

INCH-POUND

MIL-DTL-17/52C
10 April 2015
SUPERSEDING
MIL-C-17/52B
31 October 1988

MILITARY SPECIFICATION SHEET

CABLES, RADIO FREQUENCY, FLEXIBLE COAXIAL, 50 OHMS, M17/52-00001,
M17/52-RG119, UNARMORED, M17/52-RG120, ARMORED

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.

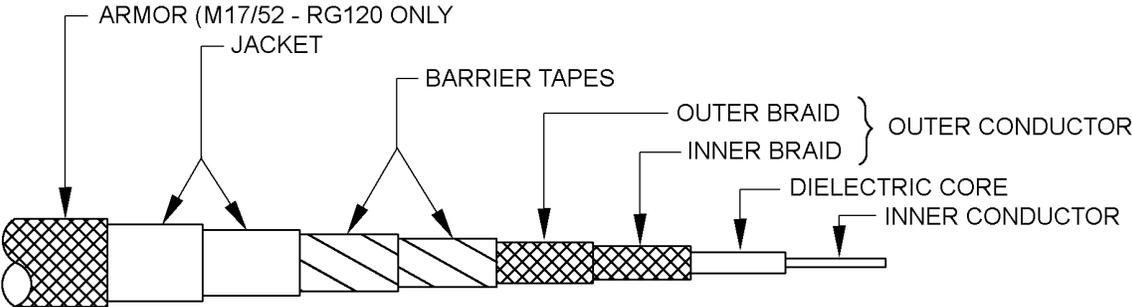


FIGURE 1. Configuration.



TABLE I. Description.

Components	Construction details
Inner conductor	Solid, bare, copper wire. Diameter: .1019 inch \pm .0020.
Dielectric core	Type F-1: Solid, extruded PTFE Diameter: .332 inch \pm .005.
Outer conductor	Double braid of bare, copper wire. <u>1/</u> Diameter: .414 inch maximum.
Inner braid	Gauge: AWG No. 33 Coverage: 97.7% nominal Carriers: 24 Ends: 10 Picks/inch: 5.4% \pm 10
Outer braid	Gauge: AWG No. 34 Coverage: 91.1% nominal Carriers: 24 Ends: 8 Picks/inch: 10.6% \pm 10
Barrier tapes	Type FF-2: Two wraps of PTFE tape, .005 \pm .0005 inch thick each, by 1 to 1-1/4 inch wide. Each wrap of PTFE tape is to be applied with a 50% minimum overlap.
Jacket	Type V: Double braid. Diameter: .465 inch \pm .010.
Armor (M17/52-RG120)	Single braid of aluminum-alloy wire. Diameter: .525 inch maximum.

1/ The braids shall be silver-plated for part number M17/52-00001.

ENGINEERING INFORMATION:

Continuous working voltage: 4,500 V rms, maximum.

Operating frequency: 1 GHz, maximum.

NOTE: The 1 GHz maximum is recommended due to use of bare copper braids. If 3 GHz is required, a silver plate should be added (M17/52-00001 only).

Velocity of propagation: 69.5 percent, nominal.

Power rating: See figure 2.

Operating temperature range: -55°C to +200°C.

Weight: 22.8 pounds per 100 feet maximum for M17/52-RG119 and M17/52-00001; 28.6 pounds per 100 feet, maximum for M17/52-RG-120.

Inner conductor properties:

DC resistance (maximum at 20°C): 0.103 ohms per 100 feet.

Elongation: 15 percent, minimum.

Engineering notes: This cable is useful in high temperature applications. (See connector series HN per MIL-DTL-3643).

REQUIREMENTS:

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

Environmental and mechanical:

Visual and mechanical examination: Applicable.
 Eccentricity: 10 percent, maximum.
 Adhesion of conductors:
 Inner conductor to core: 4 pounds, minimum; 30 pounds, maximum.

Aging stability: $+230^{\circ}\text{C} \pm 5^{\circ}\text{C}$.
 Cold bend: $-55^{\circ}\text{C} \pm 2^{\circ}\text{C}$.
 Dimensional stability: $+230^{\circ}\text{C} \pm 5^{\circ}\text{C}$.
 Inner conductor from core: .250 inch, maximum.
 Inner conductor from jacket: .312 inch, maximum.

Flammability: Applicable.

Electrical:

Test frequency: 50 MHz to 1 or 3 GHz as applicable.
 Spark test: Not applicable.
 Voltage withstanding: 12,000 V rms, minimum.
 Corona extinction voltage: 6,000 V rms, minimum.
 Characteristic impedance: 50 ohms ± 2 .
 Attenuation: See figure 2.
 Structural return loss: See figure 3.
 Capacitance: 29.3 pF per foot, maximum.

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

Supersession data: See table II.

TABLE II. Cross-reference of part number.

PIN	Superseded PIN or type designation
M17/52-RG119	--
M17/52-RG120	RG-120/U
M17/52-00001	--

SWR	REFLECTION COEFFICIENT	RETURN LOSS dB
17.3910	.8913	1
8.7242	.7943	2
5.8480	.7078	3
4.4194	.6310	4
3.5655	.5623	5
3.0095	.5018	6
2.6146	.4467	7
2.3228	.3951	8
2.0909	.3548	9
1.9250	.3162	10
1.7849	.2618	11
1.6709	.2512	12
1.5769	.2239	13
1.4985	.1995	14
1.4326	.1778	15
1.3767	.1585	16
1.3280	.1413	17
1.2880	.1259	18
1.2528	.1122	19
1.2222	.1000	20
1.1957	.0891	21
1.1726	.0794	22
1.1524	.0705	23
1.1347	.0611	24
1.1192	.0562	25
1.1055	.0501	26
1.0935	.0447	27
1.0829	.0398	28
1.0736	.0355	29
1.0633	.0318	30

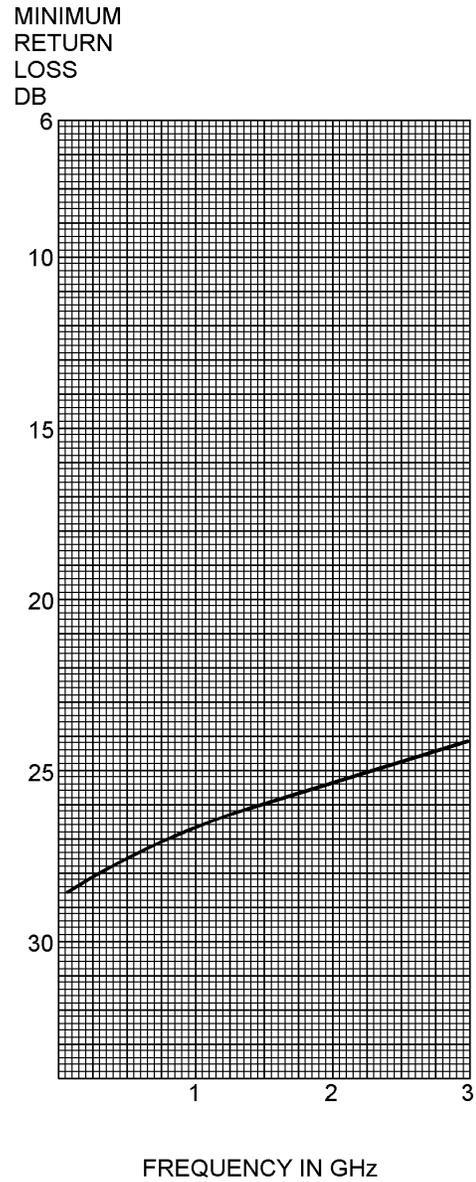


FIGURE 3. Structural return loss.

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-3643

CONCLUDING MATERIAL

Custodians:

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

Preparing activity:
DLA - CC

(Project 6145-2015-004)

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>.