

MIL-C-17/31B  
24 April 1978  
~~SUPERSEDING~~  
MIL-C-17/31A  
28 February 1964  
MIL-C-17/36  
7 September 1955

MILITARY SPECIFICATION SHEET

CABLES, RADIO FREQUENCY, FLEXIBLE COAXIAL, 125 OHMS,  
M17/31-RG63, UNARMORED, M17/31-RG79, ARMORED

This specification is approved for use by all Depart-  
ments and Agencies of the Department of Defense.

The complete requirements for procuring the cables described herein shall  
consist of this document and the latest issue of Specification MIL-C-17.

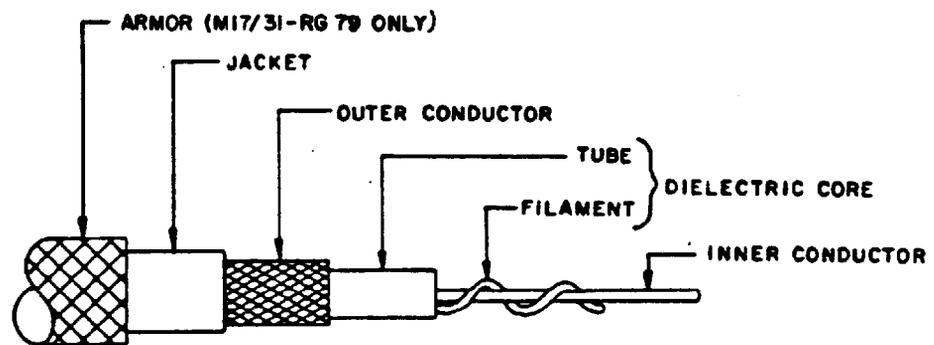


FIGURE 1. Configuration.

TABLE I. Description.

Components	Construction details												
Inner conductor	Solid, copper-covered, steel wire. Diameter: .0253 inch $\pm$ .0010.												
Dielectric core	Type A-3: Air-spaced polyethylene. A mono-filament thread, .070 inch approx. diameter, with a lay of 1/2 inch approx., under an extruded tube. Overall diameter: .285 inch $\pm$ .010.  <u>Alternate</u>  A continuous tube, .003 inch thick maximum under two continuous spiral fins, with a lay of 1-1/4 inches approx., under an extruded tube of type A dielectric, overall diameter .285 inch $\pm$ .010.												
Outer conductor	Single braid of AWG#33, bare, copper wire. Diameter: .340 inch maximum.  <u>Alternates</u>  <table> <tbody> <tr> <td>Coverage:</td> <td>94.9% nominal</td> <td>94.9% nominal</td> </tr> <tr> <td>Carriers:</td> <td>16</td> <td>24</td> </tr> <tr> <td>Ends:</td> <td>12</td> <td>8</td> </tr> <tr> <td>Picks/inch:</td> <td>4.3% <math>\pm</math>10</td> <td>6.5% <math>\pm</math>10</td> </tr> </tbody> </table>	Coverage:	94.9% nominal	94.9% nominal	Carriers:	16	24	Ends:	12	8	Picks/inch:	4.3% $\pm$ 10	6.5% $\pm$ 10
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Jacket	Type IIa. Diameter: .405 inch $\pm$ .010.												
Armor (M17/31-RG79 only)	Single braid of aluminum-alloy wire. Diameter: .475 inch maximum.												

## ENGINEERING INFORMATION:

Continuous working voltage: 750 Vrms, maximum.  
 Operating frequency: 1 GHz, maximum.  
 Velocity of propagation: 84 percent, nominal.  
 Power rating: See figure 2.  
 Operating temperature range: -40 to +80°C maximum.  
 Weight: 8.8 pounds per 100 feet nominal (M17/31-RG63); 13.8 pounds per 100 feet, maximum (M17/31-RG79).

## Inner conductor properties:

DC resistance (maximum at 20°C): 4.4 ohms per 100 feet.

Elongation: 1 percent, minimum.

Tensile strength: 110 klbf/inch<sup>2</sup>, minimum.

Engineering notes: This cable useful in low temperature applications.  
 (See connector series "M", "C", and "SC" per MIL-C-39012 for M17/31-RG63. NATO preferred type NWR-4).

## REQUIREMENTS:

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

## Environmental and mechanical:

Visual and mechanical examination: Applicable.

Eccentricity: 10 percent, maximum.

Aging stability: +98° ±2°C.

Cold bend: -35° ±2°C.

Dimensional stability: 85° ±2°C.

Inner conductor from core: .062 inch, maximum.

Inner conductor from jacket: .125 inch, maximum.

Contamination: Applicable.

## Electrical:

Spark test: 5,000 Vrms, minimum.

Voltage withstanding: 3,000 Vrms, minimum.

Characteristic impedance: 125 ohms ±6.

Attenuation: 5.5 dB per 100 feet, maximum at .4 GHz.

Capacitance 11.0 pF per foot, maximum.

Part number: See table II.

Supersession data: See table II.

TABLE II. Cross reference of part number.

Part number	Superseded part number or type designation
M17/31-RG63	RG-63B/U
M17/31-RG79	RG-79B/U

NOTE: Revision letters are not used to denote changes due to the extensiveness of the changes.

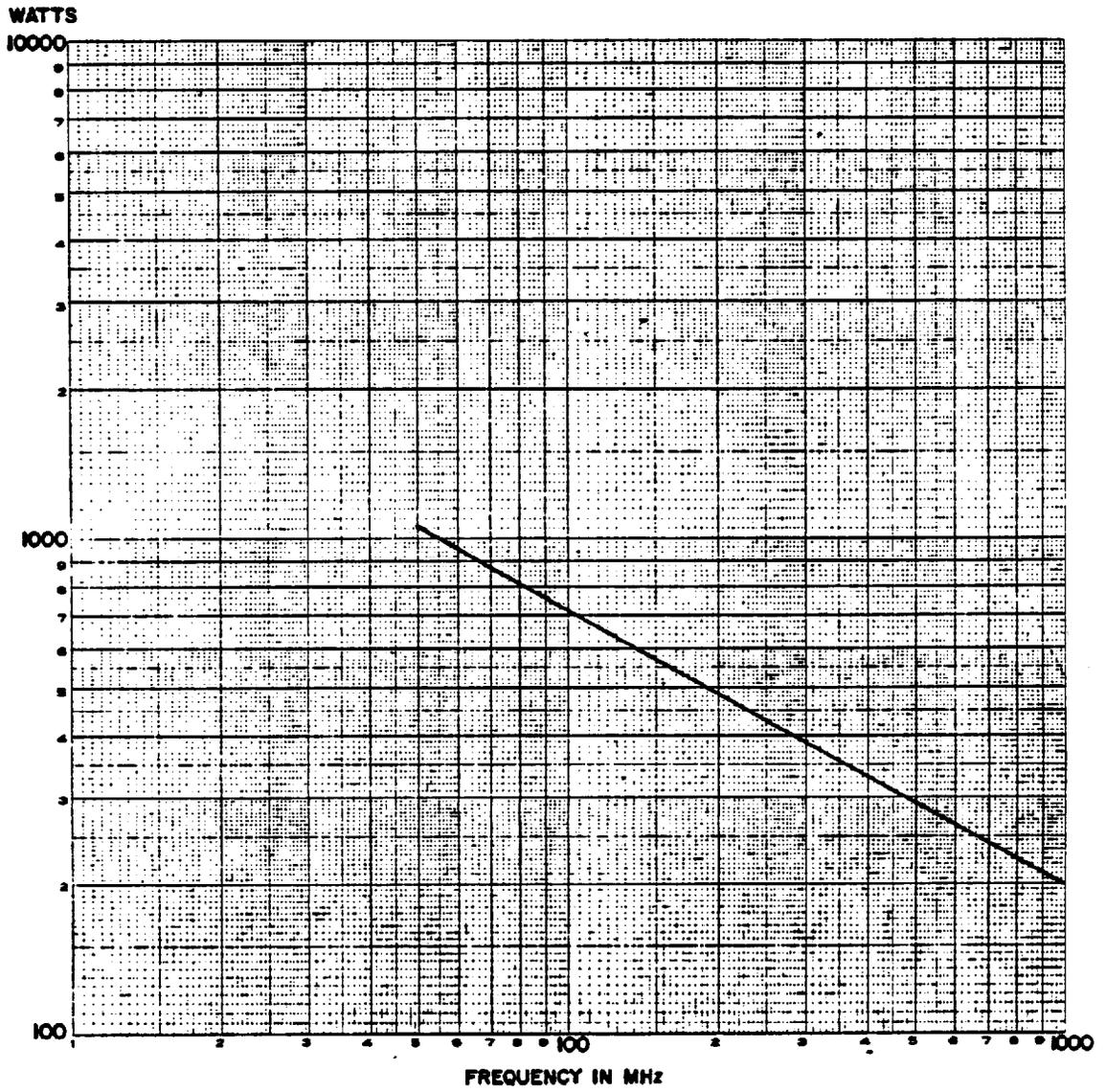


FIGURE 2. Power rating @ 25°C sea level.

**Custodians:**

Army - EL  
Navy - EC  
Air Force - 99

**Review activities:**

Army - MI  
Navy - SH  
Air Force - 17, 85, 11  
DLA - ES, IS

**User activities:**

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

**Preparing activity:**

Army - EL

**Agent:**

DLA - ES

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