

INCH-POUND

MIL-DTL-17/65C
w/AMENDMENT 1
13 May 2025
SUPERSEDING
MIL-DTL-17/65C
10 April 2015

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.

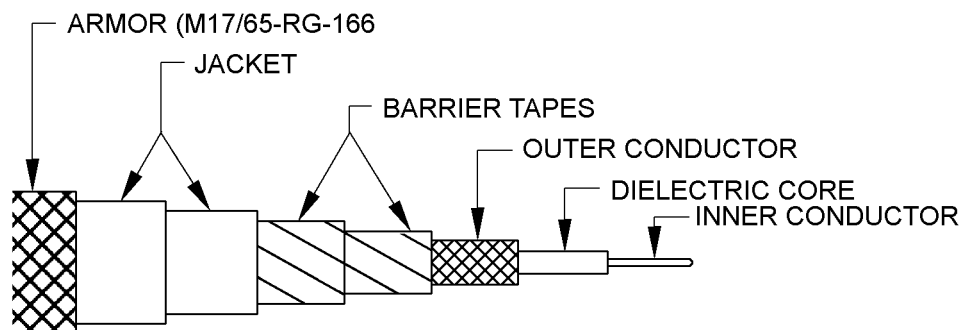


FIGURE 1. Configuration

TABLE I. Description.

Components	Construction details
Inner conductor	Seven strands of silver-coated copper wire each strand, 0.0315 inch diameter. Overall diameter: 0.094 inch $\pm$ 0.001.
Dielectric core	Type F-1: Solid extruded PTFE. Diameter: 0.285 inch $\pm$ 0.005.
Outer conductor	Single braid of AWG # 34 silver-coated copper wire. Diameter: 0.340 inch maximum. Coverage: 93.2% nominal Carriers: 24 Ends: 6 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. Diameter: 0.410 inch $\pm$ 0.010.
Armor (M17/65-RG166)	Single braid of aluminum-alloy wire. Diameter: 0.470 inch maximum.



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: Applicable.
Out-of-roundness: Not applicable.
Eccentricity: 10 percent, maximum.
Adhesion of conductors:
Inner conductor to core: 4 pounds, minimum; 30 pounds, maximum.
Aging stability: +250°C ± 5°C.
Stress crack resistance: Not applicable.
Outer conductor integrity: Not applicable.
Cold bend: -55°C ± 2°C.
Dimensional stability: +250°C ± 5°C.
Inner conductor from core: 0.125inch, maximum.
Inner conductor from jacket: 0.312 inch, maximum.
Contamination: Not applicable.
Bendability: Not applicable.
Flammability: Applicable.

Electrical:

Continuity: Applicable.
Test frequency: 50 MHz to 3 GHz.
Spark test: Not applicable.
Voltage withstanding: 6,500 V rms, minimum.
Insulation resistance: Not applicable.
Corona extinction voltage: 2,500 V rms, minimum.
Characteristic impedance: 50 ohms, ± 2.
Attenuation: See figure 2.
Structural return loss: See figure 3.
Capacitance stability: Not applicable.
Capacitance unbalance: Not applicable.
Transmission unbalance: Not applicable.
Mechanically induced noise voltage: Not applicable.

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

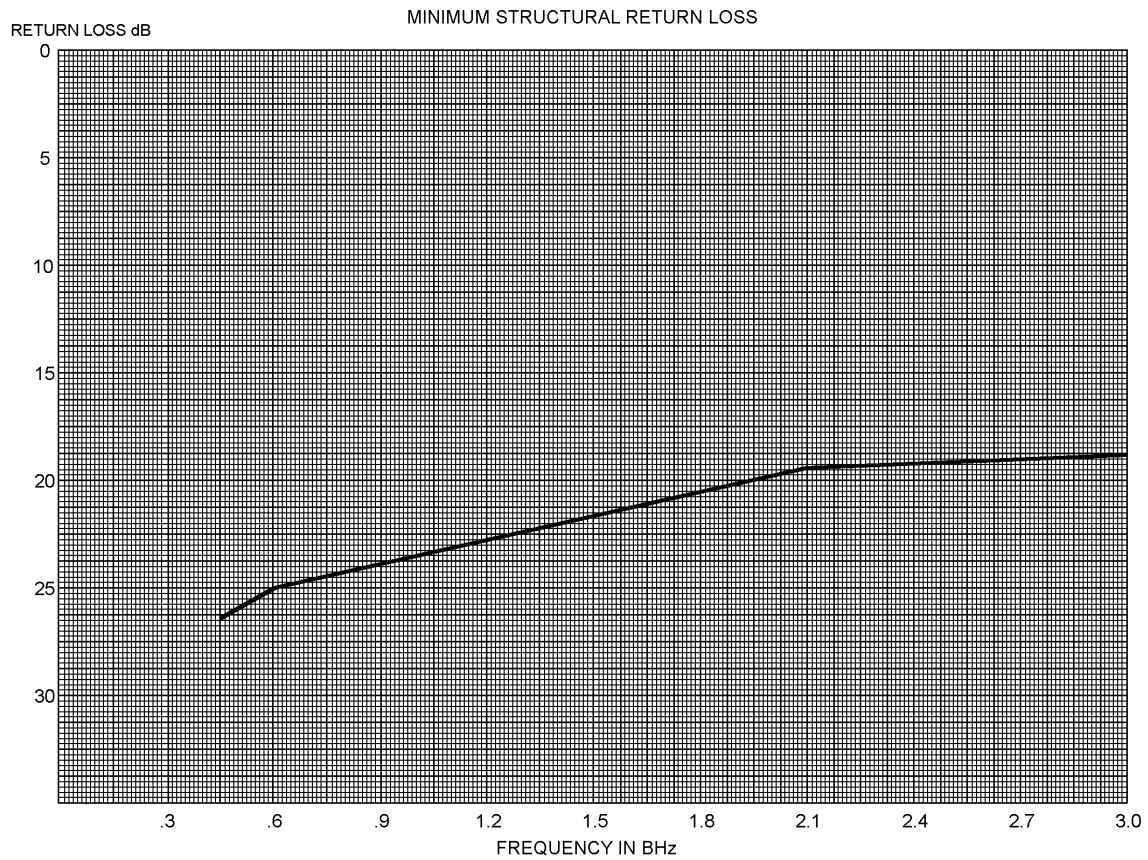
Marking: applicable.
Marking Durability: 125 cycles (250 strokes), 1 pound
Workmanship: applicable.

TABLE II. Cross reference of part number.

PIN	Superseded PIN or type designation
M17/65-RG165	-----
M17/65-RG166	RG-166/U



MIL-DTL-17/65C
w/AMENDMENT 1



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.

TABLE III. Qualification and Group A, B, and C Table.

Group	Qualification inspection	Requirement paragraph	Test paragraph	Qual- # of Specimens	Conf - # of Specimens	Conformance inspection
I	In-process inspection:		4.5	Entire sample		
	Continuity	3.7.1	4.8.2	Entire sample		
	Spark test	N/A				
	Voltage withstanding	3.7.3	4.8.4	Entire sample		
	Insulation resistance	N/A				
	Visual and mechanical inspection	3.6	4.8.1	Entire sample	Per Table VIII	A
	Diameter measurements.	3.6.1	4.8.1.1	Entire sample	Per Table VIII	A
	Out-of-roundness	N/A				
	Eccentricity of inner conductor	3.6.3	4.8.1.3	2	Per Table VIII	A
	Adhesion of conductors	3.6.4	4.8.1.4	4	Per Table VIII	A
	Marking	3.8	4.8.1	Entire sample	Per Table VIII	A
	Marking Durability	3.8.2	4.8.39	3	Per Table VIII	A
	Workmanship	3.10	4.8.1	Entire sample	Per Table VIII	A
II	Corona extinction voltage	3.7.5	4.8.6	1	Per Table VIII	B
	Characteristic impedance	3.7.6	4.8.7	1	Per Table VIII	A
	RF transmission loss (attenuation)	3.7.7	4.8.8	2	Per Table VIII	A
	Standing wave ratio (return loss)	3.7.8	4.8.9	2	Per Table VIII	A
	Capacitance	3.7.9	4.8.10	1	Per Table VIII	B
	Capacitance stability	N/A				
	Capacitance unbalance	N/A				
	Transmission unbalance	N/A				
	Inductance	N/A				
	Mechanically induced noise voltage	N/A				
	Time delay	N/A				
	Aging stability	3.7.15	4.8.16	4	Per Table VIII	C

TABLE III. Qualification and Group A, B, and C Table – Continued.

Group	Qualification inspection	Requirement paragraph	Test paragraph	Qual- # of Specimens	Conf - # of Specimens	Conformance inspection
II	Stress crack resistance	N/A				
	Outer conductor integrity	N/A				
	Cold bend	3.7.18	4.8.19	3	Per Table VIII	B
	Dimensional stability	3.7.19	4.8.20	1	Per Table VIII	C
	Contamination	N/A				
	Bendability	N/A				
	Flammability	3.7.22	4.8.23	1		C
	Flame propagation	N/A				
	Acid gas generation	N/A				
	Halogen content	N/A				
	Immersion	N/A				
	Smoke index	N/A				
	Toxicity index	N/A				
	Durometer hardness	N/A				
	Weathering	N/A				
	Abrasion resistance	N/A				
	Tear strength	N/A				
	Heat distortion	N/A				
	Physicals	N/A				
	Tensile strength and elongation	3.7.35	4.8.37	1	Per Table VIII	C
	Weight	3.9	4.8.24	1	Per Table VIII	B

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-DTL-3650

MIL-PRF-39012

CONCLUDING MATERIAL

Custodians:

Army – CR

Navy – EC

Air Force – 85

DLA - CC

Preparing activity:

DLA - CC

(Project 6145-2025-013)

Review activities:

Army – AT, CR4, MI

Navy – AS, MC, OS, SH

Air Force – 19

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>.