INCH-POUND

MIL-DTL-17/78C
w/AMENDMENT 1
13 April 2010

SUPERSEDING
MIL-C-17/78C
13 April 1993

DETAIL SPECIFICATION SHEET

# CABLES, RADIO FREQUENCY, FLEXIBLE, COAXIAL, 50 OHMS, M17/78-RG217 AND M17/78-00001 TEMPERATURE STABILIZED

Inactive for new design after 25 June 1998. For new design use MIL-DTL-17/192.

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: These cables use PVC material are 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.

Cable using PVC material 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.

| Current Part or Identifying Number (PIN) | Replacement PIN |
|---|---|
| M17/78-RG217 | M17/192-00001 |
| M17/78-00001 | M17/192-00002 |

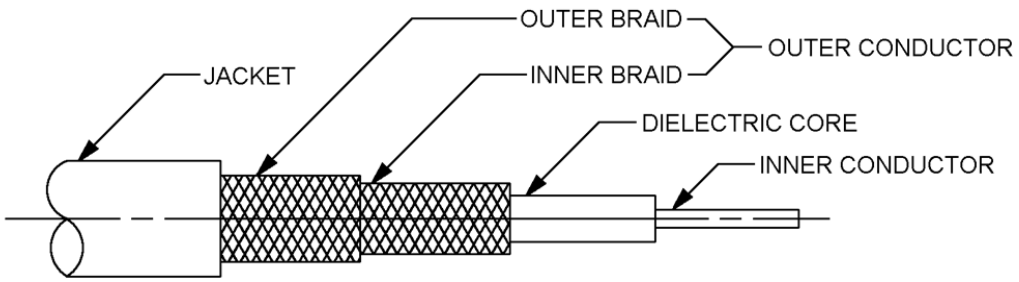


FIGURE 1. Configuration.

TABLE II. Description.

| Components | Construction details |
|---|---|
| Inner conductor | Solid bare copper wire.<br>Diameter: 0.106 inch ± 0.001. |
| Dielectric core | Type A-1: Solid, polyethylene.<br>Diameter: 0.370 inch ± 0.010. |
| Outer conductor | Double braid of AWG #33 bare copper wire.<br>Diameter: 0.463 inch maximum. |
| Inner braid | Coverage: 94.8% nominal<br>Carriers: 24<br>Ends: 10<br>Picks/inch: 5.4 ± 10% |
| Outer braid | Coverage: 93.6% nominal<br>Carriers: 24<br>Ends: 8<br>Picks/inch: 10.6 ± 10% |
| Jacket | Type IIa: PVC<br>Diameter: 0.545 inch ± 0.010. |

ENGINEERING INFORMATION

Continuous working voltage: 5,800 V rms, maximum.

Operating frequency: 1 GHz, maximum.

Velocity of propagation: 65.9 percent, nominal.

Power rating: See figure 2.

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

Inner conductor properties:

DC resistance (maximum at 20°C): 0.0941 ohm per 100 feet.

Elongation: 30 percent, minimum.

Tensile strength: Not applicable.

Engineering notes: This cable useful in general purpose, low temperature applications. (See connector series “N” and “SC” in accordance with MIL-PRF-39012.)

REQUIREMENTS

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

Environmental and mechanical:

Visual and mechanical examination:

Out-of-roundness: Applicable.

Eccentricity: 10 percent, maximum.

Adhesion of conductors:

Inner conductor to core: 15 pounds, minimum; 150 pounds, maximum.

Aging stability: +98ºC ± 2ºC.

Stress crack resistance: Not applicable.

Outer conductor integrity: Not applicable.

Cold bend: -40ºC to ±2ºC.

Dimensional stability: +85°C ± 2°C.

Inner conductor from core: 0.125 inch, maximum.

Inner conductor from jacket: 0.250 inch, maximum.

Temperature stabilization: (Applicable to M17/78-00001 cable only). 1/

Temperature cycle at -28ºC within +0ºC and -5ºC, for 24 hours.

Temperature cycle at +65ºC within +5ºC and -0ºC, for 24 hours.

Contamination: Applicable.

Bendability: Not applicable.

Flammability: Not applicable.

Weight: 0.225 pound per foot, maximum.

1/ The cable (1,000 feet) to be treated shall be wound on a spool having a 12 inch minimum barrel diameter before, during and after cycling. The temperature cycling shall be repeated 3 times. The time between cycling shall not exceed 30 minutes. This cable must be able to pass the dimensional stability test following temperature cycling.

Electrical:

Continuity: Applicable.

Spark test: 8,000 V rms, +10%, -0%.

Voltage withstanding: 12,000 V rms, +10%, -0%.

Insulation resistance: Not applicable.

Corona extinction voltage: 7,000 V rms, minimum.

Characteristic impedance: 50 ohms $\pm$ 2.

Attenuation: See figure 2.

Structural return loss: See figure 3.

Capacitance: 32.2 pF per foot, maximum.

Capacitance stability: Not applicable.

Capacitance unbalance: Not applicable.

Transmission unbalance: Not applicable.

Mechanically induced noise voltage: Not applicable.

Time delay: Not applicable.

PIN: M17/78-RG217 and M17/78-00001. See table I.

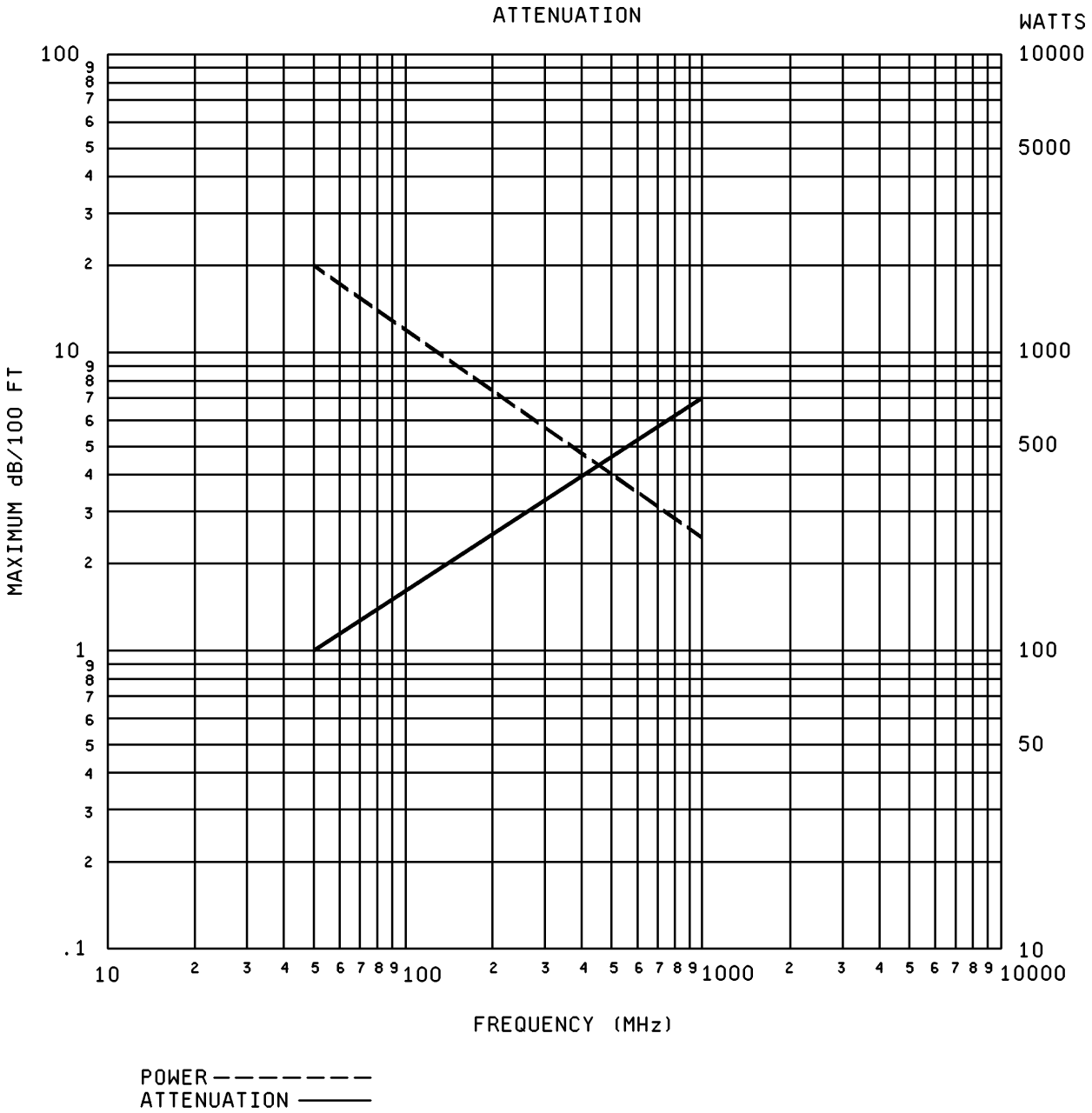


FIGURE 2. Power rating and attenuation.

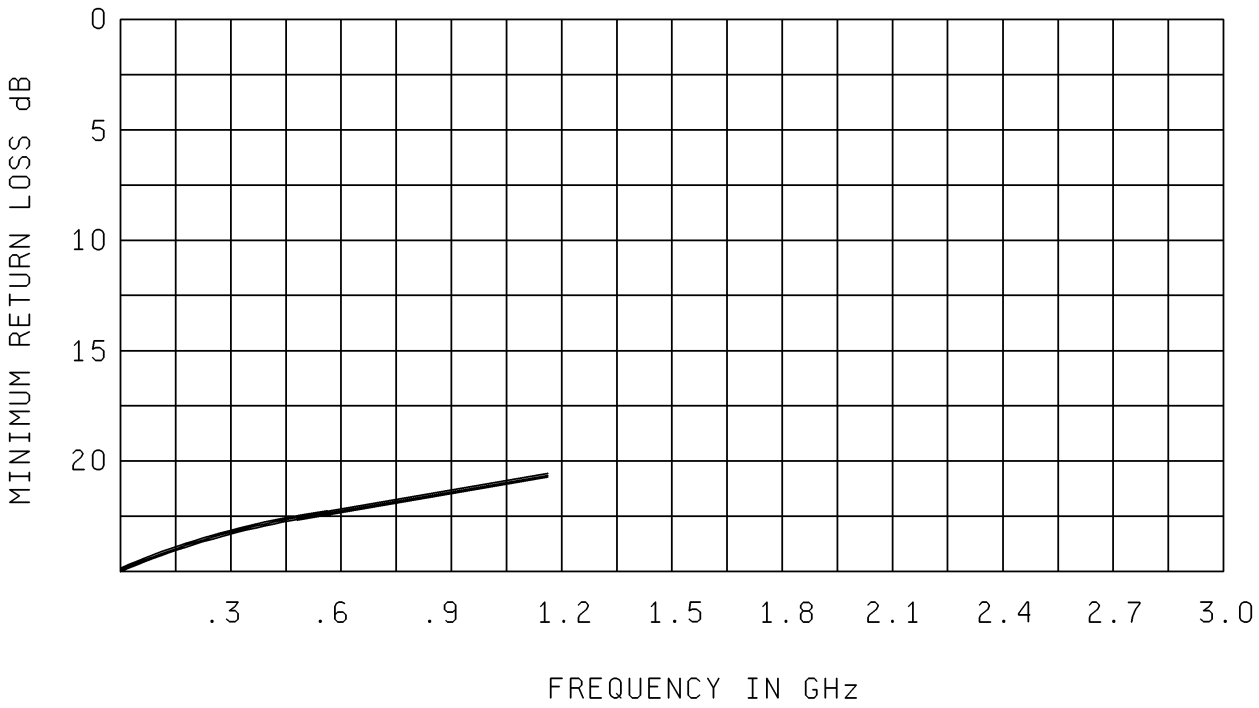


FIGURE 3. Structural return loss.

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-PRF-39012
MIL-DTL-17/192

CONCLUDING MATERIAL

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

Preparing activity:
DLA - CC

(Project 6145-2010-031)

Review activities:
Army – AT, CR4, MI
Navy – AS, MC, OS, SH, YD
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.