

DETAIL SPECIFICATION SHEET

CABLE, RADIO FREQUENCY, FLEXIBLE, COAXIAL, 50 OHMS, M17/127-RG393

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.

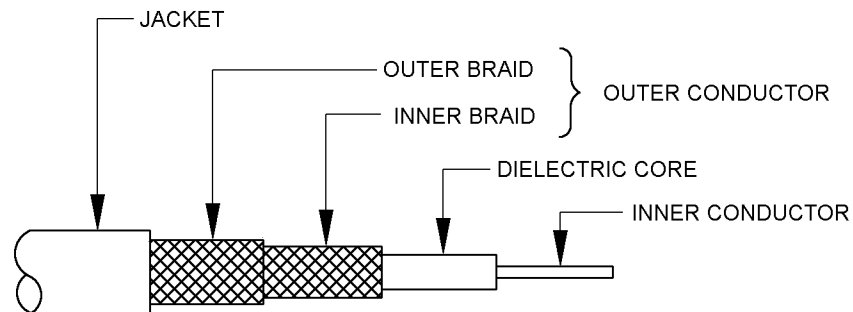


FIGURE 1. Configuration.

TABLE I. Description.

Components	Construction details
Inner conductor	Seven strands of silver-coated copper wire, each strand .0312 inch diameter. Overall diameter: .094 inch $\pm$.001.
Dielectric core	Type F-1: Solid, extruded PTFE. Diameter: .285 inch $\pm$.005.
Outer conductor	Double braid of AWG size 34 silver-coated copper wire. Diameter: .360 inch maximum.
Inner braid	Coverage: 95.7% nominal Carriers: 24 Ends: 6 Picks/inch: 16.6 $\pm$ 10%
Outer braid	Coverage: 98.0% nominal Carriers: 24 Ends: 7 Picks/inch: 15.4 $\pm$ 10%
Jacket	Type IX: FEP. Diameter: .390 inch $\pm$.010.



ENGINEERING INFORMATION:

Continuous working voltage: 1,875 V rms, maximum.
Operating frequency: 11 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 (maximum at 20°C): 0.152 ohm per 100 feet.
 Elongation: 20 percent, minimum.
 Tensile strength: Not applicable.

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

REQUIREMENTS:

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

Environmental and mechanical:

Visual and mechanical examination: Applicable.
Diameter: See figure 1 and table I.
Out-of-roundness: See figure 1 and table I.
Eccentricity: 10 percent, maximum.
Adhesion of conductors:
 Inner conductor to core: 10 pounds, minimum; 50 pounds, maximum.
Aging stability: Not applicable.
Stress crack resistance: +230° ± 5°C; mandrel size 5 times the jacket diameter.
Outer conductor integrity: Not applicable.
Cold bend: -55° ± 2°C.
Dimensional stability: +200° ± 5°C.
 Inner conductor from core: .250 inch, maximum.
 Inner conductor from jacket: .475 inch, maximum.
Bendability: Not applicable.
Flammability: Applicable.
Weight: 17.5 pounds per 100 feet, maximum.

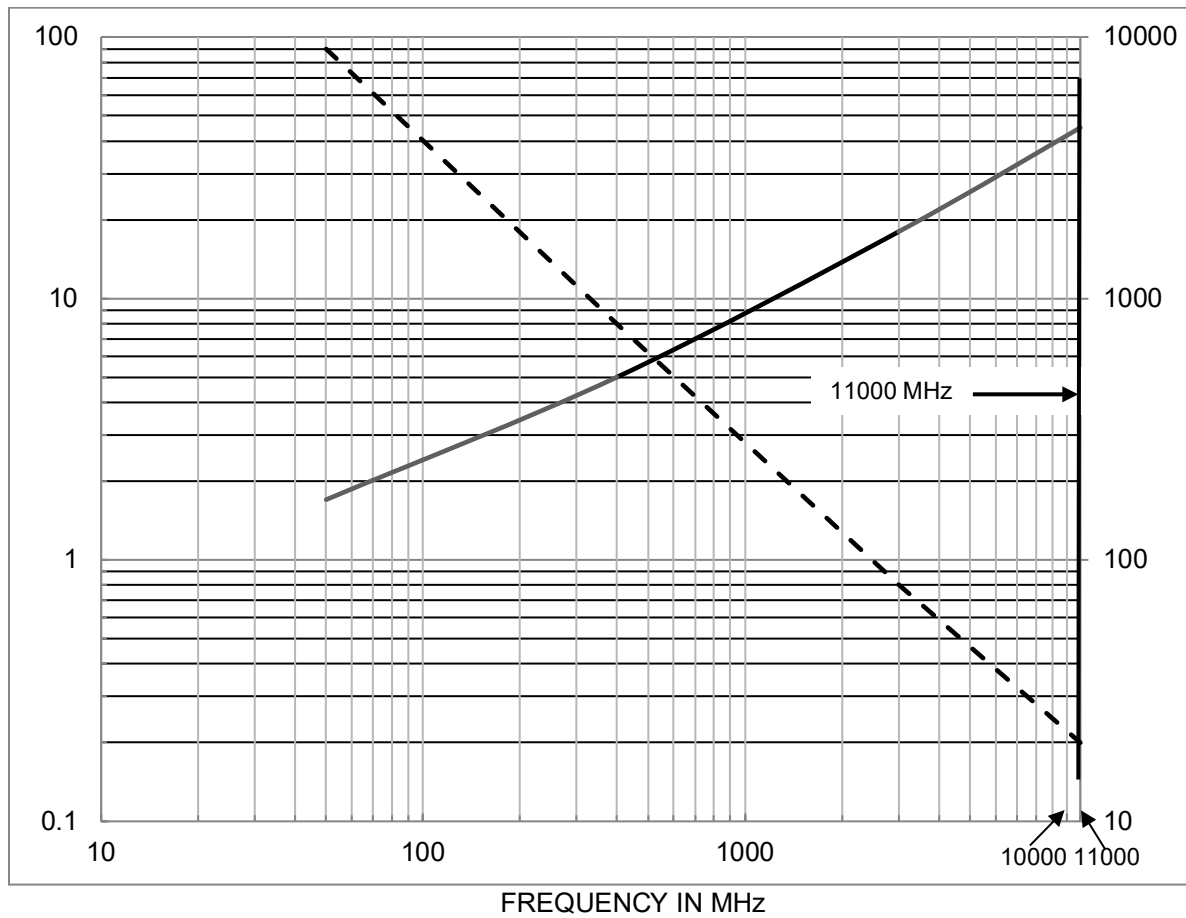
Electrical:

Continuity: Applicable.
Spark test: 2,000 Vrms, +10 percent, -0 percent.
Voltage withstanding: 7,500 Vrms, +10 percent, -0 percent.
Insulation resistance: Not applicable.
Corona extinction voltage: 2,500 Vrms, minimum.
Characteristic impedance: 50 ± 2 ohms.
Attenuation: See figure 2.
Structural return loss: See figure 3.
Capacitance: 32 pF per foot, maximum.
Capacitance stability: Not applicable.
Capacitance unbalance: Not applicable.
Transmission unbalance: Not applicable.
Mechanically induced noise voltage: Not applicable.
Time delay: Not applicable.
Contamination: Not applicable.
Inductance: Not applicable.
Marking: Applicable.
Marking durability: 125 cycles (250 strokes), 1 pound.

Workmanship: Applicable.

ATTENUATION dB PER 100 FT

WATTS



Maximum attenuation —————

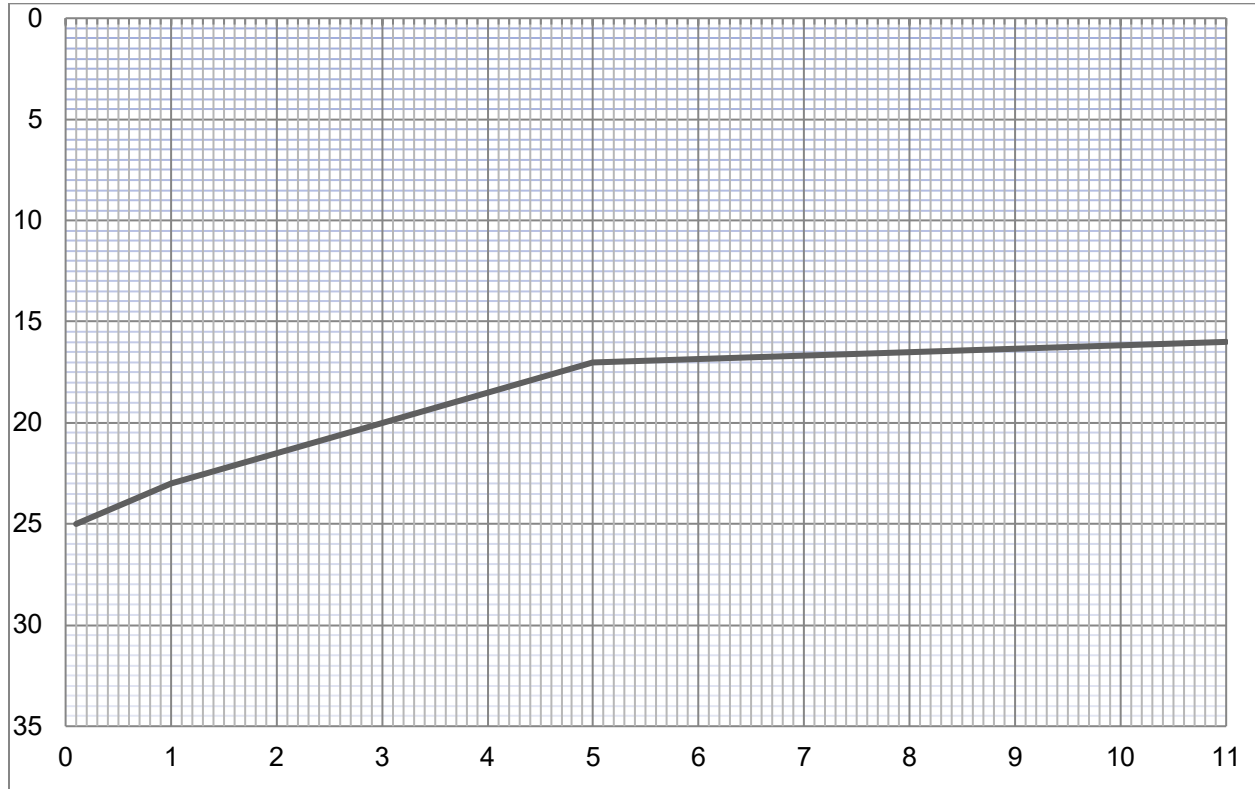
Maximum power at 25°C, sea level - - - - -

Attenuation	
MHz	dB
50	1.7
400	5.0
3000	18
11000	45

FIGURE 2. Power rating and attenuation.

MINIMUM STRUCTURAL RETURN LOSS

RETURN LOSS Db



FREQUENCY IN GHz

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
100	25
1000	23
3000	20
5000	17
11000	16

Tabulated values are for reference only.
The values on the graph represent the
requirement.

FIGURE 3. Structural return loss.

MIL-DTL-17/127D
w/AMENDMENT 2

TABLE I. 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		
	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		
	Out-of-roundness of jacket measurements	3.6.2	4.8.1.2	Entire sample		
	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
	Physical dimensions	3.6	4.8.1	Entire sample	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	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
	Corona extinction voltage	3.7.5	4.8.6	1	Per Table VIII	B
	Capacitance	3.7.9	4.8.10	1	Per Table VIII	B
	Cold bend	3.7.18	4.8.19	3	Per Table VIII	B
	Weight	3.9	4.8.24	1	Per Table VIII	B
	Stress-crack resistance	3.7.16	4.8.17	4	Per Table VIII	C
	Dimensional stability	3.7.19	4.8.20	1	Per Table VIII	C
	Flammability	3.7.22	4.8.23	1	Per Table VIII	C

MIL-DTL-17/127D
w/AMENDMENT 2

Part or Identifying Number (PIN): M17/127-RG393.

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 6145-2024-003)

Review activities:

Army – AT, CR
Navy – AS, MC, OS
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>.