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MILITARY SPECIFICATION SHEET

CABLE, RADIO FREQUENCY, FLEXIBLE, COAXIAL, 50 OHMS, M17/75-RG214 AND M17/75-RG365

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 the latest issue of MIL-C-17.

NOTE: This cable uses PVC material and is not to be used in Aerospace Applications.

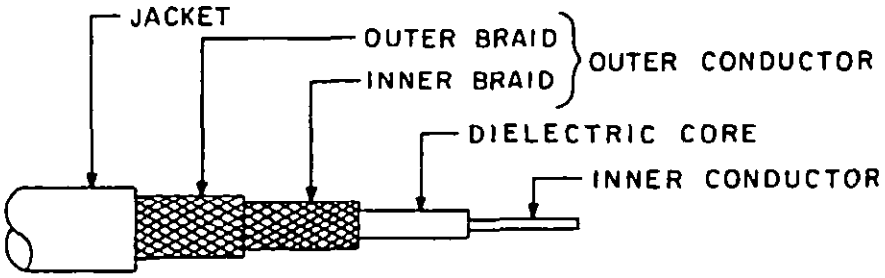

FIGURE 1. Configuration.

TABLE I. Description.

Components	Construction details
Inner conductor	Seven strands of silver-coated copper wire, each strand .0296 inch diameter. Overall diameter: .0888 inch ±.0010.
Dielectric core	Type A-1: Solid polyethylene. Diameter: .285 inch ±.007.
Outer conductor	Double braid of AWG no. 34 silver-coated copper wire. Diameter: .360 inch maximum.
Inner braid	Coverage : 95.7% nominal Carriers : 24 Ends : 6 Picks/inch: 16.6 ±10%
Outer braid	Coverage : 98.0% nominal Carriers : 24 Ends : 7 Picks/inch: 15.4 ±10%
Jacket	For M17/75-RG214 - Type IIa: PVC. Diameter: .425 inch ±.007. For M17/75-RG365 - Low temperature, light weight, Styrene Block Copolymer, or equivalent, thermoplastic elastomer (TPE). Diameter: .425 inch ±.007.

(F) denotes changes

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ENGINEERING INFORMATION:

Continuous working voltage: 3,700 V rms, maximum.

Operating frequency: 11 GHz, maximum.

Velocity of propagation: 65.9 percent, nominal.

Power rating: See figure 2.

Operating temperature range:

M17/75-RG214: -40°C to +85°C.
M17/75-RG365: -55°C to +85°C.

Inner conductor properties:

DC resistance (maximum at 20°C): 0.173 ohm per 100 feet.

Elongation: 25 percent, minimum.

Engineering notes: This cable useful in general purpose, medium low temperature applications (See connector series "N", "C", and "SC" per MIL-C-39012.) NATO preferred type NWR-35.

REQUIREMENTS:

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

Environmental and mechanical:

Visual and mechanical examination:

Out-of-roundness: Applicable.

Eccentricity: 10 percent, maximum.

Adhesion of conductors:

Inner conductor to core: 10 pounds, minimum; 50 pounds, maximum.

Aging stability: +98°C ±2°C.

Cold bend:

M17/75-RG214: -40°C ±2°C.
M17/75-RG365: -55°C ±2°C.

Dimensional stability: +85°C ±2°C.

Inner conductor from core: .062 inch, maximum.

Inner conductor from jacket: .125 inch, maximum.

Weight: 13.0 pounds per 100 feet, maximum.

Cold stiffness (M17/75-RG365 only): Shall drop 1/2 inch minimum with 1.5 ounces maximum applied. To be performed prior to the cold bend test (see qualification and group C inspection tables).

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Procedure - Place two straight specimens, approximately 1.5 feet long each (cut from the sample cable) on a horizontal surface. One edge of the surface shall form a semi-cylindrical surface (to act as a bend mandrel) of radius equal to 10 times the nominal outside diameter of the cable specimen. The longitudinal axis of each specimen shall be at a right angle to the horizontal mandrel edge. The test specimens and apparatus shall be placed in a cold chamber and shall be conditioned at -55°C for at least 20 hours. After the conditioning period, and at -55°C, each specimen shall be positioned so that a 12-inch length extends beyond the horizontal mandrel edge. The specimens shall then be clamped to the horizontal surface so that there is a distance of 15 inches from the clamp edge to the end of the specimen extending beyond the horizontal surface.

Weights: 1.5 ounces maximum (vertical load) shall be applied to the extended end of each specimen. The weight which causes the end of the specimen to drop more than 1/2 inch from the horizontal plane shall be recorded.

Electrical:

Test frequency: 50 MHz to 11 GHz.

Spark test: 5,000 V rms, +25 percent, -0 percent.

Voltage withstanding: 10,000 V rms, minimum.

Corona extinction voltage: 5,000 V rms, minimum.

Characteristic impedance: 50 ohms ±2.

Attenuation: See figure 2.

Structural return loss: See figure 3.

Capacitance: 32.2 pF per foot, maximum.

Capacitance unbalance: Not applicable.

Transmission unbalance: Not applicable.

Mechanically induced noise voltage: Not applicable.

Time delay: Not applicable.

Contamination: Applicable.

Part number:

M17/75-RG214
M17/75-RG365

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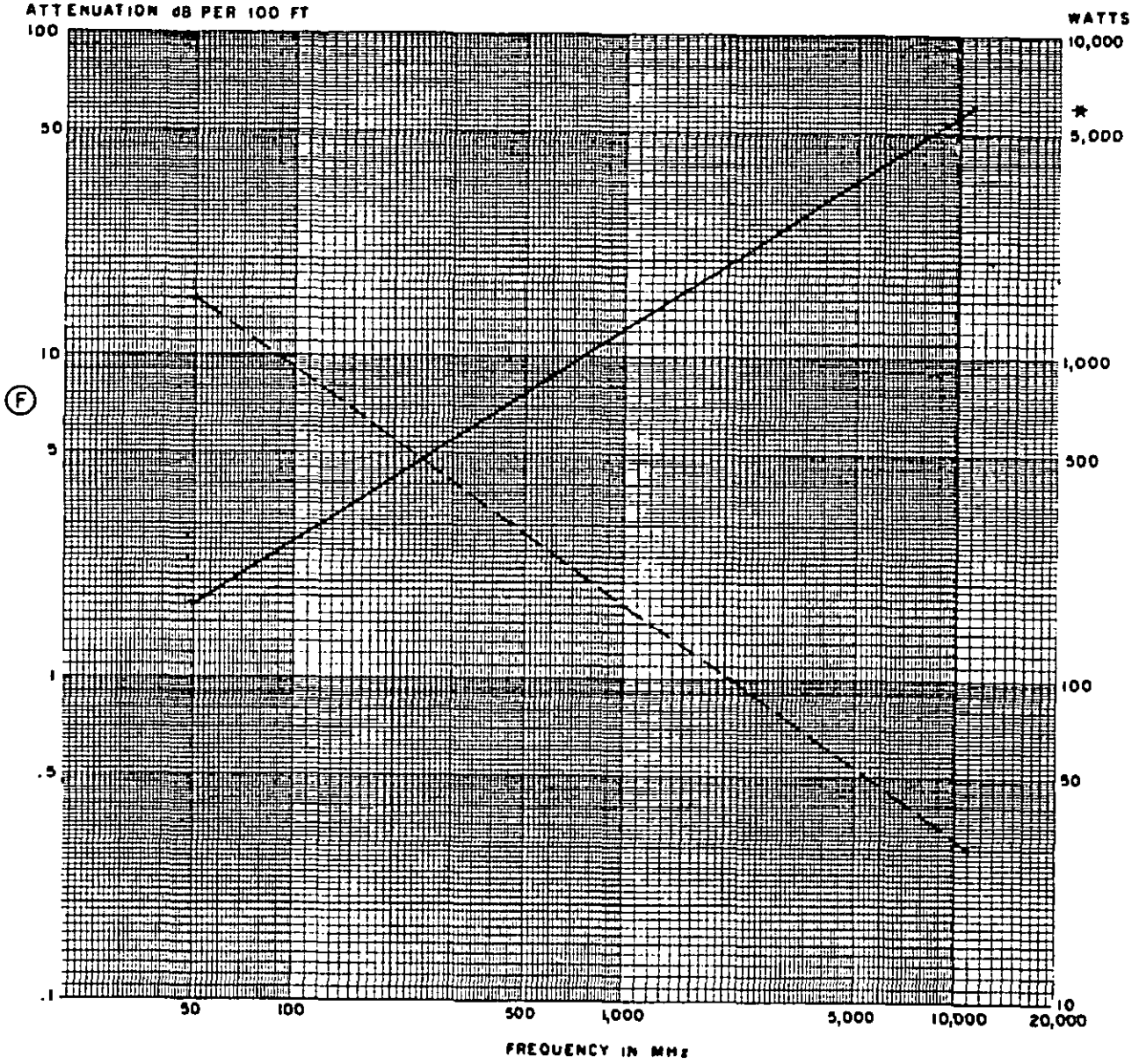


MAXIMUM ATTENUATION ———
MAXIMUM POWER — — —
AT 25°C SEA LEVEL

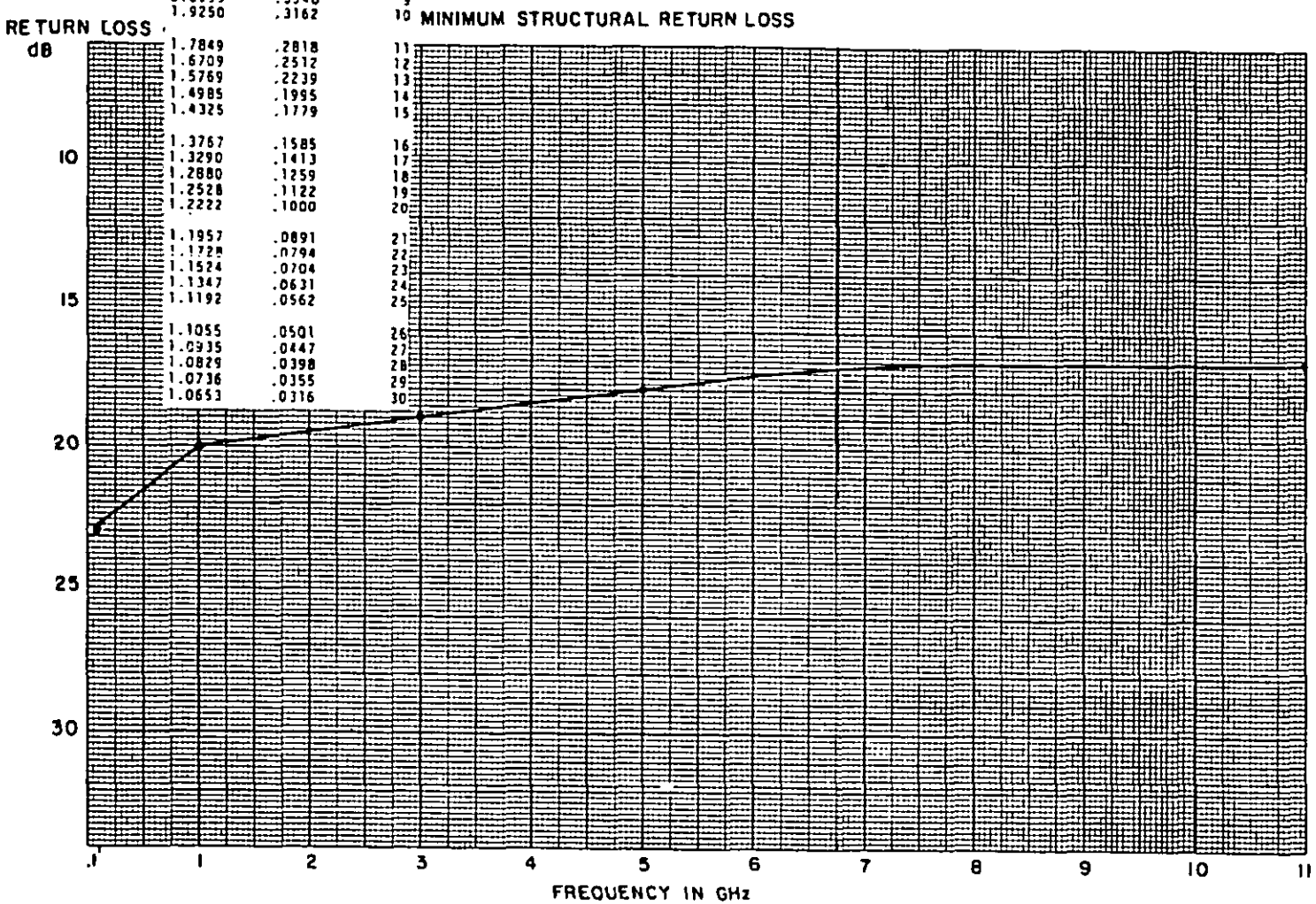
Attenuation	
MHz	dB
50	1.7
400	6.8
3000	28
11000	60

* AT 11,000

FIGURE 2. Power rating and attenuation.

SWR	REFLECTION COEFFICIENT	RETURN LOSS dB
17.3910	.8913	1
8.7242	.7943	2
5.8480	.7079	3
4.4194	.8310	4
3.5698	.5623	5
3.0095	.5012	6
2.6146	.4467	7
2.3229	.3981	8
2.0999	.3548	9
1.9250	.3162	10
1.7849	.2818	11
1.6709	.2512	12
1.5769	.2239	13
1.4985	.1995	14
1.4325	.1779	15
1.3767	.1585	16
1.3290	.1413	17
1.2880	.1259	18
1.2528	.1122	19
1.2222	.1000	20
1.1957	.0891	21
1.1728	.0794	22
1.1524	.0704	23
1.1347	.0631	24
1.1192	.0562	25
1.1055	.0501	26
1.0935	.0447	27
1.0829	.0398	28
1.0736	.0355	29
1.0653	.0316	30

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



STRUCTRUAL RETURN LOSS	
GHz	dB
.1	23
1	20
3	19
5	18
11	17

FIGURE 3. Structural return loss.

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Custodians:
Army - CR
Navy - EC
Air Force - 85

Review activities:
Army - MI
Navy - SH
Air Force - 11, 17, 99
DLA - ES, IS

User activities:
Army - AR, AT, ME
Navy - AS, MC, OS
Air Force - 19

Preparing activity:
Army - CR

Agent:
DLA - ES

(Project 6145-1033)