

INCH-POUND

MIL-DTL-17/130F
w/AMENDMENT 4
9 April 2026
SUPERSEDING
MIL-DTL-17/130F
w/AMENDMENT 3
31 October 2023

DETAIL SPECIFICATION SHEET

CABLES, RADIO FREQUENCY, COAXIAL, 0.141 INCH (3.58 mm)
DIAMETER, SEMIRIGID, 50 OHMS

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.

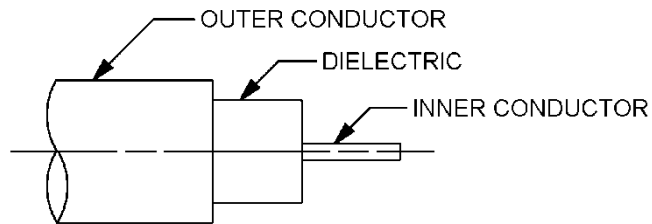


FIGURE 1. Configuration.



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TABLE I. Description.

Part or Identifying Number (PIN)	Inner Conductor	Dielectric Core	Outer Conductor <u>1/</u>
M17/130-RG402	Solid, silver-coated copper-clad steel, diameter, .0362 ± .0007 inch.	Type F-1 diameter, .1175 ± .0010 inch.	Copper tubing diameter, .141 ± .001 inch. <u>2/</u>
M17/130-00001			Copper tubing diameter, .141 ± .002, -.001 inch tin plated in accordance with ASTM B545, .0003 inch, minimum thick. <u>2/ 3/</u>
M17/130-00002			Seamless copper tubing, diameter .141 ± .001 inch. <u>2/</u>
M17/130-00003			Copper tubing diameter, <u>2/ 3/</u> .141 ± .002 inch, -.001 inch, tin-plated in accordance with ASTM B545, .0003 inch, minimum thick.
M17/130-00004 <u>6/</u>	Solid, silver-coated copper-clad steel diameter .0362 ± .0007 inch.	Type F-1 diameter, .1175 ± .0010 inch.	Copper tubing diameter, .141 ± .001 inch. <u>5/</u>
M17/130-00005 <u>6/</u>			Copper tubing diameter, <u>3/</u> .141 ± .002 inch, -.001 inch, tin-plated in accordance with ASTM B545, .0003 inch, minimum thick <u>5/</u>
M17/130-00006 <u>6/</u>			Copper tubing diameter, .141 ± .001 inch. <u>5/</u>
M17/130-00007 <u>6/</u>			Copper tubing diameter, <u>3/</u> .141 ± .002 inch, -.001 inch, tin-plated in accordance with ASTM B545, .0003 inch, minimum thick <u>5/</u>
M17/130-00008	Solid, silver-coated copper-clad steel diameter .0362 ± .0007 inch.	Type F-1 diameter, .1175 ± .0010 inch.	Aluminum tubing, diameter .141 ± .001 inch. <u>7/</u>
M17/130-00009			Aluminum tubing, diameter .141 ± .002 inch, -.001 inch tin plated in accordance with ASTM B545, .0003 inch, minimum thick. <u>7/</u>
M17/130-00010			Aluminum tubing, diameter .141 ± .001 inch. <u>7/</u>
M17/130-00011			Aluminum tubing, diameter .141 ± .002 inch, -.001 inch, tin plated in accordance with ASTM B545, .0003 inch, minimum thick. <u>7/</u>

See notes at end of table.

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TABLE I. Description – Continued.

PIN	Inner conductor	Dielectric core	Outer conductor <u>1/</u>
M17/130-00012	Solid, silver-coated copper-clad steel diameter .0362 ± .0007 inch.	Type F-1 diameter, .1175 ± .0010 inch.	Copper tubing, diameter .141 +.002, -.001 inch, silver plated in accordance with ASTM B700, type 2, grade A or grade D, 300μ inches minimum. <u>3/</u>
M17/130-00013	.0362 ±.0007 inch diameter. <u>4/</u>		Copper tubing, diameter .141 +.002, -.001 inch, silver plated in accordance with ASTM B700, type 2, grade A or grade D, 300μ inches minimum. <u>3/</u>
M17/130-00014	Solid, silver-coated copper-clad steel diameter .0362 ± .0007 inch.		Copper tubing, diameter .141 +.002, -.001 inch. 90/10 tin plated in accordance with SAE-AMS-P-81728, .0003 inch, thick minimum.
M17/130-00015	Solid silver coated copper wire, diameter .0362 ±.0007 inch.		

1/ Welded outer conductor in accordance with ASTM B447 and MIL-DTL-17 is optional.

2/ Hard outer conductor required: tensile strength 33,000 psi, minimum, 30 percent elongation, maximum, measured over two inches.

3/ The outer diameter dimension is after plating.

4/ Nickel-coated, copper-clad steel wire, conforming to ASTM B559, class N 40 HS two percent, with uniform and continuous silver coating, 40 microinches minimum thick. Wire shall be drawn to final size after plating.

5/ Tensile strength: 35,000 inch²-pounds maximum, 40 percent elongation minimum measured over two inches.

6/ These PIN's are for soft outer conductor cables only.

7/ The tensile strength shall be 15,000 psi, maximum, 40 percent elongation minimum measured over 2 inches.

ENGINEERING INFORMATION:

Continuous working voltage: 1,900 V rms, maximum.

Operating frequency: 20 GHz, maximum.

Velocity of propagation: 69.5 percent, nominal.

Power rating: See figures 2 and 3.

Operating temperature range: -40°C to + 125°C.

Inner conductor properties:

DC resistance (maximum at 20°C): 2.06 ohms per 100 feet.

Elongation: 10 percent, minimum for class 40 A wire.
1.0 percent minimum for class 40 HS wire.

Tensile strength: 40,000 inch²-pounds minimum for class 40 A wire.
90,000 inch²-pounds minimum for class 40 HS wire.

Tensile strength (outer-conductor): 35,000 inch²-pounds, maximum, 40 percent elongation minimum

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measured over two inches (not applicable to M17/130-RG402 through -00003) in accordance with ASTM E8/E8M.

Engineering notes: This cable is useful in critical RF performance applications (see connector series SMA in accordance with MIL-PRF-39012). This cable is generally manufactured in 20-foot lengths. Different lengths are available.

REQUIREMENTS:

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

Environmental and mechanical:

Eccentricity: 6 percent, maximum.

Adhesion of conductors:

Inner conductor to core: 4 pounds minimum; 65 pounds, maximum.

Outer conductor to core: 4 pounds minimum.

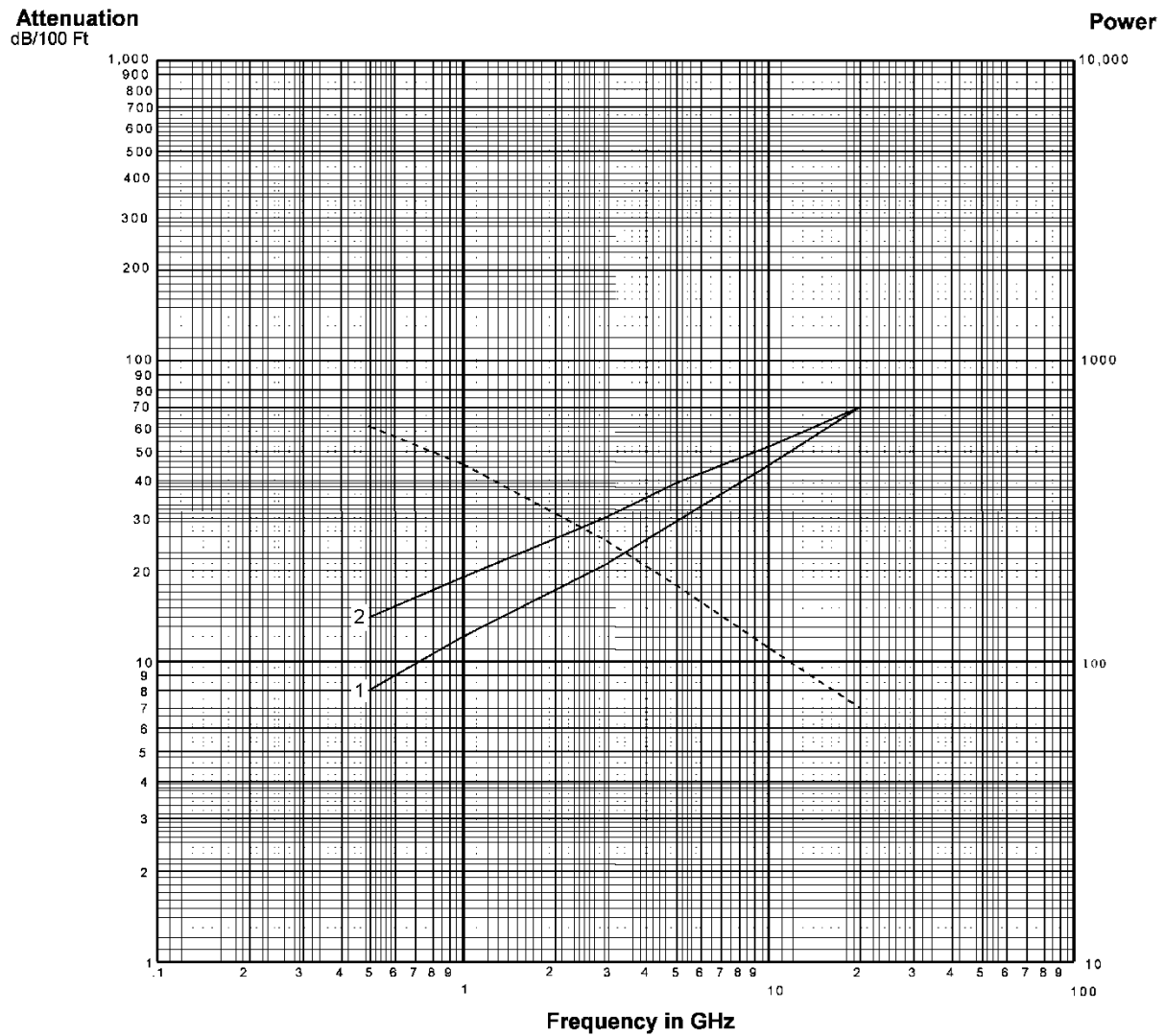
Aging stability: Not applicable.

Stress crack resistance: Not applicable.

Cold bend: Not applicable.

Outer conductor integrity: Four specimens, approximately 2 feet long, shall be cut from the sample unit. The specimens shall be suspended in a heat chamber without touching one another or the walls of the chamber and conditioned for 1 hour 30 minutes minimum at the specified maximum operating temperature $\pm 5^{\circ}\text{C}$. Heated air shall be circulated so as to maintain a uniform test temperature. After the conditioning period, the specimens shall be removed from the heat chamber and conditioned at room ambient temperature for 4 hours minimum. The specimen shall then have one end immersed into molten solder to a depth of 0.5 inch minimum for 15 seconds minimum. The molten solder temperature shall be $+230^{\circ}\text{C}$ minimum. After the conditioning period, the specimens shall be removed from the molten solder and conditioned at room ambient temperature for 1 hour minimum. Examine the specimens for cracks, flaws, or other damage in the outer conductor material.

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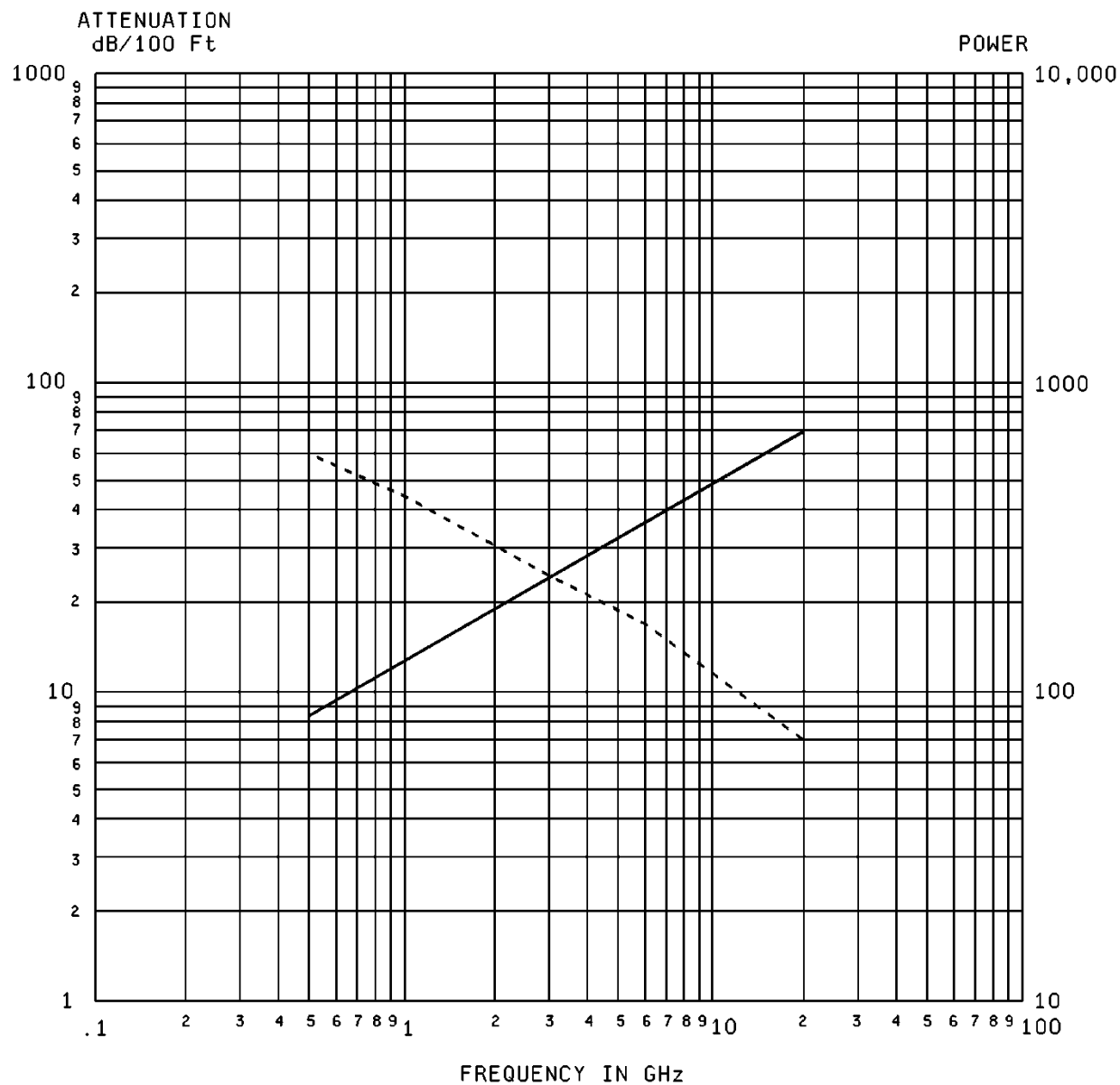


1. M17/130-RG402, -00001, -00004, -00005 and -00012
2. M17/130-00002, -00003, -00006, -00007, -00010 -00011 and -00013

MHz	Attenuation		Power
	dB 1	dB 2	Watts At 1.5 SWR
500	8	14	600
1000	12	19	450
3000	21	31	250
5000	29	39	180
10000	45	52	120
20000	70	70	70

FIGURE 2. Power rating and attenuation.

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Maximum attenuation —————
Maximum power - - - - -

Attenuation and power ratings apply to
M17/130-00008 and -00009.

Attenuation		Power
MHz	dB	Watts At 1.5 SWR
500	8.3	600
1000	12.1	450
3000	22.5	250
5000	30.1	180
10000	45.5	120
20000	70.0	70

FIGURE 3. Power and attenuation for aluminum outer conductor cables.

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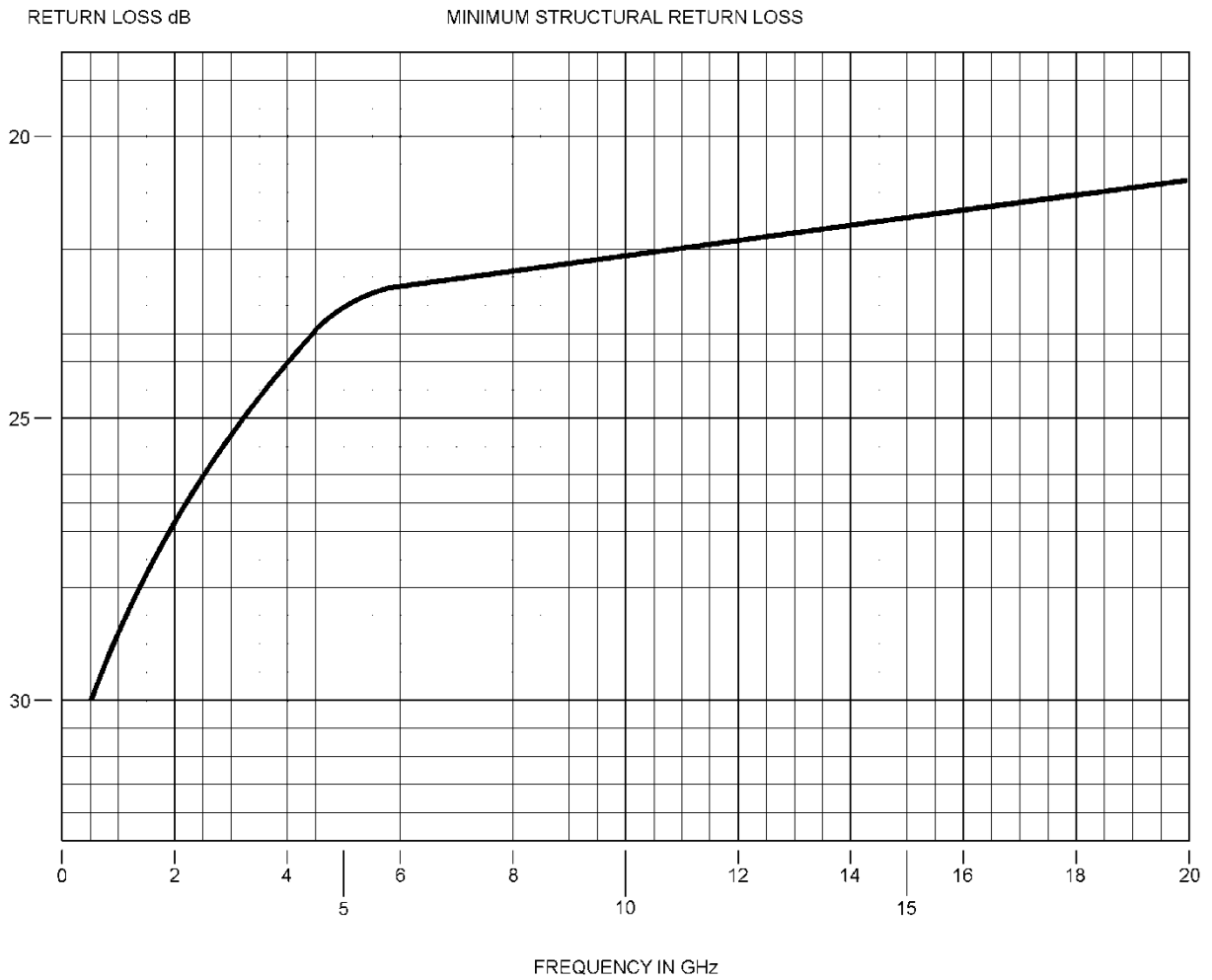


FIGURE 4. Minimum structural return loss cable.

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SWR	Reflection coefficient	Return loss dB
17.3910	.8913	1
8.7242	.7943	2
5.8480	.7079	3
4.4194	.6310	4
3.5698	.5623	5
3.0095	.5012	6
2.6146	.4467	7
2.3229	.3981	8
2.0999	.3548	9
1.9250	.3162	10
1.7849	.2818	11
1.6709	.2512	12
1.5679	.2239	13
1.4985	.1995	14
1.4326	.1778	15
1.3767	.1585	16
1.3290	.1413	17
1.2880	.1259	18
1.2528	.1122	19
1.2222	.1000	20
1.1957	.0891	21
1.1726	.0794	22
1.1524	.0708	23
1.1347	.0631	24
1.1192	.0562	25
1.1055	.0501	26
1.0935	.0447	27
1.0829	.0398	28
1.0736	.0355	29
1.0653	.0316	30

FIGURE 4. Minimum structural return loss cable – Continued.

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Dimensional stability: $+125^{\circ}\text{C} \pm 5^{\circ}\text{C}$.

Core to jacket: .015 inch, maximum.

Contamination: Not applicable.

Bendability: Mandrel diameter .50 inch, maximum (except dash numbers -00004 through -00007 mandrel diameter shall be .150 inch maximum). Mandrel diameter .250 inch maximum for -00008 through -00011. (Performance may degrade after being subjected to the mandrel test).

Flammability: Not applicable.

Weight: 34.4 pounds per 1000 feet, maximum (M17/130-RG402, M17/130-00002, -00004, -00006).
35.1 pounds per 1000 feet, maximum (M17/130-00001, M17/130-00003, -00005, -00007).
18.8 pounds per 1000 feet, maximum (M17/130-00008 and -00010).
20.5 pounds per 1000 feet, maximum (M17/130-00009 and -00011).
35.1 pounds per 1000 feet, maximum (M17/130-00012, -00013, -00014 and -00015).

Electrical:

Test frequency: 500 MHz to 20 GHz.

Spark test: Not applicable.

Voltage withstanding: 5,000 V rms, minimum.

Insulation resistance: Not applicable.

Corona extinction voltage: 1,900 V rms, minimum.

Characteristic impedance: 50 ohms ± 1 .

Attenuation: See figures 2 and 3.

Structural return loss: See figure 4.

Capacitance: 29.9 pF per foot, maximum.

Capacitance stability: Not applicable.

Capacitance unbalance: Not applicable.

Transmission unbalance: Not applicable.

Phase stability: Not applicable.

Mechanically induced noise voltage: Not applicable.

Time delay: Not applicable.

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Marking: Applicable.

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

Qualification: Shall consist of the inspections specified in table II.

PIN: See table I.

TABLE II. 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	3.6.2	4.8.1.2	Entire sample	Per Table VIII	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				

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TABLE II. 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	Mechanically induced noise voltage	N/A				
	Time delay	N/A				
	Aging stability	N/A				
	Stress crack resistance	N/A				
	Outer conductor integrity	3.7.17	4.8.18	4	Per Table VIII	C
	Cold bend	N/A				
	Dimensional stability	3.7.19	4.8.20	1	Per Table VIII	C
	Contamination	N/A				
	Bendability	3.7.21	4.8.22	2	Per Table VIII	C
	Flammability	N/A				
	Flame propagation	N/A				
	Acid gas generation	N/A				
	Halogen content	N/A				
	Immersion tests	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 (aged)	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

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Supersession data: See table III.

TABLE III. Cross reference of PIN.

PIN	Superseded PIN or type designation
M17/130-RG402	RG-402/U

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:

ASTM B447
ASTM B545
ASTM B559
ASTM B700
ASTM E8/E8M
MIL-PRF-39012
SAE-AMS-P-81728

CONCLUDING MATERIAL

Custodians:

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

Preparing activity:
DLA - CC

(Project 6145-2026-009)

Review activities:

Army – AR, AT, AV, CR4
Navy – AS, MC, OS
Air Force – 19

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