

INCH-POUND

MIL-DTL-17/65C  
 10 April 2015  
 SUPERSEDING  
 MIL-C-17/65B  
 15 March 1977

MILITARY SPECIFICATION SHEET

CABLES, RADIO FREQUENCY, FLEXIBLE COAXIAL, 50 OHMS,  
 UNARMORED M17/65-RG165, AND ARMORED, M17/65-RG166

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.

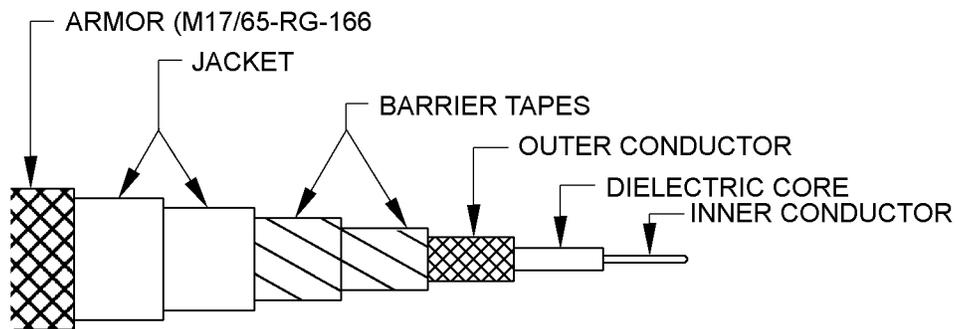


FIGURE 1. Configuration

TABLE I. Description.

| Components           | Construction details   |
|----------------------|--|
| Inner conductor      | Seven strands of silver-coated copper wire each strand, 0.0315 inch diameter.<br>Overall diameter: 0.094 inch $\pm$ 0.001.   |
| Dielectric core      | Type F-1: Solid extruded PTFE.<br>Diameter: 0.285 inch $\pm$ 0.005.  |
| Outer conductor      | Single braid of AWG # 34 silver-coated copper wire.<br>Diameter: 0.340 inch maximum.<br>Coverage: 93.2% nominal<br>Carriers: 24<br>Ends: 6<br>Picks/inch: 16.6 $\pm$ 10% |
| Barrier tapes        | Type FF-2: Two wraps of PTFE tape, 0.005 inch thick each, by 1-inch with an approximate lay of 24 turns per foot and with 1/2 inch lap.                                  |
| Jacket               | Type V: Double braid of fiberglass.<br>Diameter: 0.410 inch $\pm$ 0.010.   |
| Armor (M17/65-RG166) | Single braid of aluminum-alloy wire.<br>Diameter: 0.470 inch maximum.  |

AMSC N/A

FSC 6145



## ENGINEERING INFORMATION:

Capacitance: 29.3 pF per foot, nominal.  
 Continuous working voltage: 3,700 V rms, maximum.  
 Operating frequency: 3 GHz, maximum.  
 Velocity of propagation: 69.5 percent, nominal.  
 Power rating: See figure 2.  
 Operating temperature range: -55°C to 250°C.  
 Weight: M17/65-RG165 – 0.142 pound per foot, nominal.  
       M17/65-RG166 – 0.189 pound per foot, nominal.  
 Inner conductor properties:  
   DC resistance (maximum at 20°C): 0.170 ohms per 100 feet.  
   Elongation: 25 percent, minimum.  
 Engineering notes: This cable useful in general purpose high temperature applications.  
   (M17/65-RG165, see connector series "N", "C", and "SC" per MIL-PRF-39012. NATO preferred type NWR-10). (M17/65-RG166, see connector series "N", "C", per MIL-PRF-39012, "HM" per MIL-DTL-3650).

## REQUIREMENTS:

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

## Environmental and mechanical:

Visual and mechanical examination:  
 Eccentricity: 10 percent, maximum.  
 Adhesion of conductors:  
   Inner conductor to core: 4 pounds, minimum; 30 pounds, maximum.  
 Aging stability: +250°C ± 5°C.  
 Dimensional stability: +250°C ± 5°C.  
   Inner conductor from core: 0.125inch, maximum.  
   Inner conductor from jacket: 0.312 inch, maximum.  
 Flammability: Applicable.

## Electrical:

Test frequency: 50 MHz to 3 GHz.  
 Spark test: Not applicable.  
 Voltage withstanding: 6,500 V rms, minimum.  
 Corona extinction voltage: 2,500 V rms, minimum.  
 Characteristic impedance: 50 ohms, ± 2.  
 Attenuation: See figure 2.  
 Structural return loss: See figure 3.

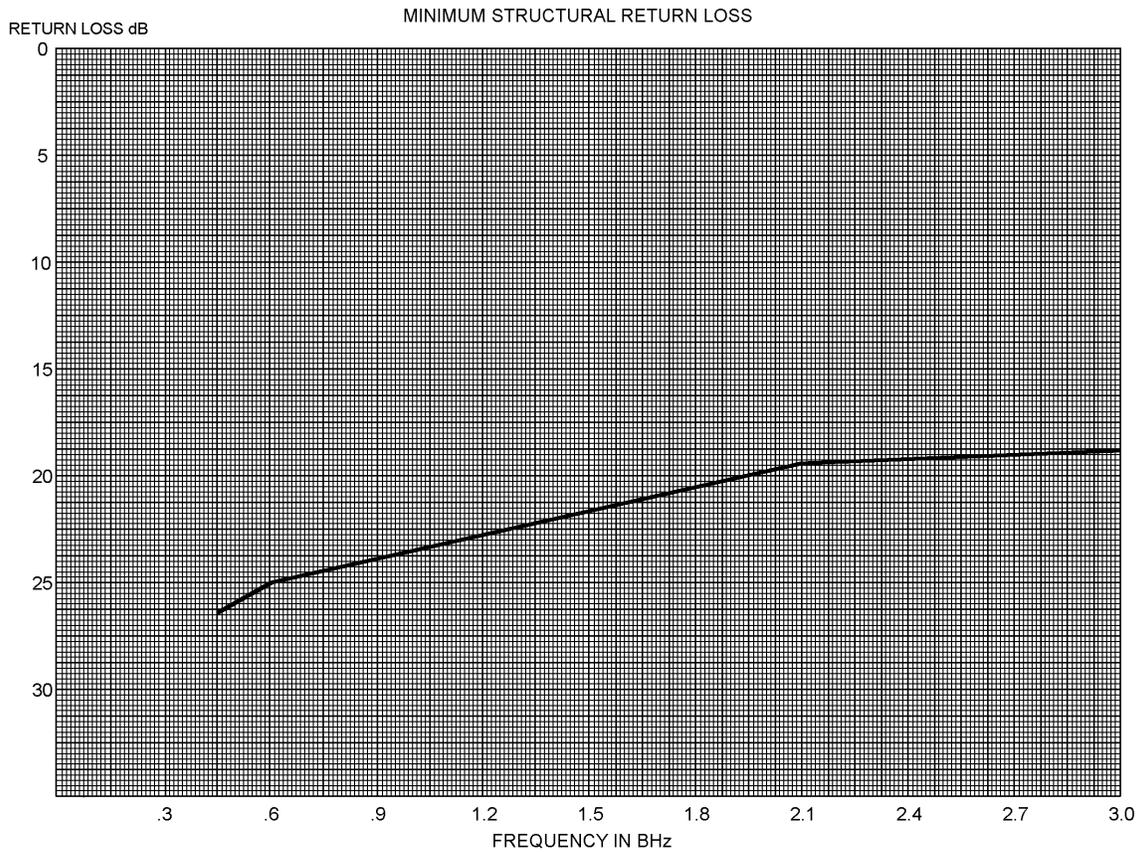
Part or Identifying Number (PIN): See table II.

Supersession data: See table II.

TABLE II. Cross reference of part number.

| PIN          | Superseded PIN<br>or type designation |
|--------------|---------------------------------------|
| M17/65-RG165 | -----                                 |
| M17/65-RG166 | RG-166/U                              |





| 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             |

FIGURE 3. Structural return loss.

Changes from previous issue. Marginal notations are not used in this revision to identify changes with respect to the previous issue due to the extensiveness of the changes.

Referenced documents. In addition to MIL-DTL-17, this document references the following:

MIL-DTL-3650                      MIL-PRF-39012

CONCLUDING MATERIAL

Custodians:

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

Preparing activity:  
DLA - CC

(Project 6145-2015-006)

Review activities:

Army – AT, CR4, MI  
Navy – AS, MC, OS, SH  
Air Force – 19, 99

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>.