

INCH-POUND

MIL-DTL-17/45E
w/AMENDMENT 1
13 April 2010

SUPERSEDING
MIL-C-17/45E
18 July 1985

DETAIL SPECIFICATION SHEET

CABLES, RADIO FREQUENCY, FLEXIBLE, TWIN,
78 OHMS, M17/45-RG108

Inactive for new design after 13 August 1993. For
new design use MIL-C-17/186.

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.

NOTE: This cable uses PVC material and is not to be used in enclosed environments or
shipboard applications. The replacements that are to be used in enclosed areas or
shipboard applications are referenced in the following table.

The Air Force has restricted use of PVC in aerospace and ground support
applications.

Cables listed on the current QPL may continue to be manufactured and supplied for
existing enclosed applications only for a period not to exceed 3 years from the date of this
specification.

TABLE I. Cross-reference data.

| Canceled Part or Identifying Number (PIN) | Replacement PIN |
|--|-----------------|
| M17/45-RG108 | M17/186-00001 |

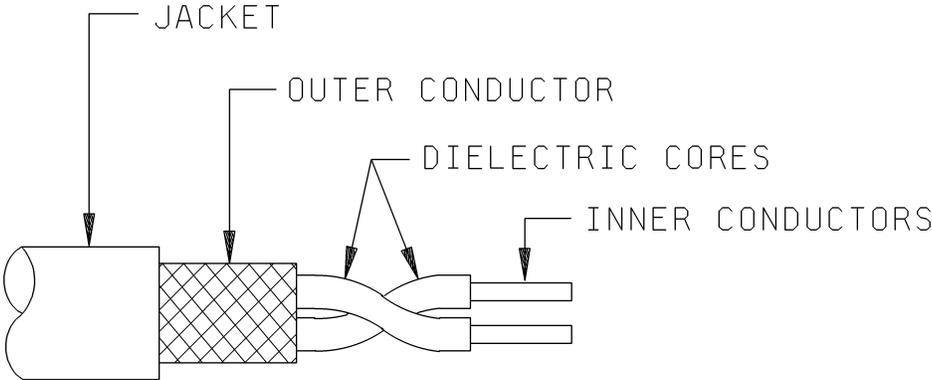


FIGURE 1. Configuration.

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TABLE II. Description.

| Components | Construction details |
|------------------|---|
| Inner conductors | Two conductors. Seven strands of tinned copper wire, each strand 0.0126 inch diameter. One strand of one conductor shall be bare copper for identification. Overall diameter of each conductor : 0.0378 inch \pm 0.0020. |
| Dielectric cores | Two cores, twisted together with a right-hand lay of 2.5 inch, \pm .5 inch. Type A-1: Solid polyethylene, each core. Fill -to- round not applicable. Diameter of each core: 0.079 inch \pm 0.003. |
| Outer conductor | Single braid of AWG #36, tinned copper wire. Diameter: 0.177 inch maximum. Coverage: 86.8% nominal Carriers: 16 Ends: 6 Picks/inch: 10.8 \pm 10% |
| Jacket | Type IIa: PVC. Diameter of major axis: 0.235 inch \pm 0.010 Jacket thickness: 0.020 inch, minimum |

ENGINEERING INFORMATION

Continuous working voltage: 750 V rms, maximum.

Operating frequency: 10 MHz, maximum.

Velocity of propagation: 65.9 percent, nominal.

Power rating: Not applicable.

Operating temperature range: -40°C to +85°C.

Inner conductor properties:

DC resistance (maximum at 20°C): 1.055 ohm per 100 feet (each conductor).

Elongation: 15 percent, minimum.

Tensile strength: Not applicable.

Engineering notes: This cable useful in general purpose medium low temperature in balanced cable applications.

REQUIREMENTS

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

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Environmental and mechanical:

Visual and mechanical examination:

Out-of-roundness: Not applicable.

Eccentricity: 10 percent, maximum.

Adhesion of conductors:

Inner conductor to core: 2 pounds, minimum; 20 pounds, maximum.

Aging stability: $+98^{\circ}\text{C} \pm 2^{\circ}\text{C}$.

Stress crack resistance: Not applicable.

Outer conductor integrity: Not applicable.

Cold bend: $-55^{\circ}\text{C} \pm 2^{\circ}\text{C}$.

Dimensional stability: $+85^{\circ}\text{C} \pm 2^{\circ}\text{C}$.

Inner from conductor core: 0.062 inch, maximum.

Inner conductor from jacket: 0.125 inch, maximum.

Contamination: Applicable.

Bendability: Not applicable.

Flammability: Not applicable.

Weight: 0.035 pound per foot, maximum.

Electrical:

Continuity: Applicable.

Spark test: 2,000 V rms, +10%, -0%.

Voltage withstanding: 2,000 V rms, +10%, -0%.

Insulation resistance: Not applicable.

Corona extinction voltage: Not applicable.

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Characteristic impedance: 78 ohms ± 7 at 1 MHz. 1/

Attenuation: 2.8 dB per 100 feet at 10 MHz, maximum.

Structural return loss: Not applicable.

Capacitance: 24.5 pF per foot, maximum.

Capacitance stability: Not applicable.

Capacitance unbalance: 5 percent, maximum.

Mechanically induced noise voltage: Not applicable.

Transmission unbalance: Not applicable.

Time delay: Not applicable.

PIN: M17/45-RG108. See table I.

Supersession date: See table III.

TABLE III. Cross-reference of PIN.

| PIN | Superseded PIN |
|--------------|----------------|
| M17/45-RG108 | RG-108A/U |

1/ Measured inductance of a 10 foot ± 2 inch test cable at 1 MHz using any suitable test instrument. The shield shall be floated and the conductors shall be shorted at the far end. Calculate the impedance (Z) from the measured inductance (L) and the measured capacitance (C), using the formula:

$$Z = \sqrt{\frac{L}{C}}$$

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Amendment notations. The margins of this specification are marked with vertical lines to indicate modifications generated by this amendment. 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.

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

MIL-C-17/186

CONCLUDING MATERIAL

Custodians:

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

Preparing activity:
DLA - CC

(Project 6145-2010-025)

Review activities:

Army – AT, CR4, MI
Navy – AS, MC, OS, SH, TD
Air Force – 19, 99
DLA - IS

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.daps.dla.mil>