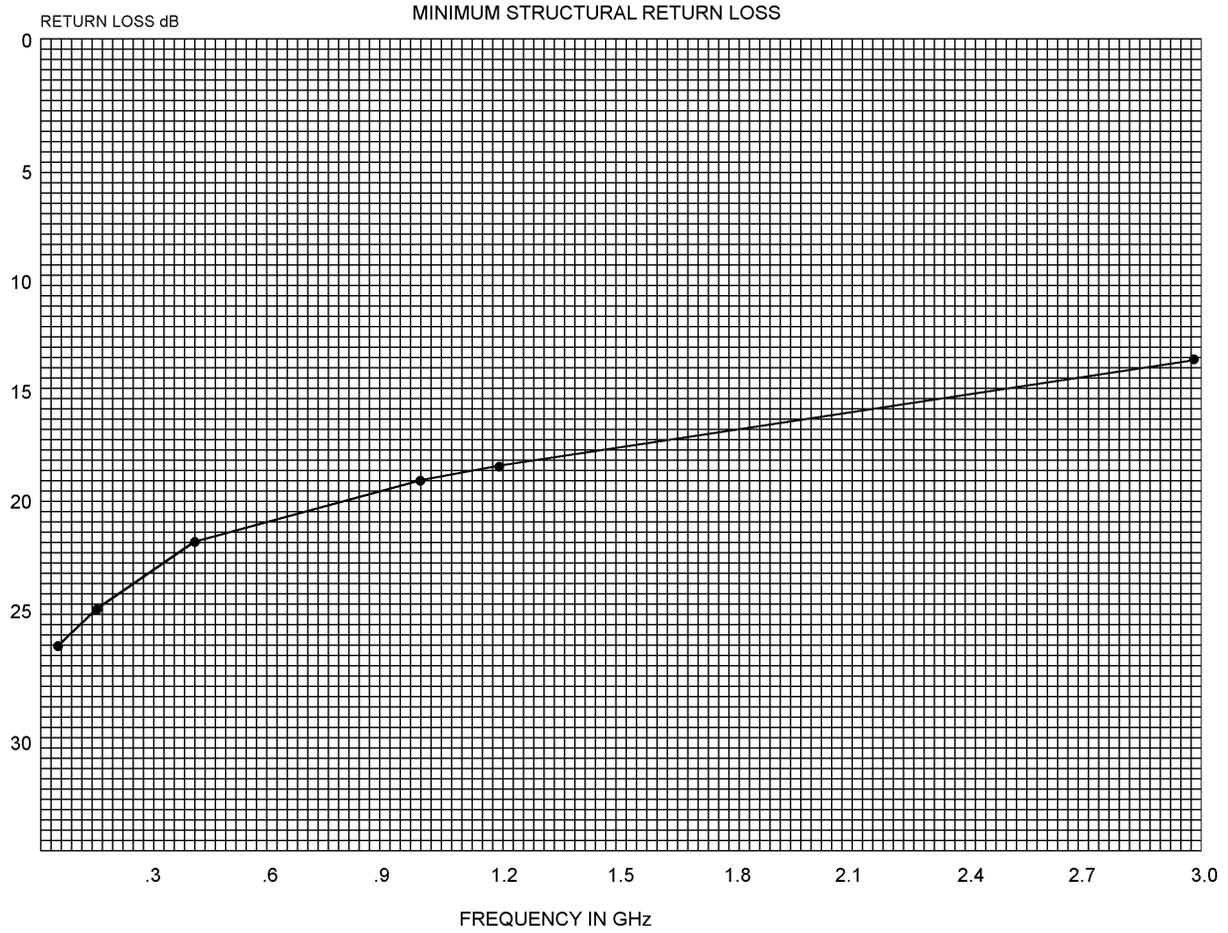


MAXIMUM ATTENUATION \_\_\_\_\_

MAXIMUM POWER AT 25°C SEA LEVEL - - - - -

FIGURE 2. Power rating and attenuation.

Attenuation	
MHz	dB
50	11.6
100	16
400	33
1000	52
3000	94



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

Structural Return Loss	
MHz	dB
50	26
100	25
400	22
1000	19
3000	14

FIGURE 3. Structural return loss.

Part or Identifying Number (PIN): M17/93-RG178 (NATO preferred type NWR-34).  
M17/93-00001.

Supersession data: See table II.

TABLE II. Cross reference of part number.

PIN	Superseded PIN or type designation
M17/93-00001	M17/140-00001

Changes from previous issue. Marginal notations are not used in this revision to identify changes with respect to the previous issue due to the extensiveness of the changes.

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 6145-2015-012)

Review activities:

Army – AT, CR4, MI  
Navy – AS, MC, OS, SH  
Air Force – 19, 99

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>.