

INCH-POUND

MIL-DTL-17/221A
 27 MAY 2016
 SUPERSEDING
 MIL-DTL-17/221
 26 August 1998

DETAIL SPECIFICATION SHEET

CABLE, RADIO FREQUENCY, FLEXIBLE, COAXIAL,
 50 OHMS, LOW SMOKE, LOW LOSS DIAMETER .242

This specification is approved for use by all Departments
 and Agencies of the department of Defense.

The requirements for acquiring the cable described herein shall consist
 of this specification and MIL-DTL-17.

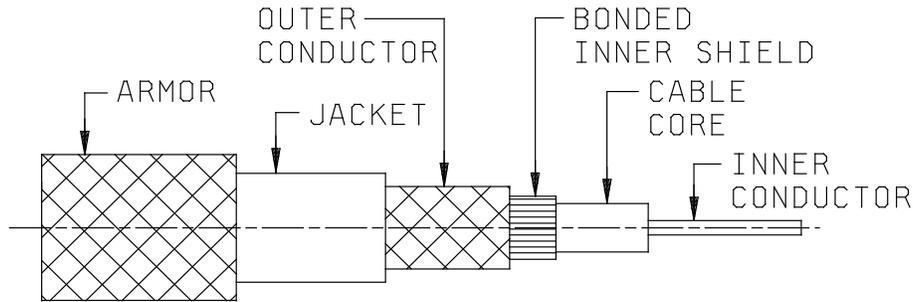


FIGURE 1. General configuration.

TABLE I. Description.

Components	Construction details	Diameters
Inner conductor	Solid bare copper	.056 ±.001 inch (1.42 ±0.03 mm)
Dielectric core	Cellular polyethylene	.150 ±.004 inch (3.81 ±0.10 mm)
Inner shield	.003 inch bonded aluminum tape	.156 ±.004 inch (3.96 ±0.10 mm)
Outer conductor	Single braid of 36 AWG, tinned copper wire. Coverage: 90.7 percent, nominal Carriers: 16 Ends: 8 Picks/inch: 8.0	.178 ±.005 inch (4.52 ±0.13 mm)
Jacket	Type XIV, crosslinked polyolefin	.242 ±.005 inch (6.15 ±0.13 mm)
Armor	Single braid of aluminum alloy wire.	.312 inch (7.92mm) maximum.



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ENGINEERING INFORMATION:

Continuous working voltage: 900 V rms, maximum.

Operating frequency: 2.5 GHz, maximum.

Velocity of propagation: 84 percent, nominal.

Power rating: See figure 2.

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

Inner conductor properties: DC resistance, maximum, at 20°C: .385 ohms per 100 feet.

REQUIREMENTS:

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

Environmental and mechanical:

Visual and mechanical examination: Not applicable.

Out-of-roundness: Not Applicable.

Eccentricity: 10 percent, maximum.

Adhesion of conductors:

Inner conductor to core: 5 pounds, minimum; 45 pounds maximum.

Aging stability: +98° ±2°C.

Cold bend: -30°C ±2°C.

Dimensional stability: +85°C ±2C.

Inner conductor from core: 0.62 inch (mm), maximum.

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

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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: 1,300psi, 160 percent minimum.

Weight: 50.6 Lbs/1000 ft, maximum.

66.2 Lbs/1000 ft (armored), maximum.

Electrical:

Spark test: 3,000 V rms, minimum.

Voltage withstanding: 1,500 V rms, minimum.

Corona extinction voltage: 1,125 V rms, minimum.

Characteristic impedance: 50 \pm 2 ohms.

Attenuation: See figure 2.

Structural return loss: See figure 3.

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Capacitance: 27.0 pF per feet, maximum.

Capacitance unbalance: Not applicable.

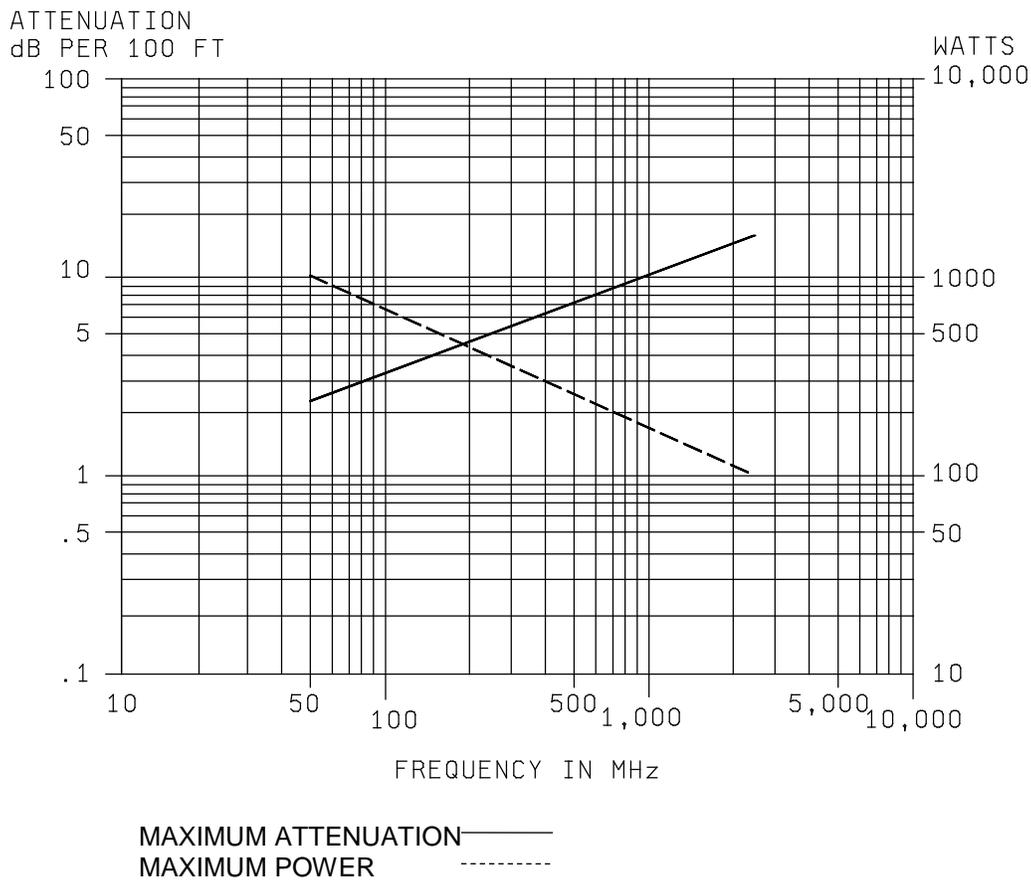
Transmission unbalance: Not applicable.

Mechanically induced noise: Not applicable.

Time delay: Not applicable.

Part or Identifying Number (PIN): M17/221-00001 (unarmored)
M17/221-00002 (armored).

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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	2.25	1000
150	3.95	570
450	7.00	320
900	10.05	220
1500	13.00	170
2000	15.45	140
2500	17.10	110

FIGURE 2. Power rating and attenuation.

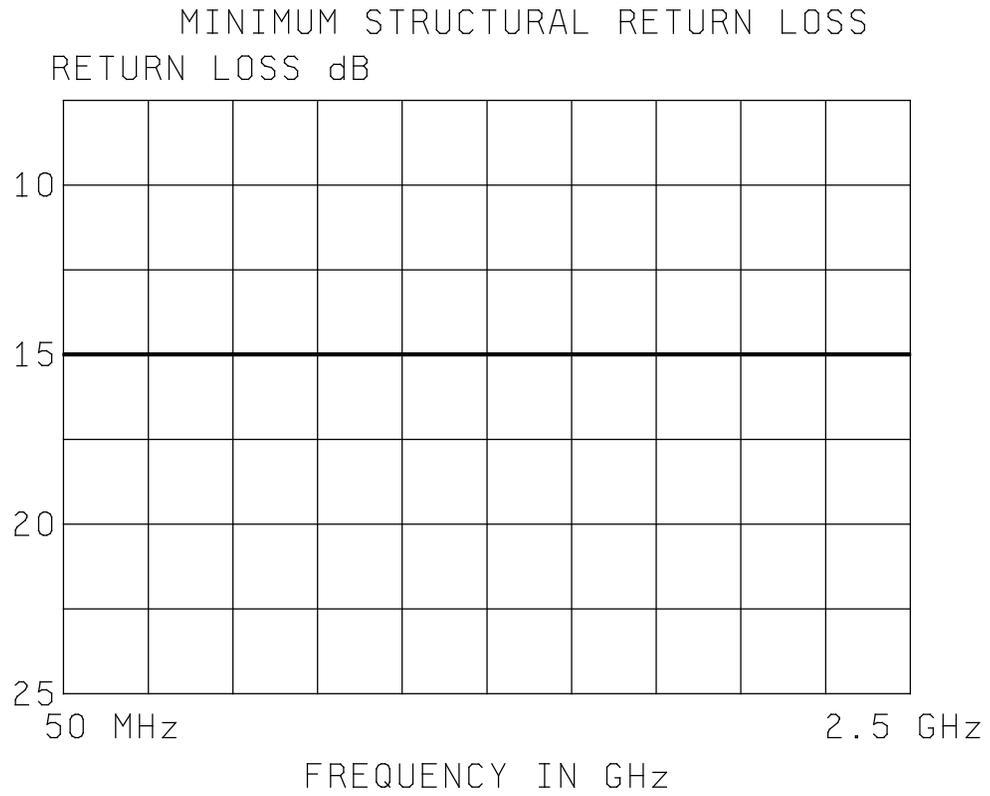


FIGURE 3. Structural return loss.

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CONCLUDING MATERIAL

Custodians:

Army – CR
Navy – EC
Air Force – 85
DLA – CC

Preparing activity:
DLA - CC

(Project: 6145-2016-034)

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 <https://assist.dla.mil>.