

INCH-POUND

MIL-DTL-17/224A  
12 January 2006  
SUPERSEDING  
MIL-DTL-17/224  
26 August 1998

DETAIL SPECIFICATION SHEET

CABLE, RADIO FREQUENCY, FLEXIBLE, COAXIAL,  
50 OHMS, LOW SMOKE, LOW LOSS DIAMETER .500

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](#).

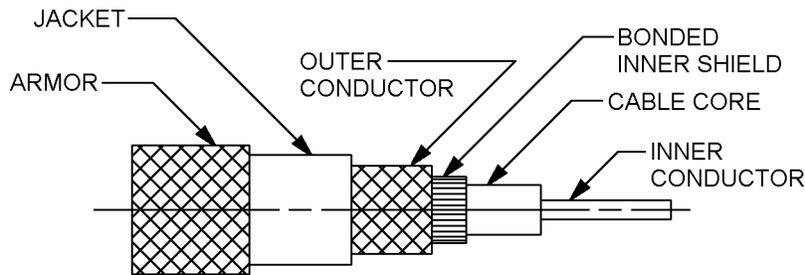


FIGURE 1. General configuration.

TABLE I. Description.

Components	Construction details	Diameters
Inner conductor	Copper covered aluminum	.141 ±.001 inch (3.58 ±0.03 mm)
Dielectric core	Cellular polyethylene	.370 ±.005 inch (9.40 ±0.13 mm)
Inner shield	.003 inch bonded aluminum tape	.376 ±.005 inch (9.55 ±0.13 mm)
Outer conductor	Single braid of 33 AWG, tinned copper wire.  Coverage: 90.6 percent, nominal Carriers: 24 Ends: 8 Picks/inch: 7.1	.414 inch, max. (10.51 mm)
Jacket	Type XIV, crosslinked polyolefin	.500 ±.007 inch (12.70 ±0.18 mm)
Armor	Single braid of aluminum alloy wire.	.570 inch (14.48 mm), maximum.

ENGINEERING INFORMATION:

Continuous working voltage: 2,250 V, rms, maximum.

Operating frequency: 2.5 GHz, maximum.

Velocity of propagation: 83 percent, nominal.

Power rating: See figure 2.

Operating temperature range: -30° to +105°C.

Inner conductor properties: DC resistance, maximum, at 20°C: .099 ohms per 100 feet.

REQUIREMENTS:

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

Environmental and mechanical:

Visual and mechanical examination: Applicable.

Out-of-roundness: Not applicable.

Eccentricity: 10 percent, maximum.

Adhesion of conductors:

Inner conductor to core: 10 pounds, minimum; 60 pounds maximum.

Aging stability: +98° ±2°C.

Cold bend: -30°C ±2°C.

Dimensional stability: +85°C ±2C.

Inner conductor from core: .062 inch (1.57mm), maximum.

Inner conductor from jacket: .125 inch (3.17mm), maximum.

Contamination: 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.

Heat distortion: 30 percent maximum.

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: 132.0 Lbs/1000 ft. maximum.

163.2 Lbs/1000 ft. (armored), maximum.

Electrical:

Spark test: 5,000 V rms, minimum.

Voltage withstanding: 4,000 V rms, minimum.

Corona extinction voltage: 3,000 V rms, minimum.

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Characteristic impedance:  $50 \pm 2$  ohms.

Attenuation: See figure 2.

Structural return loss: See figure 3.

Capacitance: 27.0 pF per feet, maximum.

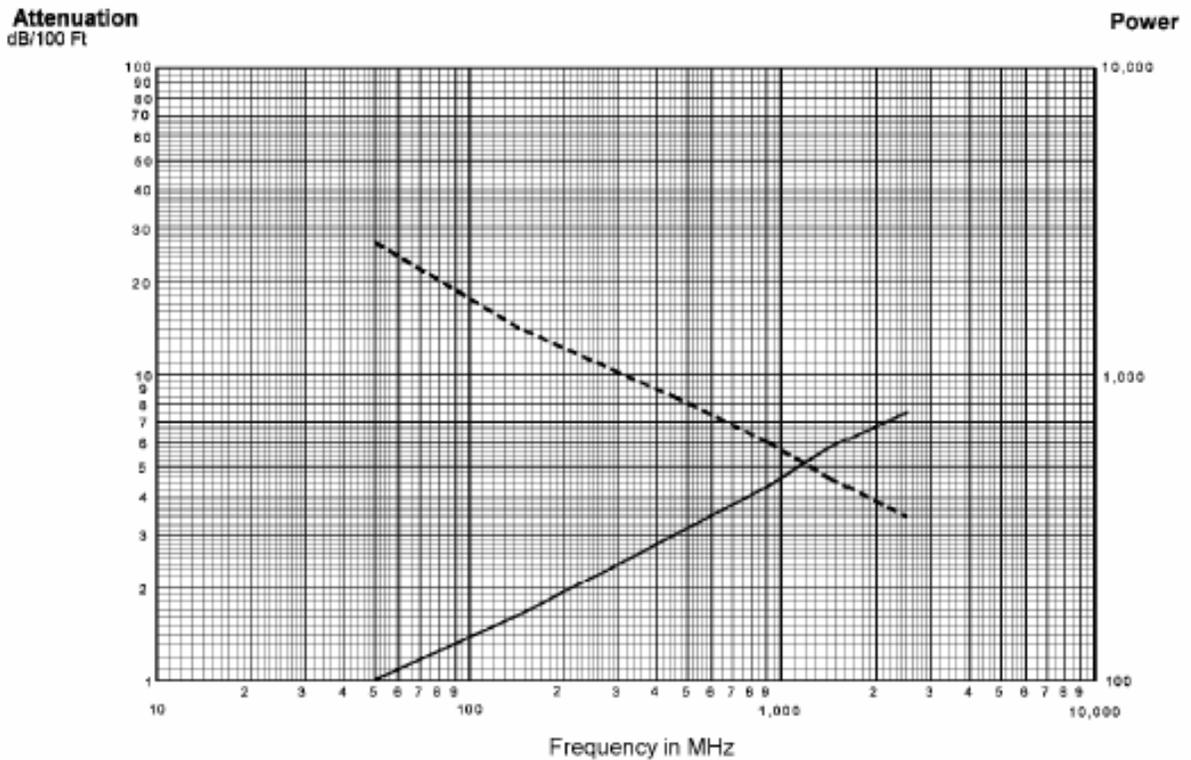
Capacitance unbalance: Not applicable.

Transmission unbalance: Not applicable.

Mechanically induced noise: Not applicable.

Time delay: Not applicable.

Part or Identifying Number (PIN): M17/224-00001 (unarmored)  
M17/224-00002 (armored).



MAXIMUM ATTENUATION ———  
 MAXIMUM POWER - - - - -

Tabulated values are for reference only. The values on the graph represent the requirements for attenuation. The data regarding power rating are for information only.

Frequency MHz	Attenuation dB	Power Watts
50	.96	2720
150	1.68	1540
450	3.00	880
900	4.30	600
1500	5.70	460
2000	6.68	400
2500	7.56	350

FIGURE 2. Power rating and attenuation.

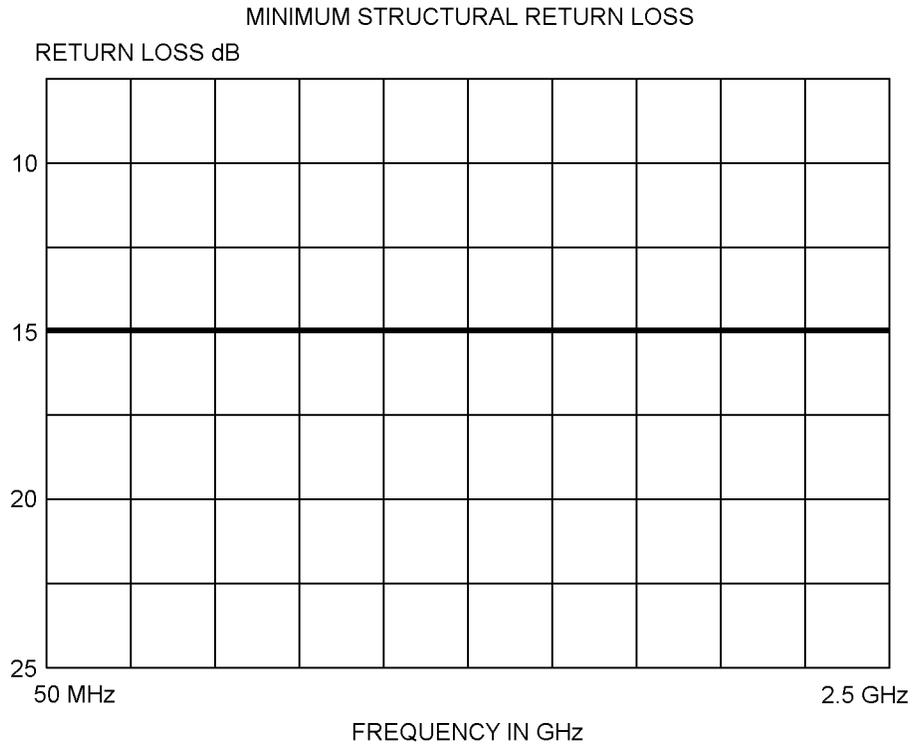


FIGURE 3. Structural return loss.

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Changes from previous issue. The margins of this specification are marked with vertical lines to indicate where changes from the previous issue were made. 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 and relationship to the last previous issue.

CONCLUDING MATERIAL

Custodians:

Army - CR  
Navy - EC  
Air Force – 11  
DLA - CC

Preparing activity:  
DLA - CC

(Project: 6145-2005-014)

Review activities:

Army - AR, AT, CR4, MI  
Navy - AS, MC, OS, SH  
Air Force - 19, 99  
NASA - NA

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 <http://assist.daps.dla.mil>.